2.6 POs and COs – 2021 University Syllabus

Programme Outcome & Course Outcome

- Department of Tamil
- Department of English
- Department of History
- Department of Economics
- Department of Maths
- Department of Commerce
- Department of Physics
- Department of Chemistry
- Department of Zoology
- Department of Botany
- Department of Geography
- Department of Computer Science
- Department of BBA

Department of Tamil

அன்னை தெரசா மகளிர் பல்கலைக்கழகம்

கொடைக்கானல்

தமிழியல் துறை

இளங்கலைத் தமிழ் (பி.ஏ. தமிழ்)

விருப்பம் சார் தெரிவுமுறை (CBCS)

பயன் சார்முறை (OBE)

பொது ஒழுங்குமுறை மற்றும் பாடத்திட்டம்

1. இணையவழி பாடத்திட்ட முதல் குழுக்கூட்ட நாள்: 28.04.2021 (https://meet.google.com/wgs.dvpu.jxx)

2. இணையவழி பாடத்திட்ட இரண்டாம் குழுக்கூட்ட நாள்: 11.06.2021

3. இணையவழி பாடத்திட்ட மூன்றாம் குழுக்கூட்ட நாள்: 12.06.2021 (https://meet.google.com/aex-.nmjy-awj)

கல்விக் குழுக்கூட்ட நாள்: 21.06.2021

2021-2022 கல்வியாண்டு முதல் நடைமுறைப்படுத்துவதற்கு ஒப்புதல் வேண்டிச் சமர்ப்பிக்கப்படுகிறது

Mother Teresa Women's University, Kodaikanal
Department of Tamil Studies
Choice Based Credit System (CBCS)
(2021-2022 onwards)
BA Tamil

1. About The Programme

The Course content of the B.A Tamil, degree programme has been planned carefully to offer students the best possible curricular experience and to mould them into intelligent citizens in the society. The curriculum revision has been premised on the assumption that society requires students, who will serve as its mind, heart and future. Further this course aims to provide employability skills to the graduates after completing the programme successfuly.

2. Programme Educational Objectives (PEOs)

PEO 1	தமிழ் மொழி மற்றும் தமிழ் இலக்கியம் சார்ந்த தகவல்களைப் பெறுவதால் போட்டித்தேர்வினை எதிர்கொள்ள இயலும்
PEO 2	இலக்கியங்களின் உள்ளடக்கத்தைத் தெரிந்து பல இலக்கியங்களைப் படைக்கும் படைப்பாற்றல் பெறுவர்
PEO 3	வாழ்வியல் நெறிமுறைகளைப் படிப்பதன் மூலம் பொருளாதாரத்தை மேம்படுத்தும் திறன் பெறுவர்
PEO 4	இலக்கியங்களைப் படிப்பதன் மூலம் சிறந்த இந்திய குடிமகனாக தெளிவாக சிந்திக்கும் மற்றும் எழுதும் திறன் பெறுவர்
PEO 5	தமிழின் தொன்மையையும் தமிழர்களின் வாழ்வியலையும் அறிந்து கொள்ள முடியும்.

3. Eligibility:

Candidate should have passed the Higher Secondary Examination conducted by the Board of the Higher Secondary Examination. Govt. of Tamil Nadu or any other Examination accepted by the syndicate as equivalent

4. General Guidelines for UG Programme

i. **Duration:** The programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** Tamil

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

- **Evaluation Pattern**

Evaluation Pattern	Theory		Practical	
	Min	**Max**	**Min**	**Max**
Internal	**13**	**25**	**13**	**25**
External	**38**	**75**	**38**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
		Total Marks	**75**

*** Minimum credits required to pass: 156**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade
(Performance in a Course/ Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

B.A TAMIL - இளங்கலைத் தமிழ்

Course code	Course Title	Credits	Hours		Maximum marks		
			L	P	Int	Ext	Total
FIRST SEMESTER / முதல் பருவம்							
U21LTA11	**Tamil - Part- I** General Tamil Ikkala Ilakkiyam **பகுதி – I** பொதுத்தமிழ் இக்கால இலக்கியம்	3	6	0	25	75	100
U21LEN11	English - Part-II	3	6	0	25	75	100
U21TAT11	**CORE I** Samakala Ilakkiyam **முதன்மைப்பாடம் - I** சமகால இலக்கியம்	4	5	0	25	75	100
U21TAT12	**CORE II** Nannool – Eluthathikaram 5 Iyalgal **முதன்மைப்பாடம் - II** நன்னூல் எழுத்ததிகாரம் - ஐந்து இயல்கள்	4	6	0	25	75	100
U21TAA11	**ALLIED I** Tamil Ilakiya Varalaru – I சார்பு பாடம் - தமிழ் இலக்கிய வரலாறு	4	5	0	25	75	100
U21EVS11	Environmental Studies சுற்றுச் சூழலியல்	2	2	0	25	75	100
U21PEPS11	**Professional English- Part I** Course – Add on course **பணித்திறன் சார் ஆங்கிலம் - பகுதி –III –** கூடுதல் பாடம்	4	6	0	25	75	100
	மொத்தம்	**24**	**36**				**700**
SECOND SEMESTER / இரண்டாம் பருவம்							
U21LTA22	**Tamil II-Part-I** General Tamil Idaikala Ilakkiyam **பகுதி – I** பொதுத்தமிழ் - II இடைக்கால இலக்கியம்	3	6	0	25	75	100
U21LEN11	English II- Part-II	3	6	0	25	75	100
U21TAT21	**CORE III** Chitrilakkiyam **முதன்மைப்பாடம் - III** சிற்றிலக்கியம்	4	5	0	25	75	100

U21TAT22	**CORE IV** Nannool Chol Atigara Iyalgal **முதன்மைப்பாடம் - IV** நன்னூல் சொல் அதிகாரம் - ஐந்து இயல்கள்	4	5	0	25	75	100
U21TAA22	**ALLIED II** Ilakiya Thiranaivu **சார்பு பாடம் -II** இலக்கியத் திறனாய்வு	4	5	0	25	75	100
U21VAE21	**Value Education** விழுமியக் கல்வி	3	3	0	25	75	100
U21PEPS22	**Professional English-Part II**	4	6	0	25	75	100
	மொத்தம்	**25**	**36**				**700**
THIRD SEMESTER / மூன்றாம் பருவம்							
U21LTA33	**Part I Tamil III** Kappiya Ilakkiyam பகுதி – I பொதுத்தமிழ் - III காப்பிய இலக்கியம்	3	6	0	25	75	100
U21LEN33	**Part II English III**	3	6	0	25	75	100
U21TAT31	**CORE V** Madurai Maiya Ilakkiyam மதுரை மைய இலக்கியம்	4	5	0	25	75	100
U21TAA33	**ALLIED III** Tamilaga Varalarum Panpadum **சார்பு பாடம் -III** தமிழக வரலாறும் பண்பாடும்	4	4	0	25	75	100
U21TAE311/ U21TAE312	**ELECTIVE – I** Nattupuraviyal **விருப்பப் பாடம் - I** நாட்டுப்புறவியல் (அல்லது) Oolai Chuvadi Vagaigal ஓலைச்சுவடி வகைகள் or MOOC Course	3	4	0	25	75	100
U21CSS31	Job oriented Course – **Paper 1- Language Skill I –** பணிசார் பாடம் **மொழித் திறன் - I** Computer skills for office management	2	3	0	25	75	100
U21TAN311	**Non-Major Elective – I**	2	2	0	25	75	100
U21PEPS33	**Professional English-Part III**	4	6	0	25	75	100
	மொத்தம்	**25**	**36**				**800**
FOURTH SEMESTER/ நான்காம் பருவம்							
U21LTA44	**Part I Tamil IV** Palanthamil Ilakkiyam **பகுதி – I பொதுத்தமிழ் - IV** பழந்தமிழ் இலக்கியம்	3	6	0	25	75	100
U21LEN44	**Part II English IV**	3	6	0	25	75	100

U21TAT41	**CORE VI** Agaporul Ilakkanam (Nambiyagapporul) **முதன்மைப் பாடம் - VI** அகப்பொருள் இலக்கணம் - நம்பி அகப்பொருள்	4	4	0	25	75	100
U21TAT42	**CORE VII** Kappiya Ilakkiyam **முதன்மைப் பாடம் - VII** காப்பிய இலக்கியம்	4	4	0	25	75	100
U21TAA44	**ALLIED IV** Tamil Mozhi Varalaru **சார்பு பாடம் -IV** தமிழ் மொழி வரலாறு	4	4	0	25	75	100
U21TAE421/ U21TAE422	**ELECTIVE - II** Oppiyalilakkiyam விருப்பப் பாடம் - II ஒப்பியல் இலக்கியம் (அல்லது) Tamil Computing (Advanced course) மேம்பட்ட கணினித் தமிழ் or MOOC Course	3	3	0	25	75	100
SBEII	Job Oriented Course – Paper II Managerial Skill	2	2	0	25	75	100
U21TAN42	Non -Major Elective –II	2	2	0	25	75	100
U21PEPS44	**Professional English-Part IV** Course – Add on course பணித்திறன் சார் ஆங்கிலம் - பகுதி –III – கூடுதல் பாடம்	4	6	0	25	75	100
	மொத்தம்	**29**	**37**				**900**
FIFTH SEMESTER/ ஐந்தாம் பருவம்							
U21TAT51	**CORE VIII** Kurinchisar (Malaipaguthi sar Ilakkiyam) முதன்மைப் பாடம் - VIII - குறிஞ்சி (மலைப் பகுதி சார் இலக்கியம்)	4	5	0	25	75	100
U21TAT52	**CORE IX** Bakthi Ilakkiyam முதன்மைப் பாடம் - IX பக்தி இலக்கியம்	4	5	0	25	75	100
U21TAT53	**CORE X** Puraporul- Ilakkanam-Puraporul Venbamalai-Muzhuvathum **முதன்மைப் பாடம் - X** புறப்பொருள் இலக்கணம் -	4	5	0	25	75	100

	புறப்பொருள் வெண்பா மாலை முழுவதும்						
U21TAT54	**CORE XI** Yappilakkanam – Yapperungala Karigai Muzhuvathum **முதன்மைப் பாடம் - XI** யாப்பிலக்கணம் - யாப்பருங்கலக்காரிகை முழுவதும்	4	5	0	25	75	100
U21TAT55	**CORE XII** Introduction to Linguistics and Computational Linguistics **முதன்மைப் பாடம் - XII** மொழியியல் மற்றும் கணினி மொழியியல் - அறிமுகம்	4	5	0	25	75	100
U21TAE531/ U21TAE532	**ELECTIVE –III** Penniyam **விருப்பப் பாடம் - தாள் -III** பெண்ணியம் (அல்லது) Inaiya Tamil Ilakkiyam இணையத் தமிழ் இலக்கியம்	3	4	0	25	75	100
U21TAS511/ U21TAS512	**Skill Based Elective Paper I** Thagaval Thodarpiyal **திறன் சார் விருப்பப் பாடம் - தாள் - 1** Thagaval Thodarbiyal தகவல் தொடர்பியல் (அல்லது) Ilakkiya Kolkaigal இலக்கியக் கொள்கைகள்	2	2	0	25	75	100
	மொத்தம்	**25**	**30**				**700**
SIXTH SEMESTER / ஆறாம் பருவம்							
U21TAT61	**CORE XIII** Sanga Ilakkiyam **முதன்மைப் பாடம் - XIII** சங்க இலக்கியம்	4	5	0	25	75	100
U21TAT62	**CORE XIV** Tamil-Neethiilakiyam **முதன்மைப் பாடம் - XIV** தமிழ் நீதி இலக்கியம்	4	5	0	25	75	100
U21TAT63	**CORE XV** Ani Ilakkanam-Thandiyalangaram Muluvathum **முதன்மைப் பாடம் - XV** அணி இலக்கணம் - தண்டியலங்காரம் முழுவதும்	4	5	0	25	75	100

U21TAT64	**CORE XVI** **முதன்மைப் பாடம் - XVI** Tamilaga Kovil Kalaigal kalvetukal Unarthum Panpaadu தமிழக கோவில் கலைகள் கல்வெட்டுகள் உணர்த்தும் பண்பாடு	4	5	0	25	75	100
U21TAT65	**CORE XVII** படைப்பிலக்கியம்	4	4	0	25	75	100
U21TAE641/ U21TAE642	**ELECTIVE –IV** Thiravida mozhigalin oppilakkanam **விருப்பப் பாடம் - தாள் - IV** திராவிட மொழிகளின் ஒப்பிலக்கணம் (அல்லது) Tamil Kalaisollakka Nerigal தமிழ் கலைச்சொல்லாக்க நெறிகள்	3	4	0	25	75	100
U21TAS61	**Skill Based Elective** கல்வெட்டியல்	3	2	0	25	75	100
U21EAS61	**Extension Activities** விரிவாக்கப் பணிகள்	2	0	0	25	75	100
	Total **மொத்தம்**	**28**	**30**		**-**	**-**	**800**
	Grand Total **மொத்த கூட்டுத் தொகை**	**156**	**205**		**Grand Total** **மொத்த கூட்டுத் தொகை**		**4600**

Non Major Elective

The candidates, who have joined the UG Programme, can also undergo Non Major Elective offered by other Departments.

பிறதுறை விருப்பப் பாடம் - I பணிவாய்ப்புத் தமிழ் - I பிறதுறை விருப்பப் பாடம் - II பணிவாய்ப்புத் தமிழ் - II Mozhi Peyarpiyal பணிசார் பாடம் மொழித் திறன் - II மொழி பெயர்ப்பியல்	பணித்திறன் சார் ஆங்கிலம் - பகுதி –III – கூடுதல் பாடம் - கூடுதல் புள்ளிகள் - 4. – 5 மணிகள்
ஒவ்வொன்றுக்கும் இரண்டு புள்ளிகள் - இவை கூடுதல் புள்ளிகளுக்கான பாடங்கள் - கூடுதல் புள்ளிகளாகச் சேர்க்கப்பட வேண்டும்.	
U21TAO31 - Online Course - Third Semester	**U21TAO31 -** இணைய பாடம் - மூன்றாம் பருவம்
U21TAI41- Internship Training – Fourth Semester	**U21TAI41 -** உள்கட்டப் பயிற்சி – நான்காம் பருவம்
U21TAV51 - Value added programme Journalism	**U21TAV51 -** மதிப்புக் கூட்டுப் பாடம் 1. **U21TAV511 -** இதழியல் 2. **U21TAV512 -** தமிழ் சதக இலக்கியம்

PROGRAMME OUTCOMES (POs)

PO 1	இலக்கிய, இலக்கண வகைமைகளை அறிந்து கொள்ள இயலும்.
PO 2	தமிழ் மொழி அறிவினைப் பெற்று தமிழ் இலக்கியத்தின் வளர்ச்சி நிலையை அறிந்து கொள்ள முடியும்
PO 3	இலக்கணம் கற்பதால் பிழையின்றி பேசவும் எழுதவும் முடியும்
PO 4	பல்வகை இலக்கியங்களை அறிவதோடு மதிப்பிடும் திறனையும் பெறுவர்
PO 5	இலக்கியம் படைக்கும் படைப்பாளர்களை உருவாக்க முடியும்
PO 6	இலக்கண இலக்கிய நெறிமுறைகளை அறிந்து பன்முகப் படைப்பாற்றல் பெறுவர்
PO 7	வேலைவாய்ப்புக்கான திறன்களை பெறமுடியும்

PROGRAMME SPECIFIC OUTCOMES

இந்த பாடங்களைப் படிப்பதன் மூலம் மாணவியர் பெறும் பயன்கள்.

PSO	இந்த பாடங்களைப் படிப்பதன் மூலம் மாணவியர் பெறும் பயன்கள்	PO mapped
PSO1	இக்கால இலக்கிய வகைமைகளாகிய கவிதை, சிறுகதை, புதினம், நாடகம், கட்டுரை ஆகியவற்றைப் படிப்பதுடன், ஊடகத்துக்கேற்ப எழுதுநெறிகளை அறிந்துகொண்டு எழுதுதிறனைப் பெறுவதுடன், போட்டித் தேர்வுகளை எதிர் கொள்ளும் அறிவுச் செழுமை பெறுதல்	PO2 PO5
PSO2	தமிழ் இலக்கண மரபுகளைப் பயில்வதுடன் இன்றைய கணித்தமிழ் அலகுகளாகத் தமிழ் மொழியியல் நோக்குப் பகுத்துப் பரிசீலிக்கும் ஆற்றல் பெறுவதோடு பணிவாய்ப்பு பெறும் பயிற்சி பெறுதல்	PO4 PO7
PSO3	தமிழ் இலக்கியங்கள் நுவலும் வாழ்வியல் விழுமியங்களைத் தெரிந்து கொண்டு, அவற்றை இன்றைய வாழ்வில் பயன்படுத்துவதற்கு ஏற்ற செம்மைப் பண்புகளை ஆராய்ந்து அறிதல்	PO1 PO5
PSO4	காலந்தோறும் தமிழர் வளர்த்த கோயிற்கலை கல்வெட்டியல், இசை, ஓவியம், சிற்பம், கட்டிடம் நடனக்கலை, தமிழரது பண்பாடு, பாரம்பரியம் சிறப்புகளை அறிந்து பேணுதல்	PO3 PO4
PSO5	செம்மொழித் தமிழ் இலக்கியச் செவ்வியல் பண்புகளையும், மனித மேம்பாட்டுச் சிந்தனைகளையும், வாழ்வியல் விழுமியங்களையும் அறிதல்	PO4 PO6

SEMESTER – I

COURSE CODE	U21TAT11	CORE – I : சமகால இலக்கியம்	L	T	P	C
CORE I			5	-	-	4

Cognitive Level	**K1:** ஆற்றல் **K2:** புரிதல் அறிவு **K3:** பயன்படுத்தல் அறிவு **K4:** படைத்தல் **K5:** மதிப்பீடு
Learning Objectives	The course aims at ➢ providing a wide spectrum of literary texts of the great masters of contemporary period for the young minds. ➢ knowing the content of literary pieces in each genre and to be informed and inspired. ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ developing critical and creative attitude in students.

அலகு -1	**கவிதை இலக்கியம்** 1.1 பாரதியார் கவிதைகள் - பாரதி அறுபத்தாறு 1.2. பாரதிதாசன் - பாண்டியன் பரிசு 1.3. வாணிதாசன் - தமிழச்சி (கவிதை நூல்), சென்னை, மலர் நிலையம், 1949
அலகு -2	**புதின இலக்கியம்:** அகல் விளக்கு (சாகித்திய அகாதெமி பரிசு பெற்றுது)(162 பக்கங்கள்)
அலகு - 3	**சிறுகதை இலக்கியம்:** (ஜெயகாந்தன் கதைத் தொகுப்பு – 1) 1. யுக சந்தி 2. இல்லாதது எது? 3. இரண்டு குழந்தைகள் 4. நான் இருக்கிறேன் 5. பொம்மைதேவன் வருவாரா? 6. துறவு 7. உதிரும் குறைப் பிறவி 8. யந்திரம்
அலகு -4	**நாடக இலக்கியம்:** பரிதிமாற் கலைஞர் - ரூபாவதி (வி.கோ.சூரியநாராயண சாத்திரியார்)
அலகு -5	உரைநடை இலக்கியம்
பார்வை நூல்கள்	1. பாரதியார் - பாரதியார் கவிதைகள் 2. பாரதிதாசன் - பாரதிதாசன் கவிதைகள் 3. கி.வா. ஜகநாதன் -அறப்போர், சங்க நூல் காட்சிகள், இலக்கிய கட்டுரைகள், சென்னை, பாரி நிலையம் - 1952. 4. மு.வரதராசன், அகல் விளக்கு (சாகித்திய அகாதெமி பரிசு பெற்றது) 5. வாணிதாசன்- தமிழச்சி (கவிதை நூல்), சென்னை, மலர் நிலையம், 1949 6. ஜெயகாந்தன் கதைத் தொகுப்பு, மதுரை மின்நூல் தொகுப்புத்திட்டம் 7. பரிதிமாற் கலைஞர் - ரூபாவதி (வி.கோ.சூரியநாராயண சாத்திரியார்) மதுரை மின்நூல் தொகுப்புத்திட்டம்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	**CO1**	know the poetic tactics of the modern writers
K1, K2	**CO 2**	understand the notable features of literary geners and flow of writing
K2, K4	**CO 3**	aware of the salient features of texts
K2, K3	**CO 4**	apply and attempt to write creatively
K4,	**CO5**	critically analyze the works of great writers and will be able to create literary pieces on their own

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks -39/60
Moderately Correlating (M) - 2 Marks -20/60
Weakly Correlating (W) - 1 Mark-
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21TAT12</td><td rowspan="2">நன்னூல் எழுத்ததிகாரம்
(ஐந்து இயல்கள்)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE II</td><td>6</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Skill in language
K2: Understand
K3: give citation
K4: Analyse
K5: To know the structure</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
• make students obtainwriting skills with correct usage of grammar.
• develop language proficiency
• gain rich knowledge about structure of Tamil language through the ages
• learn and brighten up their career.
• strengthen the language skills through exercises.</td></tr>
</table>

அலகு-1	**நன்னூல்:** நூல் அறிமுகம்- பவணந்தி முனிவர் பற்றிய குறிப்பு – சிறப்பு பாயிரம் பொதுப்பாயிரம்
அலகு-2	எழுத்து அதிகாரம், எழுத்து இயல், பத இயல்
அலகு-3	உயிர் ஈற்றுப் புணரியல்
அலகு-4	மெய் ஈற்றுப் புணரியல்
அலகு-5	உருபு புணரியல்
பாடநூல்:	நன்னூல்- காண்டிகை உரை- திருநெல்வேலி சைவசித்தாந்த நூற்பதிப்புக்கழக வெளியீடு
பயிற்சி:	மாணவர் தனக்கு விருப்பமான நூலின் ஐந்து பக்கங்களில் உள்ள தொடர்களில், வேற்றுமைப்புணர்ச்சி,அல்வழி புணர்ச்சி இடம் பெற்றுள்ள விதத்தை அடிக்கோடிட்டு, நன்னூல் நூற்பாக்களுடன் பொருத்திப்பார்த்து மூன்றுபக்க அளவில் கட்டுரை எழுதிச் சமர்ப்பிக்க வேண்டும். இது பயிற்சிக்காக மட்டுமே. இதில் தேர்வுக்கான வினா ஏதும் கேட்கப்படக் கூடாது.

Course Outcome

At the end of the course, the students will be able to:

K1, K2	CO1	acquire knowledge of linguistic conventions for reading, writing and speaking.
K1, K2	CO2	use targeted grammatical structures appropriately in oral and written production.
K5, K4	CO3	analyse the grammatical structure of sentences in Tamil texts.
K5, K1	CO4	communicate correctly in spoken and written Standard Tamil.
K3	CO5	make inferences and predictions based on comprehension of a text.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S) - 3 marks—42/60
Moderately Correlating (M) - 2 marks—16/60
Weakly Correlating (W) - 2 marks
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21TAA11</td><td rowspan="2">தமிழ் இலக்கிய வரலாறு</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED I
சார்பு பாடம்</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Learning
K2: Understand
K3: Apply
K4 : Analyze
K5: knowing the background of the literature</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The course aims at
➢ providing a wide spectrum of literature through the ages.
➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature.
➢ understanding the historical background of literature</td></tr>
</table>

அலகு -1	இலக்கிய வரலாற்று மூலங்கள் - தமிழின் தொன்மை – செவ்வியல் பண்புகள் - முச்சங்க வரலாறு - தொல்காப்பியம் - சங்க இலக்கியம் - எட்டுத்தொகை – பத்துப்பாட்டு அமைப்பும் வரலாறும்
அலகு -2	சங்கம் மருவிய காலம் - பதினென் கீழ்க்கணக்கு இலக்கியம் - திருக்குறள் தனித்தன்மை - இரட்டைக் காப்பியங்கள் தமிழில் காப்பியங்கள் - சமண பௌத்தக் காப்பியங்கள் - காப்பியங்களின் வடிவமும், தனித்தன்மைகளும்.
அலகு -3	பக்தி இலக்கியத்தின் தோற்றம் - பன்னிரு திருமுறைகள் - சித்தர் இலக்கியம் – பன்னிரு ஆழ்வார்களது பாசுர நூல்கள் - அவற்றின் உரைகள் - மணிப்பிரவான நடையின் தோற்றம், வளர்ச்சி
அலகு -4	தமிழில் சிற்றிலக்கியங்களின் தோற்றம் வளர்ச்சி, வரலாறு – பரணி – கலம்பகம் பிள்ளைத்தமிழ் - உலா – குறவஞ்சி – பள்ளு – அந்தாதி – கோவை – தூது மடல் - சதகம் - நொண்டி நாடகம் - ஆகியவற்றின் அமைப்பும் இலக்கணமும் கம்பராமாயணம் - வில்லிபாரதம் - அரிச்சந்திர புராணம் - நளவெண்பா புராணங்கள் - தனிப்பாடல்கள் - நிகண்டுகள் - இடைக்கால இலக்கண நூல்கள் - கிறித்தவ இசுலாமியரது தமிழ்த் தொண்டு
அலகு -5	இயல் - இசை – நாடகத்தமிழ் வளர்ச்சி – மரபுக்கவிதை – புதுக்கவிதையின் வகைகள் - சிறுகதை – புதினம் - நாடகம் - உரைநடை ஆகியவற்றின் தோற்றம் - வளர்ச்சி – நோக்கும் போக்கும் - பெண்ணிய, தலித்திய இலக்கிய வளர்ச்சி - இன்றைய நிலை.
நூல்கள்:	மு.வ – தமிழ் இலக்கிய வரலாறு – சாகித்திய அகாதெமி வெளியீடு. தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, சென்னை, தமிழ்ப் புத்தகாலயம்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	**CO1**	know the poetic tactics of the classical works
K1, K2	**CO 2**	understand the difference between classical Tamil literature and modern literature
K2, K4	**CO 3**	aware of the salient features of literature through the ages
K2, K3	**CO 4**	know the trend of literature
K4, K6	**C05**	critically analyze the literature with historical background

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

SEMESTER - II

COURSE CODE	U21TAT21	சிற்றிலக்கியம்	L	T	P	C
CORE III			5	-	-	4
Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல், ஆற்றல் பெறுதல் K3: பயன்படுத்தல் K4: படைத்தல் K5: மதிப்பீடு					
Learning Objectives	The course aims at ➢ providing a wide outline of literary texts of themedieval period. ➢ knowing the content of literary pieces in each genre and to be informed and inspired. ➢ helping the students imbibe the human and moral values through the study of literature. ➢ developing critical and creative attitude in students.					

அலகு -1	**கலிங்கத்துப்பரணி** காடு பாடியது பகுதி முழுவதும் திருக்குற்றாலக்குறவஞ்சி வசந்தவல்லியின் காதல் என்ற பகுதி முழுவதும் “வசந்தவல்லி வந்தாள்” முதல் கூடாய் கூடலே வரை
அலகு -2	**மதுரை மீனாட்சியம்மை பிள்ளைத்தமிழ்** தாலப்பருவம் முழுவதும் 10 பாடல்கள் நந்திக்கலம்பகம் நந்திவர்மன் வென்ற போர்கள் தெள்ளாற்றுப் போர் பாடல் எண்கள்:19, 23, 28, 33,49, 52, 53, 61, 64, 71, 75, 77, 80,86 கடம்பூர் வென்றது பாடல் எண்கள்: 25,80
அலகு -3	தமிழ்விடுதூது முழுவதும்
அலகு -4	முக்கூடற்பள்ளு- நாட்டுவளம், நகர்வளம் பள்ளியர்ஏசல் பகுதி முழுவதும்
அலகு -5	காரைக்காலம்மையார்- அற்புதத்திருவந்தாதி முழுவதும்.
பாட நூல்கள்	1. கலிங்கத்துப்பரணி- பாவை பப்ளிகேஷன்ஸ், சென்னை. 2. திருக்குற்றாலக் குறவஞ்சி- பாரி நிலையம், சென்னை. 3. மதுரை மீனாட்சியம்மை பிள்ளைத்தமிழ்-முல்லை நிலையம், சென்னை 4. நந்திக்கலம்பகம் -நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை. 5. தமிழ் விடு தூது-நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை 6. முக்கூடற்பள்ளு-பாவை பப்ளிகேஷன்ஸ், சென்னை 7. அற்புதத்திருவந்தாதி- கழக வெளியீடு. 8. சிற்றிலக்கியச் சொற்பொழிவுகள்- கழக வெளியீடு 9. சிற்றிலக்கிய வரலாறு- தா.ஈசுவர பிள்ளை 10. சிற்றிலக்கியச் செல்வங்கள்-ந.வீ.செயராமன்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the medieval writers
K1, K2	CO 2	understand the notable features of literary geners and flow of writing
K2, K4	CO 3	aware of the salient features of texts
K2, K3	CO 4	apply and attempt to appreciate creatively
K4,	C05	critically analyze the works of great writers

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark-
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAT22	நன்னூல் - சொல் அதிகாரம் - 5 இயல்கள்	L	T	P	C
CORE IV			5	-	-	4
Cognitive Level		**K1: Skill in language** **K2: Understand** **K3: give citation** **K4: Analyse** **K5: To know the structure**				
Learning Objectives		The Course aims to • make students obtainwriting skills with correct usage of grammar. • develop language proficiency • gain rich knowledge about structure of Tamil language through the ages • learn and brighten up their career. • strengthen the language skills through exercises.				

அலகு -1	பெயரியல்
அலகு -2	வினையியல்
அலகு -3	பொதுவியல்
அலகு -4	இடைச்சொற்கள்
அலகு -5	உரிச்சொல் இயல்
பாட நூல்கள்	நன்னூல்- காண்டிகை உரை – திருநெல்வேலி சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு
பயிற்சி	மாணவர் இருபது இக்காலப் பெயர்ச்சொற்களைத் தேர்வு செய்து, அவை நன்னூல் பெயரியல் விதிமுறைகளின்படி உள்ளனவா? மாறி உள்ளனவா என்று பொருத்திப் பார்த்துக் கட்டுரை எழுதிச் சமர்ப்பிக்க வேண்டும். பத்துத் தொடர்களைத் தேர்வு செய்து, அவற்றில் உள்ள வினைச்சொற்களின் அமைப்பைக் கண்டறிந்து, அவை நன்னூல் வினையியல் விதிகளின் படி உள்ளனவா? வேறுபட்டுள்ளனவா என்று பொருத்திப் பார்த்துக் கட்டுரை எழுதிச் சமர்ப்பிக்க வேண்டும். மாணவர் பயிற்சிக்காக உள்ளது இப்பகுதி, இதிலிருந்து தேர்வில் வினாக்கள் இடம்பெறக் கூடாது

Course Outcome

At the end of the course, the students will be able to:

K1, K2	**CO1**	acquire knowledge of linguistic conventions for reading, writing and speaking.
K1, K2	**CO2**	use targeted grammatical structures appropriately in oral and written production.
K5, K4	**CO3**	analyse the grammatical structure of sentences in Tamil texts.
K5, K1	**CO4**	communicate correctly in spoken and written Standard Tamil.
K3	**CO5**	make inferences and predictions based on comprehension of a text.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S)	-	3 Marks—42/60
Moderately Correlating (M)	-	2 Marks—16/60
Weakly Correlating (W)	-	2 Marks
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAA22	இலக்கியத் திறனாய்வு	L	T	P	C
ALLIED II சார்பு பாடம் -II			5	-	-	4
Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of literature					
Learning Objectives	The course aims at ➢ providing an understanding of literature through the ages. ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of literature					

அலகு-1	**இலக்கியத் திறனாய்வு வகைகள்**
அலகு-2	**கவிதைத் திறனாய்வு** • மரபுக்கவிதை • புதுக்கவிதை
அலகு-3	**புதினத் திறனாய்வு** புதினக் கரு- மொழிநடை-நிகழ்ச்சிக்கோவைகள்- உத்தி
அலகு-4	**சிறுகதைத் திறனாய்வு** கதைக்கரு- கதைமாந்தர்கள்- மொழிநடை- உத்தி நாடகத்திறனாய்வு
அலகு-5	**இலக்கிய இயக்கங்கள்**
பார்வை நூல்கள்:	1. சு.பாலச்சந்திரன்- இலக்கியத்திறனாய்வு 2. அரங்க சுப்பையா- இலக்கியத்திறனாய்வு இசங்கள் கொள்கைகள் 3. மு.வரதராசனார்- இலக்கிய மரபு 4. மு.வரதராசனார்- இலக்கியத்திறன் 5. அ.ச.ஞானசம்பந்தனார்- இலக்கியக் கலை 6. தா.ஏ.ஞானமூர்த்தி- இலக்கியத்திறனாய்வியல் - உலகத்தமிழ் ஆராய்ச்சி நிறுவன வெளியீடு. 7. தி.சு.நடராசன்- திறனாய்வுக் கலை.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the writers
K1, K2	CO 2	understand the notable features of literary geners and flow of writing
K2, K4	CO 3	aware of the salient features of texts
K2, K3	CO 4	apply and attempt to appreciate creatively
K4,	C05	critically analyze the works of great writers

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 mark

SEMESTER – III

COURSE CODE	U21TAT31	மதுரை மைய இலக்கியம்	L	T	P	C
CORE V			5	-	-	4
Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல், ஆற்றல் பெறுதல் K3: பயன்படுத்தல் K4: படைத்தல் K5: மதிப்பீடு					
Learning Objectives	The course aims at ➢ providing a wide outline of literary texts of Ancient Madurai city over the years. ➢ knowing the content of literary pieces in each genre and to be informed and inspired. ➢ helping the students imbibe the human and moral values through the study of literature. ➢ developing critical and creative attitude in students.					

அலகு –1	**மதுரைக் காஞ்சி** நூலமைப்பும், நுவல் பொருளும் பற்றிய சுருக்க வரைவு
அலகு –2	**பரிபாடல்** வையை பற்றிய செய்யுட்கள் முத்தொள்ளாயிரம் - பாண்டியனைப் போற்றும் செய்யுட்கள் **சிலப்பதிகாரம்** - ஊர்காண் காதை
அலகு –3	**குமரகுருபரர்** மதுரைக் கலம்பகம் - நூல் அமைப்பும், மதுரை பற்றிய சுருக்க வரைவும்
அலகு –4	**குலசேகர பாண்டியன்** மதுராபுரி அம்பிகை மாலை – 30 கட்டளைக் கலித்துறைச் செய்யுட்களும்பாடப்பகுதி
அலகு –5	**சொக்கநாதப் புலவர்** அழகர் கிள்ளை விடுதூது நூலமைப்பும், நுவல்பொருளும் சுருக்க வரைவு.

நூல்கள்:	1. **மதுரைக் காஞ்சி** தஞ்சைத் தமிழ்ப் பல்கலைக் கழகத் தொகுப்பு நூல்	தமிழ்ச் செவ்வியல் நூல்கள்
	2. **பரிபாடல்** தஞ்சைத் தமிழ்ப் பல்கலைக் கழகத் தொகுப்பு நூல்	தமிழ்ச் செவ்வியல் நூல்கள்
	3. **திருமுருகாற்றுப்படை** தஞ்சைத் தமிழ்ப் பல்கலைக் கழகத் தொகுப்பு நூல்	தமிழ்ச் செவ்வியல் நூல்கள்
	4. **முத்தொள்ளாயிரம்** தஞ்சைத் தமிழ்ப் பல்கலைக் கழகத் தொகுப்பு நூல்	தமிழ்ச் செவ்வியல் நூல்கள்
	5. **குமரகுருபரர்** மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்	மதுரைக்கலம்பகம்
	6. **குலசேகர பாண்டியன்** மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம	மதுராபுரி அம்பிகை மாலை
	7. **சொக்கநாதப் புலவர்** மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்	அழகர் கிள்ளை விடு தூது

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the Tamil writers to highlight the significance of Madurai city which not only serves as the capital of Pandya kingdom but also remains as the seat of Tamil sangam since Sangam Age.
K1, K2	CO 2	understand the notable features of literary geners and flow of writing
K2, K4	CO 3	aware of the salient features of texts
K2, K3	CO 4	apply and attempt to appreciate creatively
K4,	C05	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -42/60
Moderately Correlating (M)	-	2 Marks -16/60
Weakly Correlating (W)	-	2 Marks-
No Correlation (N)	-	0 Mark

<table>
<tr><td>COURSE CODE</td><td>U21TAA33</td><td rowspan="2">தமிழக வரலாறும், பண்பாடும்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED III
சார்பு பாடம் -III</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Learning
K2: Understanding
K3: Applying
K4 : Analysing
K5: knowing the background of the literature</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The course aims at
➢ providing a wide spectrum of literature through the ages.
➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature.
➢ understanding the historical background of literature</td></tr>
</table>

அலகு –1	தமிழக நிலவியல் கூறுகள் - வரலாற்று மூலங்கள் - தொல் பழங்காலம் - பண்டைத் தமிழகம் - சிந்து வெளி நாகரீகத் தொடர்பு – தமிழ் மொழியின் தொன்மை – கீழடி அகழ்வாய்வுச் சான்றுகள் - முச்சங்க வரலாறு – சங்க காலத் தமிழகமும், மூவேந்தர் மரபும், குடிகளும், தமிழகத்துக்கும் நந்த மோரியர்களுக்கும், ரோமானிய யவனருக்கும் உள்ள தொடர்புகள், கடல் வணிகம் - சங்க கால மக்கள் வாழ்க்கை, அரசியல், போர்முறை, சமூகம், கல்வி, கலைகள், பொருளாதாரம் - சடங்குகள் - சகுனங்கள் - நம்பிக்கைகள் - திருவிழாக்கள் - வழிபாடுகள்.
அலகு –2	சங்கம் மருவிய காலம் - களப்பிரர் வருகை – பல்லவர்கள் - முற்கால, இடைக்கால, பிற்காலப் பல்லவர்கள் ஆட்சி – குடைவரைக் கோவில்கள் - தோற்றம் - பக்தி இலக்கிய எழுச்சி – சைவ வைணவ பக்தி இயக்கம் - சமய அரசியல், பொருளாதார நிலை – கோயில் கட்டிடக் கலை வளர்ச்சி,மக்கள் வாழ்வியல் - கல்வி – பண்பாடு
அலகு –3	சோழர் காலம் - பொற்காலம் - சோழர் சாளுக்கியர் உறவு நிலை - தென் கிழக்கு ஆசிய நாடுகளை வென்றமை – சோழர் ஆட்சி முறை – குடவோலை முறை –சோழர் காலச் சமூகப் பண்பாட்டு, அரசியல் சமயப், பொருளாதார நிலை – கலைகள்- கோயில்கள் தஞ்சைப் பெரிய கோயில் சார் கலைகள் பாண்டியர்களது எழுச்சி – சோழ – பாண்டியர் உறவு – அயல்நாட்டுப் பயணிகள் கண்ட தமிழகம் - நாயக்கர் காலம் - தமிழகத்தில் மாலிக் காபூர் படையெடுப்பு – விசய நகர ஆட்சியின் விளைவு – தஞ்சை மராட்டியர்கள் - கர்நாடக நவாபுகள் ஆட்சியில் தமிழகச் சூழல்
அலகு –4	ஐரோப்பியர் வருகை – ஆற்காடு, தஞ்சை அரசர்களுடன் ஆங்கிலேயர் கொள்கை – பாளையக்காரர் எழுச்சி – கிழக்கிந்திய கம்பெனி அதிகாரம் - விடுதலைப் புரட்சி – கல்வி முறை – நீதி, நிர்வாக நடைமுறை
அலகு –5	விடுதலைக்கு முந்தைய தமிழகம் இலக்கிய வளர்ச்சி – பத்திரிக்கை வளர்ச்சி –ஐரோப்பியரது தமிழ்த் தொண்டு - இந்திய விடுதலை இயக்கத்துக்குத் தமிழகத்தின் பங்கு – சமய, சமூகச் சீர்திருத்த இயக்கங்கள்

	- இந்திய விடுதலைக்குப் பின் தமிழகம் - மொழி வழி மாநில உருவாக்கம் - தமிழ் இயக்கங்கள் - சமூகப் பொருளாதார மாற்றங்கள் - தமிழ் இலக்கியப் போக்குகள் - தமிழ் இதழ்கள் நாடகக்கலை – திரைப்படங்கள், தமிழ் ஊடகங்கள், தமிழ் இசை எழுச்சி.
பாட நூல்	1. கே. கே. பிள்ளை, தமிழக வரலாறும் பண்பாடும் 2. வே.தி. செல்லம், தமிழக வராலாறும், பண்பாடும்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the historical background of the literary works
K1, K2	CO 2	understand the difference between classical Tamil literature and modern literature
K2, K4	CO 3	aware of the salient features of literature through the ages
K2, K3	CO 4	know the trend of literature
K4, K6	C05	critically analyze the literature with historical ,political,socio-cultural and economicbackground of Tamilnadu.

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAE311	நாட்டுப்புறவியல்	L	T	P	C
ELECTIVE – I விருப்பப் பாடம் - I			4	-	-	3
Cognitive Level		K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of literature				
Learning Objectives		The course aims at ➢ providing an understanding of oral literature through the ages. ➢ helping the students to collect oral literature from all parts of the state of Tamilnadu. ➢ understanding the nuances of folkliterature				

அலகு –1	நாட்டுப்புறவியல் விளக்கம் பண்புகள் - நாட்டுப்புற இலக்கிய வகைகள் நாட்டுப்புறப் பாடல்கள் நாட்டுப்புறக் கதைகள் நாட்டுப்புறக் கதைப்பாடல்கள் பழமொழிகள் விடுகதைகள்
அலகு –2	நாட்டுப்புறக் கைவினைப் பொருட்கள் நாட்டுப்புற மருத்துவம் - புழங்கு பொருட்கள்
அலகு –3	நாட்டுப்புற இலக்கியமும், எழுத்து இலக்கியமும் - ஒற்றுமை, வேற்றுமைகள் - பழமொழிகள் - எழுத்திலக்கியத்தில் நாட்டுப்புற இலக்கியத்தின் செல்வாக்கு.
அலகு –4	நாட்டுப்புறக் கலைகள்
அலகு –5	விளையாட்டு, தொழில்கள், சடங்குகள்
பாடநூல்:	சு.சக்திவேல், நாட்டுப்புறவியல் ஆய்வு

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the emotions of common people.
K1, K2	CO 2	understand the notable features of significant events through folk literature.
K2, K4	CO 3	aware of their lifestyle, beliefs and cultural tradition.
K2, K3	CO 4	apply and attempt to know the value of folk tradition.
K4,	CO5	critically analyze the life of people.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

<table>
<tr><td>COURSE CODE</td><td>U21TAE312</td><td rowspan="2">ஓலைச்சுவடி வகைகள்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE – I</td><td>4</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Learning
K2: Understanding
K3: Applying
K4 : Analysing
K5: knowing the background of literature</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The course aims at
➢ providing an understanding of literature written on palmleaves through the ages.
➢ helping the students to read scripts in the form of palmleaves. through the study of manuscriptology..
➢ understanding the nuances of manuscriptology</td></tr>
</table>

அலகு –1	தமிழில் ஓலைச்சுவடிகள் - எழுத்தாணியில் எழுதுமுறை – ஓலைச்சுவடி வகைகள் - ஓலைச்சுவடி எழுதுமுறைகள் - கோர்த்தல் - பாதுகாத்தல்
அலகு –2	ஓலைச்சுவடி வாசிப்புப் பயிற்சி – சுவடித் தமிழ் - சுவடிகளில் எழுதும் பயிற்சி – பொருள் தடுமாற்றம் - பாடபேதம் நீக்க அறிஞர்கள் கையாண்ட வழிமுறைகள்
அலகு –3	ஓலைச்சுவடிகள் நூலகம்- அரசினர் கீழ்த்திசைச் சுவடிகள் நூலகம் தஞ்சை சரசுவதி மகால் நூலகத் தமிழ்ச்சுவடிகள் விளக்க அட்டவணைத் தொகுதிகள் . தமிழகச் சுவடிகள் நூலகம் - அயல் நாடுகளில் தமிழ்ச் சுவடிகள் நூலகம் - பிரான்சு - இலண்டன்
அலகு –4	தமிழ்ச் சுவடிகள் பதிப்பியல் வரலாறு – பதிப்பித்த தமிழ்ச் சான்றோர்களின் பங்களிப்பும், இலக்கியக் கொடையும்.
அலகு –5	தமிழ்ச் சுவடிகளில் காணலாகும் பாட வேறுபாடுகள் - பாடத் தெரிவு முறைகள் - விடுபாடு நிரப்புதல் - இடைச்செருகல் - இனம் காணல் - திருத்தம் செய்தல் - சுவடியியல் பதிப்புத் திறன்கள்
நூல்கள்:	1. பூ. சுப்பிரமணியம், சுவடிப் பதிப்புக் கலை, சென்னை. உலகத் தமிழ் ஆராய்ச்சி நிறுவன வெளியீடு. 2. த. கோ.பரமசிவம், சுவடிப் பதிப்பு நெறிமுறைகள் தஞ்சைத் தமிழ்ப் பல்கலைக்கழக வெளியீடு.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the writers
K1, K2	CO 2	understand the notable features of literary geners and flow of writing in palmleaves.
K2, K4	CO 3	aware of the salient features of manuscriptology.
K2, K3	CO 4	apply and attempt to edit and print manuscripts.
K4,	CO5	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks -39/60

Moderately Correlating (M) - 2 Marks -20/60

Weakly Correlating (W) - 1 Mark

No Correlation (N) - 0 Mark

SEMESTER - IV

COURSE CODE	U21TAT41	அகப்பொருள் இலக்கணம் - நம்பி அகப்பொருள் முழுதும்	L	T	P	C
CORE V முதன்மைப் பாடம் - VI			4	-	-	4
Cognitive Level		**K1: Skill in language** **K2: Understanding** **K3: giving suitable citation** **K4: Analysing the content** **K5: To know the structure**				
Learning Objectives		**The Course aims to** • make students obtain skills to analse the literary content of ahaporul.. • develop proficiency in content analysis. • gain rich knowledge about structure and content of Tamil Aham poetry. through the ages • learn and brighten up their knowledge about Tamil literary tradition.. • strengthen the language skills through exercises.				

அலகு –1	நம்பியகப் பொருள் - அறிமுகம் - ஆசிரியர் குறிப்பு - காலம் - சிறப்புப் பாயிரம் – நூலமைப்பு – அகத்திணை இயல் - ஒன்று முதல் அறத்தோடு நிலை வரையிலான நூற்பாக்கள் (1 முதல் 54 வரை)
அலகு –2	அகத்திணை இயல் - 11 கற்பு முதல் காதல் பரத்தையர் வரையிலான நூற்பாக்கள் (55 முதல் 116 வரை)
அலகு –3	களவு இயல் நூற்பாக்கள் 117 முதல் 170 வரை
அலகு –4	வரைவு இயல் நூற்பாக்கள் (171 முதல் 199 வரை) கற்பு இயல் நூற்பாக்கள் (200 முதல் 209 வரை)
அலகு –5	ஒழிபியல் நூற்பாக்கள் 210 முதல் 252 வரை
பாட நூல்கள்	நம்பியகப் பொருள் - திருநெல்வேலி சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு

COURSE OUTCOME

At the end of the course, the students will be able to:

K1, K2	CO1	acquire knowledge of literary conventions of Tamil Aham poetry.
K1, K2	CO2	use targeted Aham content in prescribed form of verses in standard Tamil.
K5, K4	CO3	analyse the Aham content and grammatical structure of standardised Tamil verses..
K5, K1	CO4	assess correctly the Aham content given in Standard Tamil.
K3	CO5	make inferences and predictions based on comprehension of Tamil verses.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S) - 3 Marks—42/60
Moderately Correlating (M) - 2 Marks—16/60
Weakly Correlating (W) - 2 Marks
No Correlation (N) - 0 Mark

COURSE CODE	U21TAT42	காப்பிய இலக்கியம்	L	T	P	C
CORE VII முதன்மைப் பாடம் - VII			4	-	-	4

Cognitive Level	**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of literature**
Learning Objectives	The course aims at ➢ providing an understanding of Tamil Epic literature through the ages. ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of literature

அலகு – 1	**சிலப்பதிகாரம்** - புகார்க் காண்டம் - 6 காதைகள் இந்திரவிழா ஊர் எடுத்த காதை கடலாடு காதை கானல் வரி வேனில் காதை கனாத்திரம் உரைத்த காதை நாடு காண் காதை
அலகு – 2	**சிலப்பதிகாரம்** - ஊர் காண் காதை **மணிமேகலை** – 5 காதைகள் மட்டும் பளிக்கறை புக்க காதை மணிமேகலா தெய்வம் வந்து தோன்றிய காதை சக்கரவாளக் கோட்டம் உரைத்த காதை துயில் எழுப்பிய காதை மணிபல்லவத்துத் துயர் உற்ற காதை
அலகு – 3	**சீவக சிந்தாமணி** விமலையார் இலம்பகம்
அலகு – 4	**கம்பராமாயணம்** ஆரணிய காண்டம் - 12வது படலம் - சவரி பிறப்பு நீங்கு படலம்
அலகு – 5	5.1 சீறாப்புராணம். 5.2 ஹிஜிரத்துக் காண்டம் 4வது படலம் - விடமீட்ட படலம்- செய்யுள் 235 – 280 வரை 5.3 தேம்பாவணி மூன்றாம் காண்டம் ஆறாம் படலம் - மீட்சிப் படலம் - மட்டும்

நூல்கள்	1. ஐம்பெருங்காப்பியங்கள் 2. கம்பராமாயணம் 3. சீறாப்புராணம்	ச.வே.சு.(உ.ரை) மணிவாசகர் பதிப்பகம் ச.வே.சு.(ப.ஆ) மணிவாசகர் பதிப்பகம் மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்
	சிலப்பதிகாரம் - மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம் தமிழ்	இணையக் கல்விக் கழக நூலகம்
	மணிமேகலை - மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம், தமிழ்	இணையக் கல்விக் கழக நூலகம்
	கம்பராமாயணம் - மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம், தமிழ்	இணையக் கல்விக் கழக நூலகம்
	திருவிளையாடல் புராணம்- மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம் தமிழ்	இணையக் கல்விக் கழக நூலகம்
	சீறாப்புராணம் - மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம், தமிழ்	இணையக் கல்விக் கழக நூலகம்
	இரட்சணிய யாத்திரிகம்- மதுரை மின்நூல் தொகுப்பு திட்ட நூலகம், தமிழ்	இணையக் கல்விக் கழக நூலகம்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the trend analysis of growth of Tamil Epic literature
K1, K2	CO 2	develop critical thinking of literary genres and content handled in Tamil epic tradition
K2, K4	CO 3	will get knowledge about the growth of Tamil Epic literature.
K2, K3	CO 4	analyze and interpret epics written in Tamil.
K4,	CO5	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks -39/60
Moderately Correlating (M) - 2 Marks -20/60
Weakly Correlating (W) - 1 Mark-
No Correlation (N) - 0 Mark

COURSE CODE	U21TAA44	தமிழ் மொழி வரலாறு	L	T	P	C
ALLIED IV சார்பு பாடம் -IV			4	-	-	4
Cognitive Level		K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of the literature				
Learning Objectives		The course aims at 1. providing a wide spectrum of usage of Tamil language through the ages. 2. helping the students to know the structure of Tamil language through literature, inscriptions and other written sources. 3. understanding the changes occurred in Tamil language with historical background of the society.				

அலகு – 1	தமிழ் மொழி வரலாற்று மூலங்கள்
அலகு – 2	தொல் தமிழ் வரலாறு – தொல்காப்பியத் தமிழ் சங்கத் தமிழ் வரலாறு
அலகு – 3	களப்பிரர் காலத் தமிழ் பல்லவர் காலத் தமிழ் சோழர் காலத் தமிழ்
அலகு – 4	நாயக்கர் காலத் தமிழ் மராட்டியர் காலத் தமிழ் ஆங்கிலேயர் காலத் தமிழ்
அலகு – 5	இக்காலத் தமிழ் ஊடகத் தமிழ் தமிழ் வரி வடிவ வரலாறு செந்தமிழ் - கொடுந்தமிழ் உலக வழக்கு – செய்யுள் வழக்கு இயல்பு வழக்கு –தகுதி வழக்கு வட்டார வழக்கு – கிளை மொழிகள் காலந்தோறும் சொல் பொருள் மாற்றம் கடன் வாங்கல் கடன் தருதல் கல்வெட்டுத் தமிழ் - செப்பேட்டுத் தமிழ் மெய்கீர்த்தித் தமிழ் - இன்றைய ஆட்சித்தமிழ்
நூல்கள்	தெ.பொ.மீனாட்சி சுந்தரனார், தமிழ் மொழி வரலாறு – சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	identify the changes occurred in Tamil language
K1, K2	CO 2	develop critical thinking of language structure over the ages
K2, K4	CO 3	recognize the growth of language
K2, K3	CO 4	become proficient about the growth of Tamil script
K4, K6	CO5	know the trend and coherence of language and literature over a period of time.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAE421	ஒப்பியல் இலக்கியம்	L	T	P	C
ELECTIVE - II **விருப்பப் பாடம் - II**			3	-	-	3
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of the literature**				
Learning Objectives		The course aims at ➢ providing a wide spectrum of literature through the ages. ➢ helping the students to know about the base for comparative literature. ➢ enable them to study the master pieces of literature of different languages. ➢ understanding the similar background of literature of two different languages.				

அலகு – 1	ஒப்பியலின் தத்துவங்கள் (ப. 1 - 22 வரை)
அலகு – 2	தமிழில் ஒப்பியல் ஆய்வு (ப. 23 - 47 வரை)
அலகு – 3	தமிழ் வீரயுகப் பாடல்கள் (ப. 48 - 60 வரை)
அலகு – 4	இரு கோட்பாடுகள்
அலகு – 5	பெரும் பெயர் உலகம்
பாட நூல்கள்	கா. கைலாசபதியின் ‘ஒப்பியல் இலக்கியம் (இலக்கியக் கட்டுரைகள் – முதல் ஐந்து கட்டுரைகள் மட்டும்)மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the historical background of the literary works of Tamil and other languages..
K1, K2	CO 2	understand the difference between classical Tamil literature and modern literature
K2, K4	CO 3	aware of the salient features of literature through the ages: and Develop critical thinking of literary genres of Tamil and other languages..
K2, K3	CO 4	know the trend of literature of Tamil and other languages
K4, K6	CO5	critically analyze the literature Interpret and appreciate the format and purpose of literature at different periods of same language and also in different languages..

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAE422	Tamil Computing (Advanced course) - மேம்பட்ட கணினித் தமிழ்	L	T	P	C
ELECTIVE - II விருப்பப் பாடம் - II			3	-	-	3

Cognitive Level	**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of Tamil computing**
Learning Objectives	The course aims at ➢ providing a wide spectrum of Computer programming languages. ➢ helping the students to know the base of Tamil language for computing.. ➢ enable them to study the Data base system and its relevance to Tamil languageparsing techniques. ➢ understanding the process of shallow parsing and deep parsing and natural language processing.
அலகு – 1	கணினி நிரலாக்கம் - அறிமுகம் - கணினி நிரலாக்க வரையறை– கணினி நிரலாக்க மொழிகள் – கணினி நிரல் தொடர் எழுதுதல் – கணினி நிரலாக்க மொழிகளாகிய எச் டி எம் எல் (HTML) சி எஸ் எஸ் (CSS) ஜாவா (JAVA) ஆகிய மொழி வடிவங்களில் தமிழின் பயன்பாடு.
அலகு – 2	பைதான் கணினி நிரலாக்கமொழி குறித்த அறிமுகம் - அடிப்படைகள் - செயல்பாடுகள் - தரவு தளக் கோவை – மாறிகளின் நிலைபாடு – நிரலாக்க நெறிகள், பைதான் அடிப்படைகள் மாறிகள், செயற்கூறுகள், கட்டுப்பாட்டு அமைப்புகள், செயல்கள், இழைகள் மற்றும் இழை உருவகிப்பு. ஊப்ஸ் கருத்தாக்கங்கள்: நவீன தொழில்நுட்பம் மற்றும் ஊப்ஸ்: பட்டியல்கள் வெளியேறுதல், கணங்கள், அகராதி, வகைகள் மற்றும் பொருட்கள்.
அலகு – 3	பைதான் மற்றும் தரவு தள இணைப்பு : டி பி எம் எஸ் (DBMS) தரவு தள நிர்வாக அமைப்பு மற்றும் ஆர் டி பி எம் எஸ் (RDBMS) கருத்தாக்கங்கள், வடிவமைக்கப்பட்ட வினா மொழி (எஸ் க்யு எ இல், மை எஸ் க்யு எல், பைதான் மற்றும் மை எஸ் க்யு எல், பைதான் மற்றம் சி எஸ் வி கோப்புகள்) பான்டாஸ், நம்பி தளங்களில் தரவு கையாளுதல்: பான்டாஸ் தரவு சட்டக உருவாக்கம், பான்டாஸில் பூலியன் அட்டவணைப்படுத்தல், பான்டாஸில் செயல்பயன்பாடுகள், தரவு காட்சிப்படுத்துதல், மெட்லாட்லிப் பயன்படுத்தி தரவு காட்சிப்படுத்துதல், தரவு காட்சிப்படுத்துதல் அவற்றின் பயன்கள், மெட்பிலாட்லிப் பைதான் நூலகம் - கோட்டு விளக்கப்படம், பரவல் வரைபடம், பட்டை வரைபடம், சதுர வரைபடம், பெட்டி வரைபடம்
அலகு – 4	தொடரைப் பாகுபடுத்தல் - ஆழமற்ற சொல் தொடர் பாகுபடுத்தல் - ஆழமான சொல் தொடர் பாகுபடுத்தல் - பேச்சுக் கூறுகளைப் பகுத்தல் - ஒலியியல் எழுத்துக்குறி அங்கீகரிப்பு (ஓ சி ஆர்) - இயற்கை மொழி ஆய்வின் பல்வேறு பயன்பாடு - இயந்திர மொழிபெயர்ப்பு – தேடுபொறிகள்

அலகு – 5	தமிழ்க் கணினியியல் ஆய்வுக்கூடப் பயிற்சிப் பணி - தமிழ் கட்டற்ற மென்பொருள் கருவிகள் மற்றும் ஆங்கில மொழி ஆய்வுக் கருவிகள் (கட்டற்ற இயற்கை மொழி ஆய்வு , GATE மற்றும்; NLTK) கையாளும் பயிற்சி பெறல்
பாடநூல்கள்	1. Learning WebDesign: A Beginner's Guide to HTML, CSS, Javascript and Web Graphics Fourth Edition; by Jennifer Robbin, O'Reily;2012 2. HTML and CSS: Design and Build Website Paperback-Illustrated, Jon Duckett; 2011 3. Phython Programming(in Tamil); SomasundaramChenrayan; Amaxon Kindle; 2020 **4.** Phython Pocket Reference 5ed: Phython in Your Pocket (Pocket Reference (O'Reilly); Mark Lutz 2014
பார்வை நூல்கள்	1. கணிப்பொறியில் தமிழ், த. பிரகாஷ்இ சென்னை, பெரிகாம் நூல் வெளியீடு, 2005 2. இயற்கை மொழி ஆய்வு தமிழ் - Prof.கு. சுப்பையா பிள்ளை உலகததமிழ் ஆராய்ச்சி நிறுவனம் 2012 3. GATE Website: Gate.ac.UK – releases/gate-2.0alpha3-build516/doc/userguide.html 4. NLTK Website: 1.Language Processing and Phython(nltk.org) 5. AU-KBC Tools: http;//78.46.86.133:8080/aukbc-nlp/ 6. Search Engine AU-KBC: Searchko: www.searchko.co.in 7. AU-KBC Machine Translation Systems: Tamil-Malayalam MT System: http:/78.48.86.133:8080/tamMalMtsys/ 8. Tamil Virtual Academy Tool: Tamil Computing Tools (tamilvu.org)

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	get an exposure to computer programming languages HTML, CSS, JAVA, PYTHON
K1, K2	CO 2	get expertise in Tamil Computing. As per the requirements of Digital sphere..
K2, K4	CO 3	know thefundamentals of python language and writing programme. Trend analysis of growth of tamil literature with other languages
K2, K3	CO 4	apply the parsing techniques.
K4, K6	CO5	acquire skill to do Natural language processing

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

SEMESTER –V

COURSE CODE	U21TAT51	குறிஞ்சிசார் (மலைப் பகுதி சார் இலக்கியம்)	L	T	P	C
CORE VIII			5	-	-	4
Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of literature					
Learning Objectives	The course aims at ➢ providing an understanding of Tamil classical literature to Modern literature which posess background on hilly region called kurinchi ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. understanding the historical background of kurinchi literature					

அலகு – 1	கபிலர் - குறிஞ்சிப்பாட்டு – சுருக்க வரைவு நல்லந்துவனார் - பரிபாடல்	
அலகு – 2	பெருங்கௌசிகனார் - மலைபடுகடாம் - சுருக்க வரைவு	
அலகு – 3	திருஞானசம்பந்தர் - திருக்குற்றாலப் பதிகம் - திருகூடராசப்பக் கவிராயர் - திருக்குறும்பலாப் பதிகம்	
அலகு – 4	திரிகூடராசப்பக் கவிராயர் - திருக்குற்றாலக் குறவஞ்சி – நூலமைப்பும், நுவல்பொருள் சுருக்க வரைவும்	
அலகு – 5	முத்துக் கறுப்பண்ணன் - பழனியாண்டவர் காவடிச் சிந்து	
நூல்கள்	1. குறிஞ்சிப்பாட்டு	சைவ சித்தாந்த நூல் பதிப்புக் கழக வெளியீடு
	2. மலைபடுகடாம்	சைவ சித்தாந்த நூல் பதிப்புக் கழக வெளியீடு
	3. திருக்குற்றாலப் பதிகம்	மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்
	4. திருக்குறும்பலாப் பதிகம்	மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்
	5. திருக்குற்றாலக் குறவஞ்சி	சைவ சித்தாந்த நூல் பதிப்புக் கழக வெளியீடு
	6. பழனியாண்டவர் காவடிச் சிந்து	மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the writers
K1, K2	CO 2	understand the notable features of literary geners and kurinchi
K2, K4	CO 3	aware of the salient features of texts based on hilly region
K2, K3	CO 4	apply and attempt to analyse the life style of people at hilly region through literature
K4,	CO5	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAT52	பக்தி இலக்கியம்	L	T	P	C
CORE IX முதன்மைப் பாடம் -IX			5	-	-	4
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of literature**				
Learning Objectives		The course aims at ➢ providing an understanding of Tamil devotional literature to Modern age which posess background on Tamil Deities ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of devotional literature				

அலகு -1	சைவ இலக்கியம்
	1.1. திருஞான சம்பந்தர் மூன்றாம் திருமுறை – திரு ஆலவாய் – 3339-3349 வரை. “செய்யனே திரு ஆலவாய் மேவிய” எனும் பாடல் முதல் “அப்பன் ஆலவாய் ஆதி அருளினால்” எனும் பாடல் வரை – 10 செய்யுட்கள். 1.2. திருநாவுக்கரசர் - ஐந்தாம் திருமுறை – திரு இன்னம்பர் -10 செய்யுட்கள் 5433 முதல் 5442 வரை “என்னில் ஆரும் எனக்கு இனியாரில்லை” எனும் பாடல் முதல் “சனியும், வெள்ளியும், திங்களும், ஞாயிறும்” எனும் பாடல் வரை. 1.3. சுந்தரர் - ஏழாம் திருமுறை – திருக்கடவூர் - 7503 முதல் 7512 வரை பொடியார் மேனியனே புரிநூல் ஒருபால் பொருந்த எனும் பாடல் முதல் ‘காராரும் பொழில்சூழ் கடவூர் எனும் பாடல் வரை - 10 செய்யுட்கள். 1.4. மாணிக்க வாசகர் - சிவபுராணம் மட்டும். 1.5. காரைக்காலம்மையார் புராணம் மட்டும். சேக்கிழார் - பெரியபுராணம் - 30 காரைக்கால் அம்மையார் - 1722 முதல் 1787 வரையுள்ள செய்யுட்கள். 1722 – மானம் மிகு தருமத்தின் வழி நின்று வாய்மையினில் முதல் 1787 – ஆதியோடு அந்தம் இல்லான் அருள்நடம் ஆடும் போது வரை 1.6 அருணகிரிநாதர் - திருப்புகழ் - மூன்றாம் தொகுதி - மூன்றாம் படை வீடு – பழநி (திருஆவினன் குடி) பகுதியில் வரும் “நாத விந்து கலாதீ நமோ நம!” (இரண்டாம் பாடல்) “வேத மந்திர சொரூபா நமோ நம போதகம் தரு கோவே! நமோ நம!” (இரண்டாம் பாடல்) நீதி தங்கிய தேவா நமோ நம! வாரணம் தனை நேரான ------(மூன்றாம பாடல்)

	ஆகிய மூன்று பாடல்கள் மட்டும். (தமிழ் இணையக் கல்விக்கழக நூலகம், கிருபானந்தவாரி உரையுடன்)
அலகு -2	**வைணவம்** 3.1 பெரியாழ்வார் - ஒன்பதாம் திருமொழி – 202 முதல் 212 வரை "வெண்ணெய் விழுங்கி வெறும் கலத்தை" முதல் "வண்டு களித்து இசைக்கும்" எனும் பாடல் வரை - 11 செய்யுட்கள். 2.2. ஆண்டாள் - இரண்டாம் திருமொழி – 514 முதல் 523 வரை "நாமம் ஆயிரம் ஏத்த நின்ற நாராயணா" முதல் "சீதை வாய் அமுதம் உண்டாய", எங்கள் சிற்றில் சிதையேல் வரை – 10 பாடல்கள். 2.3. திருப்பாணாழ்வார் - அமலன் ஆதி பிரான் - 927-936 வரை உள்ள 10 பாசுரங்கள் அமலன் ஆதிபிரான் என்று தொடங்கும் பாடல் முதல் கொண்டல் வண்ணனைக் கோவலனாய் எனும் பாடல் வரை. 2.4. பேயாழ்வார் - மூன்றாம் திருவந்தாதி – 2315 முதல் 2324 வரை – 10 பாசுரங்கள் "அன்று இவ்வுலகம் அசைந்த அசைவே கொல் பாடல் முதல" சினமாமத களிற்றின் திண்மருப்பைச் சாய்த்து பாடல் வரை. 2.5. திருமங்கை ஆழ்வார் -இரண்டாம் திருமொழி – 1358 முதல் 1367 வரை "தாம் தம் பெருமை அறியார் என்ற பாடல் முதல்" காவிப் பெருநீர் வண்ணன் கண்ணன் என்ற பாடல் வரை – 10 பாசுரங்கள 2.6. நம்மாழ்வார் - இரண்டாம் திருவாய்மொழி – 3128 – 3138 வரை. "பொலிக பொலிக பொலிக" எனும் பாடல் "முதல் கலியுகம் ஒன்றும் "எனும் பாடல் வரை 11 பாடல்கள்.
அலகு – 3	கம்பராமாயணம் - 6 – யுத்த காண்டம் - 39 வது படலம் - திருமுடி சூட்டுப்படலம்
அலகு – 4	சீறாப்புராணம் முதல் காண்டம் - விலாதத்துக் காண்டம் நான்காவது படலம் - தலைமுறைப் படலம் (செய்யுள் - 99 -165 வரை)
அலகு – 5	தேம்பாவணி இரண்டாம் காண்டம் - ஏழாவது படலம் - பாலை புகு படலம் - (1759-1842 வரை உள்ள 83 செய்யுட்கள்). அலகு 5:2 இராமலிங்க வள்ளலாரின் திருவருட்பா - மூன்றாம் திருமுறை - மூன்றாம் தொகுதி-12 சிவக்குமார் வணக்கம் - 2353-2360 வரை. "மண்ணாலும், மண்ணுற்ற வாழ்க்கையினாலும்" என்று தொடங்கும் 2353வது பாடல் முதல் "ஏற்றவிட்டார் கொடி கொண்டோய் விளக்கினை ஏற்ற எண்ணும்" 2360வது என்ற பாடல் வரையிலான 8 பாடல்கள் மட்டும். (தமிழ் இணையக் கலவிக்கழக நூலகம், கிருபானந்தவாரி உரையுடன்) (தமிழ் இணையக் கல்விக்கழக நூலகம், ஔவை.சு. துரைசாமி பிள்ளை உரையுடன்)
நூல்கள்	1. ச.வே. சு. (ப.ஆ) பன்னிறு திருமுறை, மணிவாசகர் பதிப்பகம் 2. நாலாயிரத் திவ்விய பிரபந்தம் (நான்கு பகுதிகள்), ஆதித்யா ஸ்ரேயா

	பதிப்பகம், சிதம்பரம் 3. ச. வே.சு. (ப.ஆ) கம்பராமாயணம், மணிவாசகர் பதிப்பகம். 4. சீறாப்புராணம் - மதுரை மின் நூல் தொகுப்புத் திட்ட நூலகம். 5. தேம்பாவணி - மதுரை மின் நூல் தொகுப்புத் திட்ட நூலகம். 6. அருணகிரிநாதர் - திருப்புகழ் - மூன்றாம் தொகுதி - மூன்றாம் படை வீடு – பழநி - 7. தமிழ் இணையக் கலவிக்கழக நூலகம், கிருபானந்தவாரி உரையுடன் 8. இராமலிங்க வள்ளலாரின் திருவருட்பா - மூன்றாம் திருமுறை - மூன்றாம் தொகுதி-12 9. சிவக்குமார் வணக்கம் தமிழ் இணையக் கல்விக்கழக நூலகம், ஔவை.சு. துரைசாமி பிள்ளை உரையுடன்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of saints of different religions
K1, K2	CO 2	understand the notable features of literary geners of devotion
K2, K4	CO 3	aware of the salient features of texts based on different religion
K2, K3	CO 4	apply and attempt to analyse the life style of people at a given point of time through literature
K4,	CO5	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAT53	புறப்பொருள் இலக்கணம் புறப்பொருள் வெண்பா மாலை முழுவதும்	L	T	P	C
CORE X முதன்மைப் பாடம் - X			5	-	-	4
Cognitive Level		**K1: Skill in language** **K2: Understanding** **K3: giving suitable citation** **K4: Analysing the content** **K5: To know the structure**				
Learning Objectives		The Course aims to • make students obtain skills to analse the literary content of puraporul. • develop proficiency in content analysis. • gain rich knowledge about structure and content of Tamil puram poetry through the ages • learn and brighten up their knowledge about Tamil literary tradition. • strengthen the language skills through exercises.				

அலகு – 1	கடவுள் வாழ்த்து சிறப்பு பாயிரம் வெட்சிப் படலம் கரந்தைப் படலம் வஞ்சிப் படலம்
அலகு – 2	காஞ்சிப்படலம் நொச்சிப் படலம் உழிஞைப் படலம்
அலகு – 3	தும்பப் படலம் வாகைப் படலம்
அலகு – 4	பாடாண் படலம் பொது இயல் படலம்
அலகு – 5	கைக்கிளைப்படலம் பெருந்திணைப்படலம்
பாடநூல்	புறப்பொருள் வெண்பா மாலை – திருநெல்வேலி சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு.

COURSE OUTCOME

At the end of the course, the students will be able to:

K1, K2	CO1	acquire knowledge of literary conventions of Tamil puram poetry.
K1, K2	CO2	use targeted puram content in prescribed form of verses in standard Tamil.
K5, K4	CO3	analyse the puram content and grammatical structure of standardised Tamil verses.
K5, K1	CO4	assess correctly the puram content given in Standard Tamil.
K3	CO5	make inferences and predictions based on comprehension of Tamil verses.

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S) - 3 Marks—42/60
Moderately Correlating (M) - 2 Marks—16/60
Weakly Correlating (W) - 2 Marks
No Correlation (N) - 0 Mark

<table>
<tr><td>COURSE CODE</td><td>U21TAT54</td><td rowspan="2">யாப்பிலக்கணம் - யாப்பருங்கலக் காரிகை முழுவதும்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE XI
முதன்மைப் பாடம் - XI</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Skill in language
K2: Understanding
K3: give citation
K4: Analysis
K5: To know the structure of Tamil verses</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
• make students obtainwriting skills with correct usage of grammar.
• develop language proficiency
• gain rich knowledge about structure of Tamil verses through the ages
• learn and brighten up their capacity to write classical verses
• strengthen the poetry writing skills.</td></tr>
</table>

அலகு – 1	**உறுப்பியல்** சிறப்புப்பாயிரம் முதல் தளை வரையிலான நூற்பாக்கள் (1 முதல் 11 வரை)
அலகு – 2	**உறுப்பியல்** அடி முதல் தொடை விகற்பம் வரையிலான நூற்பாக்கள் (12 முதல் 20 வரை)
அலகு – 3	செய்யுளியல் பாக்களின் அடியும் ஓசையும் முதல் • வெளிவிருத்தம் • வெண் தாழிசை • வெண்துறை வரையிலான நூற்பாக்கள்(21 முதல் 27 வரை)
அலகு – 4	செய்யுளியல் நால்வகை ஆசிரியப்பாக்கள் முதல் மருட்பா வரை (28 முதல் 35 வரை)
அலகு – 5	ஒழிபியல் எழுத்துக்குப் புறனடை (36 முதல் 44 வரை)
நூல்:	யாப்பருங்காலக் காரிகை – திருநெல்வேலி சைவசித்தாந்த நூற்பதிப்புக் கழக வெளியீடு

COURSE OUTCOME
At the end of the course, the students will be able to:

K1, K2	CO1	acquire knowledge of poetic conventions of Tamil literature
K1, K2	CO2	use grammatical structures of Tamil verses.
K5, K4	CO3	analyse the grammatical structure of verses in Tamil texts.
K5, K1	CO4	analyse the format of verses written in Standard Tamil.
K3	CO5	make inferences and predictions based on comprehension of a text.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S) - 3 Marks—42/60
Moderately Correlating (M) - 2 Marks—16/60
Weakly Correlating (W) - 2 Marks
No Correlation (N) - 0 Mark

COURSE CODE	**U21TAT55**	**மொழியியல் மற்றும் கணினி மொழியியல் - அறிமுகம்** **Introduction to Linguistics and Computational Linguistics**	**L**	**T**	**P**	**C**
CORE XII **முதன்மைப் பாடம் - XII**			**5**	**-**	**-**	**4**
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of Tamil computing for machine translation**				
Learning Objectives		The course aims at ➢ providing a wide spectrum of Tamil Linguistics components and Structure of Tamil language with a focus on corpus development ➢ helping the students to know corpus linguistics ➢ enable them to study the Data needed to create corpus for Lexicography ➢ understanding the process computational Linguistics				

அலகு- 1	மொழியியல் அடிப்படைகள் - ஒலியியல் - ஒலியனியல் - உருபனியல் - தொடரியல் - பொருளியல் - (தமிழ் மொழியில் இருந்து சான்றுகள் தந்து அடிப்படைக் கருத்தாக்கங்கள் அறிமுகப்படுத்தப்பட்டு விளக்கப்பட வேண்டும்) மொழிபெயர்ப்பு – மொழிபெயர்ப்பு சார்ந்த மொழியியல் கொள்கை – கைப்பட மொழிபெயர்த்தலும் அதில் எதிர்கொள்ளும் சிக்கல்களும் - ஆங்கிலத்திலிருந்து தமிழில் மொழிபெயர்த்தல் - தமிழில் இருந்து ஆங்கிலத்தில் மொழிபெயர்த்தல் - செய்தித்தாள் - தொழில்நுட்ப எழுத்தாக்கம் - இலக்கியம் (வகுப்பறை பயிற்சிகள், திட்டக் கட்டுரைகள்)
அலகு- 2	மொழியியல் தரவகம் - மொழியியல் தரவக அறிமுகம் - தரவுகள் சேகரிப்பு, தரவுகள் நிர்வகிப்பு, மொழித் தரவுகள் சேகரிப்பு முறைகள் - இணையத்திலிருந்து சேகரித்தல் - கைப்பட சேகரித்தல் – மின் நூலகம் பற்றி அறிமுகம், தமிழ்த் தரவுகளைத் தொடரியல், பொருளியல் வகைகளாகப் பகுப்பாய்வு செய்தல்
அலகு- 3	அகராதி – அகராதி பற்றிய அறிமுகம் - அகராதி உருவாக்கம் - மின் அகராதி உருவாக்கமும் கூட - சொல்வலை – சொல்களஞ்சியம் - விக்கிப்பீடியா போன்ற தளங்களில் தமிழ் நுவல் பொருளை பயன்படுத்தும் பல்வேறு முறைகள் - மொழி கற்பித்தல் - முதல் மொழி, இரண்டாம் மொழி கற்பித்தல் - மொழி பயிற்றுவித்தலில் பல்வேறு முறைகள். வரலாற்று மொழியியல் - தமிழ் மொழி தமிழ் எழுத்து வரி வடிவம், தோற்றம், வளர்ச்சி, பேச்சுமொழி, எழுத்து மொழி, வேறுபாடு, வட்டார வழக்கு மொழிகள்
அலகு- 4	கணினி மொழியியல் - கணினி மொழியியல் விளக்க வரையறை - இயற்கை மொழி ஆய்வு - விளக்க வரையறை – கணினி மொழியியலின் பல்வேறு பரிமாணங்கள். தமிழ்க் கணினியியல் - விளக்க வரையறை - தமிழ்க் கணினியியல் கருவிகள் - பல்வேறு தமிழ்க் கணினியியல் கருவிகள் குறித்த அறிமுகமும் விளக்கமும் - சொல் தொடர் பிரித்தல் - சொல் பகுப்பாய்வில் உருபனியல் பகுப்பாய்வில் பேச்சு கூறுகளைப் பகுத்தல்- பெயர்த்தொடர், வினைத்தொடர், மரபுத்தொடர் கண்டறிதல் - பெயர்க்கூறுகளை அங்கீகரித்தல்

அலகு- 5	தமிழ் - விசைப்பலகை – கணினி அச்சு செய்தல். தமிழ் விசைப்பலகை, கணினி அச்சு செய்தல் குறித்த அறிமுகம் - மொழி உள்ளீட்டு முறைகள் மற்றும் எழுத்துருக்கள், தமிழ் ஒருங்குறி (Tamil Unicode) (UTFS) தமிழ் தகவல் பரிமாற்ற எழுத்துக் குறியீடு (Tamil Script code for Information Interchange (TSCII) தேடு பொறிகளில் தமிழ்த் தேடல் (Search in Tamil in Search Engines**)** விக்கிபீடியா கட்டமைப்பு –விக்கிபீடியாவில் தமிழ் நுவல்பொருளை உருவாக்குதல் - விக்கிப் பீடியாவில் தமிழ் உள்ளடக்கத்தை எழுதிப் பதிவேற்றுதல் - பதிவேற்றியதைச் சீரமைத்தல்
Books:	1. Modern Linguistics: An Introduction:Verma S.K.(Author),Krishnassamy N. oxford University Press India: 1997 2. Fundamentals of Linguistics; Raj Kumar Sharma; Atlantic Publihers and Distributors Pvt. Ltd – 2019 3. An Introduction to Language and Linguistics: Ralph Fasold And Jeff Connor-Linton; Cambridge University Press; 2006 4. An_introduction_to_Language_and_Linguistics.pdf(bbg.ac.id) 5. Linguistic Theory of Translation: J C Catford; Oxford University Press, 1963 6. a-linguistic-theory-of-translation.pdf(wordpress.com) 7. Corpus Liguistics: An introduction Kindle Edition; Author : NiladriSekharDash; Pearson; 1st edition;2007 8. An introduction to Corpus Linguistics; Author-Graeme Kennedy; Routledge:1998 9. PALink: A high-end tool for sybtatic and semantic annotation for Tamil 10. Text:Customized by bAU-KBC; To download: http://78.46.86.133/PALinkA.tar.gz 11. Introduction : Lexicography in the Internet era (Introduction to The Routledge Handbook of Lexicograpohy) Pedro A.Fuertes-Olivera; October 2017 12. (3) (PDF) Introduction: Lexicography in the Internet era (Introduction to The Routledge Handbook of Lexicography)(researchgate.net) 13. Lexicography: An Introduction; Howard Jackson: The Routledge, 2002 14. Dictionary development (e-dictionary development also), Wordnet, Thesaurus; Corpus Development in Tamil: Content Development usig various methods such as Computational Approaches to Tamil Linguistics (in English) Author: Prof.VasulRenganatan; Crea Publications; 2016 15. Speech and Language Processing (in English); Dan Jurafsky and James H.Martin; Pearson Education India; 2013 16. Natural Language Processing and Information Retrieval; Tanvar Siddiqui and US Tiwary; Oxford University Press, New Delhi; 2018 .. Fifth Edition 2015 17. Kaninithamizh Tamil Computing (in Tamil); Prof.Ila.sundaram; Vikatan; 2016 18. valartamil-ariviyalinaiyatamil/வளர்தமிழில் அறிவியல்இணையத் தமிழ்;Prof Ponnavaiko, Prof.Krishna Murthi, Prof. Subbaiyapillai; அனைத்திந்திய அறிவியல் தமிழ்க்கழகம்; 2006 19. Iyarkai Mozhiyaaivu Thamizk;Prof. Subbaiyapillai / கு. சுப்பையாபிள்ளை

	உலகத்தமிழ்ஆராய்ச்சிநிறுவனம் 2012 20. Tamil Virtual Academy Tool: Tamil Computing Tools | தமிழ் இணையக் கல்விக் கழகம் TAMIL VIRTUAL AVADEMY (tamilvu.org) 21. AU-KBC tools 22. Search engines – AU-KBC	
Extra Reading	1. A course in Modern Lingisctics; Charles F Hockett; Oxford and IBH Publishing Co: 1958 2. (99+_PDF A course in modern linguistics by Hockett | HasanAmanj- Academia.edu	
நூல்கள்	1. தமிழும், கணிப்பொறியும் மா. ஆண்டோ பீட்டா	சென்னை, கற்பகம் புத்தகாலயம் 2002
	2. தமிழ் இணையம், தமிழ் வலைத்தளங்கள் பங்களிப்பும் , பயன்பாடுகளும், ம.செ. இரபிசிங்	சென்னை, நர்மதா பதிப்பகம் 2009
	3. தமிழ்க் கணினி இணையப் பயன்பாடுகள், துரை. மணிகண்டன	தஞ்சாவூர்,கமலினி பதிப்பகம்,2012
	4. தமிழும் கணினியும் இராதா செல்லப்பன்	திருச்சி, கவிதை அமுதம் வெளியீடு, 2011
	5. கணினித் தமிழ், இல. சுந்தரம்	சென்னை, விகடன் பிரசுரம்,2015
	6. ரெபிடெக்ஸ், கம்யூட்டர் கோர்ஸ், இ. இராமநாதன்	ரெபிடெக்ஸ்,புதுதில்லி,2011
	7. கணிப்பொறியில் தமிழ், த. பிரகாஷ்	சென்னை, பெரிகாம் நூல் வெளியீடு, 2005
	8. கணிப்பொறி அறிவியல், தகவல் தொடர்பு தொழில்நுட்பம். மு. பொன்னவைக்கோ	தமிழ் வளர்ச்சிக் கழகம், சென்னைப் பல்கலைக்கழகம்
	9. கி.கருணாகரன், வ.ஜெயா மொழியியல், கோயம்புத்தூர்	

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	get an exposure to Tamil computing for the creation of Lexicography and corpus development
K1, K2	CO 2	get expertise in Tamil Linguistics and computational Linguistics
K2, K4	CO 3	know the fundamentals of Tamil Linguistics, traditional Tamil language structure with a focus on computational Linguistics
K2, K3	CO 4	apply the parsing techniques for usage of syntactic and semantic annotation for Tamil
K4, K6	CO5	acquire skill in Natural language processing and computational Linguistics

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 mark

COURSE CODE	U21TAE531	பெண்ணியம்	L	T	P	C
ELECTIVE –III விருப்பப் பாடம் - தாள் -III			4	-	-	3

Cognitive Level	**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background of literature**
Learning Objectives	The course aims at ➢ providing an understanding of literature through the ages with feminist point of you. ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of literature ➢ knowing the status of women through the portrayal of literature

அலகு- 1	பெண்ணியம் – விளக்க வரையறை – பெண்ணியத் தோற்றம், வளர்ச்சி, வரலாறு - இன்றைய நிலை – நோக்கும் - போக்கும
அலகு- 2	மேலைநாட்டுப் பெண்ணியவாதிகள் - அவர்களது எழுத்தாக்கங்கள் - இந்தியப் பெண்ணிய வாதிகள் - இந்தியச் சமூகச் சீரமைப்பு இயக்கங்களும் பெண் மேம்பாட்டிற்கான செயல்பாடுகளும் - தமிழகத்துப் பெண்ணியவாதிகளும் அவர்களது இலக்கிய ஆக்கங்களும்.
அலகு- 3	சங்க கால மகளிர் நிலை – பணிப் பகிர்வு – மனைவாழ்க்கை – விருந்தோம்பல் - உழத்தி - ஆயமகளிர், பூவிலைப் பெண்டிர், அரச மகளிர் - புலமை நலமிக்க பெண்புலவர்கள் - உமட்டியர் - சிறு.குறு தொழில் புரியும் மகளிர் - புறவாழ்வில் மகளிர் பங்கு – ஆடை, அணிகலன்கள்,ஒப்பனைகள், கலைத்துறை நாட்டம் - மகப்பேறு – வாழ்வியல் அறங்கள் - பண்பாடு போற்றல்.
அலகு- 4	பாரதியாரின், பெண் விடுதலை சார் கட்டுரைகள் பத்து மட்டும்
அலகு- 5	பெண் நலவாழ்வு சார் சட்டங்களும், பெண் நலம் பேணும் அரசின் கொள்கைகளும், செயல் திட்டங்களும் - மகளிரை மேம்படுத்துவதில் இக்காலத் தமிழ் இலக்கியங்களின் பங்கு
நூல்கள்:	1. பெண்ணியம், இரா. பிரேமா, சென்னை, தமிழ்ப் புத்தகாலயம். 2. பெண்ணியல், அன்னை தெரசா மகளிர் பல்கலைக்கழக வெளியீடு. 3. பாரதியார் கட்டுரைகள

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the status of women through literature.
K1, K2	CO 2	understand the notable features of feminist writing.
K2, K4	CO 3	aware of the salient features of feminist concepts.
K2, K3	CO 4	apply and attempt to appreciate through feminist point of view.
K4,	CO5	critically analyze the works of great writers

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark-
No Correlation (N)	-	0 Mark

<table>
<tr><td>COURSE CODE</td><td>U21TAE532</td><td rowspan="2">இணையத் தமிழ் இலக்கியம்
Inaiya Tamil Ilakkiyam</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE –III
விருப்பப் பாடம் - தாள் -III</td><td>4</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Learning
K2: Understanding
K3: Applying
K4 : Analysing
K5: knowing the background of Tamil computing and Tamil literature in cyber space</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The course aims at
➢ providing a wide spectrum of Tamil literature in cyber space
➢ helping the students to know the base of Tamil language for computing and downloading the needed Tamil font
➢ enable them to study Tamil literature from digital library, Wikipedia and Tamil electronic journals.
➢ understanding the process of searching for Tamil content via Tamil search engines.</td></tr>
</table>

அலகு- 1	இணையத்தில் தேடுபொறிகள் - தமிழ் எழுத்துரு பதிவிறக்க முறைகள் - தமிழ் வழி இணையத்துள் புகுதல்
அலகு- 2	தமிழ் விக்கிப்பீடியா – தமிழ் விக்சனரி – தமிழ் உள்ளடக்கப் பதிவிறக்கம் - பதிவேற்ற விதிகள்
அலகு- 3	தமிழில் மின்னஞ்சல் அனுப்புதல் - தமிழில் மின்னஞ்சல் பெறுதல் - இணையத் தமிழ்த் தளங்கள் பத்தினைக் கண்டறிதல் - அவற்றின் அமைப்பு, இலக்கு, பயன் குறித்து ஒவ்வொன்றுக்கும் இரண்டு பக்க அளவில் எழுதிச் சமர்ப்பித்தல்
அலகு- 4	இணைத்தில் தமிழ் மின் இதழ்கள் ஐந்தினைப் பார்வையிடல் - அவ்விதழ்களின் உள்ளடக்கம், பின்னூட்ட நெறிகள் - நோக்கம் -பயன்பாடு குறித்து ஐந்து பக்கங்களுக்குள் எழுதிச் சமர்ப்பித்தல்
அலகு- 5	தமிழ் இணைய மின் நூலகங்கள் ஐந்தினை அறிதல்- தமிழ் இணைய நூலகங்களில் இருந்து ஒரு தமிழ் நூலைத் தேடிக் கண்டறிந்து பதிவிறக்கம் செய்ய அறிந்திருத்தல்
நூல்	டாக்டர். இராதா. செல்லப்பன், தமிழும் கணிப்பொறியும், திருச்சி, கவிதை அமுதம் வெளியீடு

Course Outcomes

Upon completion of this course the students will be able to

K1, K2	CO1	get an exposure to Tamil Literature through Tamil web sites
K1, K2	CO 2	get expertise in Tamil Computing. As per the requirements of Digital sphere.
K2, K4	CO 3	know thefundamentals of Tamil content development and publishing in web space
K2, K3	CO 4	apply the mechanics of writing for digital medium
K4, K6	C05	acquire skill to do Natural language processing

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAS511	தகவல் தொடர்பியல் Thagaval Thodarbiyal	L	T	P	C
SBE- I திறன் சார் விருப்பப் பாடம் - தாள் - 1			2	-	-	2
Cognitive Level		K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the art of writing for media				
Learning Objectives		The course aims at ➢ providing a wide spectrum of media formats and content for Tamil media ➢ helping the students to know the growth of communication media in Tamilnadu. ➢ understanding the changes needed in the mechanics of writing for media.				

அலகு – 1	கணினிவழித் தகவல் தொடர்பு – புரொட்டோகால் (Protocal)- மேலிருந்து கீழ் - கீழிருந்து மேல் அணுகுமுறை 1.1 கம்பியில்லாத் தகவல் தொடர்பு 1.2 அலைபேசித் தொடர்பு முறை – 2ஜி, 3ஜி, 4ஜி, 5ஜி அலைகற்றை 1.3 உணரித் தொடர்புமுறை • தகவல் அலகுகளின் இணைப்பு (IOT) • இணையக் கல்வித் தொடர்பு (IOE)
அலகு – 2	வானொலித் தமிழ், தொலைக்காட்சித் தமிழ், தகவல் தொடர்பியலில் தமிழ்
அலகு – 3	தொலைத் தகவல் தொடர்பியலும் தமிழ் கருத்துப் பரவலும் - சமூக மாற்றங்கள் - தமிழ் கற்றல் - கற்பித்தல் முறைகள்
அலகு – 4	மின்னூடகத் தகவல் தொடர்பியலில் தமிழ் - தமிழ்த் தகவல் பரவல் - தரப்படுத்தல் - தகவல் பாதுகாப்பு முறைகள் - சமூக ஊடகங்களில் தமிழ் - விளைவுகள்
அலகு – 5	தகவல் தொடர்பு ஊடகங்களில் தமிழ் பயன்பாட்டுப் பயிற்சி நெறிமுறைகள் • கணித் தமிழ் பயிற்சிகளுக்கான தேவை • இணையத்தமிழ் பயிற்சிகளுக்கான தேவை இன்றியமையாமை – வழிமுறைகள் - செயற்படுத்தல்
பாடநூல்	1. க.அபிராமி – தகவல் தொழில்நுட்பம் - சென்னை, தமிழ்ப் புத்தகாலயம் 2. வெ. நல்லதம்பி – மக்கள் தகவல் தொடர்பியல்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	identify the changes in the usage of Tamil language as per the media for communication
K1, K2	CO 2	develop critical analysis of language structure adopted for media communication
K2, K4	CO 3	recognize the growth of media technology over the decades
K2, K3	CO 4	become proficient in the skill of writing for different media
K4, K6	C05	know the trend and coherence of language and literature over a period of time through communication media and the impact on society.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAS512	இலக்கியக் கொள்கைகள் Ilakkiya Kolkaigal	L	T	P	C
SBE- I திறன் சார் விருப்பப் பாடம் - தாள் - 1			2	-	-	2
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the background and identifying the theoretical base of literature**				
Learning Objectives		The course aims at ➢ providing an understanding of literary theories ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of literature and theories directed literary format and content over the years				

அலகு – 1	இலக்கியக் கொள்கை – விளக்கம் - வரையரை – வகைகள் - வரலாறு – நோக்கும் - போக்கும் - இன்றைய நிலை
அலகு – 2	தமிழ் இலக்கியக் கொள்கைகள் 2.1. தொல்காப்பியரின் இலக்கிய கொள்கைகள் 2.2 சங்க இலக்கியய் கொள்கைகள் 2.3. தொல்காப்பியம் கூறும் தமிழ் இலக்கிய வகைமைகள் - நூல் - உரை – பிசி – வாய்மொழி – மந்திரம் - முதுமொழி) – குறிப்பு என்பன.
அலகு – 3	தமிழ்க் காப்பியக் கொள்கைகள் 3.1. தமிழ் நீதி இலக்கிய கொள்கைகள்
அலகு – 4	பக்தி இலக்கியக் கொள்கைகள் 4.1. சைவ இலக்கியக் கொள்கைகள் 4.2. வைணவ இலக்கிய சரணாகதிக் கொள்கைகள் 4.3. சமண இலக்கிய நிலையாமைக் கொள்கைகள் 4.4. பௌவுத்த இலக்கிய அவா அகற்றல் கொள்கைகள் 4.5. கிறித்தவ சமூக சேவைக் கொள்கைகள் 4.6. இசுலாமிய தீன் நெறி கொள்கைகள்
அலகு – 5	இக்கால இலக்கியக் கொள்கைகள் 5.1. புதுக்கவிதைக் கொள்கைகள் 5.2. தமிழ் சிறுகதைக் கொள்கைகள் 5.3. தமிழ் புதினக் கொள்கைகள் 5.4. தமிழ் நாடகக் கொள்கைகள் 5.5. தமிழ் உரைநடைக் கொள்கைகள்
நூல்கள்	1. அரங்க,சுப்பையா, இலக்கியத் திறனாய்வு - இசங்கள் - சென்னை, பாவை பதிப்பகம்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	**CO1**	know the literary base and poetic tactics of writers
K1, K2	**CO 2**	understand the notable features of different literary theories and flow of writing
K2, K4	**CO 3**	aware of the salient features of principles of literature.
K2, K3	**CO 4**	apply and to appreciate literature from theratical perpectives
K4,	**CO5**	analyze the works of great writers and postulated theories

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -33/60
Moderately Correlating (M)	-	2 Marks -26/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

SEMESTER-VI

COURSE CODE	U21TAT61	சங்க இலக்கியம் Sanga Ilakkiyam	L	T	P	C
CORE XIII முதன்மைப் பாடம் - XIII			5	-	-	4
Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of literature					
Learning Objectives	The course aims at ➢ providing an understanding of Tamil classical literature of Ancient period. ➢ helping the students imbibe the abiding human and moral values through the study of great pieces of literature. ➢ understanding the historical background of literature					

அலகு -1	1.1 நற்றிணை – 7 பாடல்கள் - ஔவையார் பாடியன. பாடல் எண் - 129 – பெருநகை கேளாய்! 187 – நெய்தல் கூம்ப நிழல் 295 – முரிந்த சிலம்பின் 371 – காயாங் குன்றத்துக் கொன்றை 381 – அருந்துயர் உழத்தலின் 390 – வாளை வாயின் பிறழ 394 – மரந்தலை புணர்ந்த...... 1.2 குறுந்தொகை – 5 பாடல்கள் அறிவுடை நம்பி - 1 பாடல் பாடல் எண் - 230 – அம்ம வாழி தோழி கொண்கன் கோப்பெருஞ்சோழன் பாடிய 4 பாடல்கள் பாடல் எண் - 20 – அருளும், அன்பும் நீக்கி பாடல் எண் - 53 – எம் அணங்கினவே மகிழ்ந! பாடல் எண் - 129 – எலுவ! சிறாஅர் ஏமுறு நண்ப! பாடல் எண் - 147 – வேனில் பாதிரிக் கூன்மலர் அன்ன! 1.3. ஐங்குறுநூறு கபிலர் பாடிய குறிஞ்சி - குறிஞ்சி 21 – அன்னாய் வாழிப்பத்து – 10 பாடல்கள் அன்னாய் வாழி வேண்டு அன்னை முதல் தணிதற்கும் உரித்து அவள் உற்ற நோயே என்று முடியும் பாடல் வரை
அலகு – 2	கலித்தொகை – 5 பாடல்கள் நல்லந்துவனார் பாடிய நெய்தல் கலி – பாடல் எண் - 141 – கண்டோர் கூற்று – அரிதினின் தோன்றிய யாக்கையுள் பாடல் எண் - 142 - கண்டோர் கூற்று – பிரிவுண்ட புணர்ச்சி புல் ஆரா பாடல் எண் - 143 - கண்டோர் கூற்று –அகல் ஆங்கண், இருள் நீங்கி பாடல் எண் - 144 - கண்டோர் கூற்று – நன்னுதா ல்! காண்டை, நினையா

	பாடல் எண் - 148 - தொல் இயல் ஞாலத்து
அலகு – 3	3.1 அகநானூறு – 5 பாடல்கள் மதுரைக் கூல வாணிகன் சீத்தலைச் சாத்தனார் பாடியன. பாடல் எண் - 53 - அறியாய் வாழி தோழி! பாடல் எண் - 134 – வானம் வாய்ப்பக் கவினி பாடல் எண் - 229 – பகல்செய் பல்கதிர்ப் பரிதி பாடல் எண் - 306 – பெரும்பெயர் மகிழ்ந! பேணாது அகன்மோ! பாடல் எண் - 320 – ஓங்குதிரைப் பரப்பின் வாங்குவிசை. 3.2. பரிபாடல் - 3 பாடல் கடுவன் இளவெளியினனார் - செவ்வேள் - பாடல் எண் - 5 – பாய்இரும் பனிக்கடல் கடுவன் இளவெளியினனார் - திருமால் - பாடல் எண் - 4- ஐந்து இருள் அறநீக்கி நல்லந்துவனார் - வையை – பாடல் எண் - 6 – நிறைகடல் முகந்து உராய்
அலகு – 4	4.1 புறநானூறு – 10 பாடல்கள் பெருஞ்சித்திரனார் பாடல்கள் பாடல் எண் - 158 – முரசு கடிப்பு இகுப்பவும், வால் வளை துவைப்பவும். பாடல் எண் - 159 – வாழும் நாளோடு, யாண்டு பல உண்மையின் பாடல் எண் - 160 – உருகெழு ஞாயிற்று, ஒண்கதிர் மிசைந்த பாடல் எண் - 161 – நீண்டு ஒலி அழுவம் குறைபட பாடல் எண் - 162 - இரவலர் புரவலை நீயும் அல்லை பாடல் எண் - 163 – நின் நயந்து உறைநர்க்கும், நீ நயந்து பாடல் எண் - 207 – எழு இனி, நெஞ்சம், செல்கம், யாரோ, பாடல் எண் - 208 – குன்றும், மலையும், பல பின் ஒழிய பாடல் எண் - 237 – நீடு வாழ்க! என்று யான் நெடுங்கடை குறுகி பாடல் எண் - 238 – கவி செந்தாழிக் குவிபுறத்து இருந்த 4.2 பதிற்றுப்பத்து – ஐந்தாம் பத்து – 5 பாடல்கள் இடல் பிறக்கோட்டிய செங்குட்டுவனைப் பரணர் பாடியது பாடல் எண் - 42 – தசும்பு துளங்கு இருக்கை பாடல் எண் - 45 – ஊன் துவை அடிசில் பாடல் எண் - 44 – நோய் தபு நோன்தொடை பாடல் எண் - 48 – போர் எழில் வாழ்க்கை பாடல் எண் - 49 – செங்கை மறவர்
அலகு – 5	பட்டினப்பாலை முழுவதும்
நூல்கள்	1. தமிழ்ச் செவ்வியல் நூல்கள் - தஞ்சைத் தமிழ்ப் பல்கலைக்கழக வெளியீடு 2. தமிழ்ச் செவ்வியல் நூல்கள் - ச.வே.சு.(ப.ஆ) மணிவாசகர் பதிப்பகம் 3. தமிழ் நூலை இணையைவழித் தேடி பெறுவதற்குரிய நெறிமுறைகள் - பதிவிறக்கம் செய்தல் - விலைக்குப் பெறுதல் வணிகக் கடிதம் எழுதுதல் இரண்டு பக்க அளவில் சிறுகதை எழுதுதல் பதினைந்து அடிகளில் புதுக்கவிதை எழுதுதல் இப்பகுதி மாணவியருக்குப் பயிற்சி தருவது. இதிலிருந்து தேர்வுக்கான வினாக்கள் கேட்கக் கூடாது

பாட நூல்கள்	சங்க இலக்கியம் - மூலமும், உரையும்	ச.வே. சுப்பிரமணியம், சென்னை, மணிவாசகர் பதிப்பகம், 2014
	பத்துப்பாட்டு, மூலமும், உரையும்	ச.வே. சுப்பிரமணியம், சென்னை, மணிவாசகர் பதிப்பகம், 2014
	செவ்வியல் நூல்கள்(தொ.நூ)	தஞ்சைத் தமிழ்ப் பல்கலைக்கழகம்
	தமிழ் இலக்கிய வரலாறு	மு.வரதராசன் சாஹித்திய அகாதெமி பப்ளிகேஷன்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the poetic tactics of the ancient writers
K1, K2	CO 2	understand the notable features of literary geners and flow of writing at sangam age.
K2, K4	CO 3	aware of the salient features of classical texts
K2, K3	CO 4	attempt to appreciate the nuances of ancient literatures
K4,	CO5	critically analyze the works of great writers

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAT62	தமிழ் நீதி இலக்கியம் Tamil-Neethiilakiyam	L	T	P	C
CORE XIV முதன்மைப் பாடம் - XIV			5	-	-	4

Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of literature
Learning Objectives	The course aims at ➢ providing an understanding of Tamil ethical literature of Ancient period. ➢ helping the students imbibe the abiding human and moral ➢ values through the study of ethical literature. understanding the historical background of Tamil ethics handled in literature through the ages

அலகு – 1	திருக்குறள் - 10 அதிகாரங்கள் - (அறத்துப்பால் -1) அதிகாரம் 4 அறன் வலியுறுத்தல் அதிகாரம் 8 அன்பு உடைமை அதிகாரம் 10 இனியவை கூறல் அதிகாரம் 12 நடுவு நிலைமை அதிகாரம் 20 பயனில் சொல்லாமை அதிகாரம் 21 தீவினை அச்சம் அதிகாரம் 25 அருள் உடைமை அதிகாரம் 30 வாய்மை அதிகாரம் 31 வெகுளாமை அதிகாரம் 32 இன்னா செய்யாமை
அலகு – 2	நாலடியார் - 4 அதிகாரங்கள் - 40 செய்யுட்கள் மேன்மக்கள் -10 பெரியாரைப் பிழையாமை -10 நல் இனம் சேர்தல் -10 பெருமை -10
அலகு – 3	**பழமொழி – 15 செய்யுட்கள்** பாடல் எண் -15 அம் கண் விசும்பின் அகல் நலாப் பாரிக்கும் --- பாடல் எண் - 29 – முழுதுடன் முன்னே வகுத்தவன் எனும் பாடல் வரை **3.1 இன்னா நாற்பது** – 3 செய்யுட்கள் பாடல் எண் - 15 – புல் ஆர் புரவி மணி இன்றி ஊர்வு இன்னா பாடல் எண் - 16 – உண்ணாது வைக்கும் பெரும் பொருள் வைப்பு இன்னா பாடல் எண் - 17 – ஆன்று அவிந்த சான்றோருள் பேதை புகழ் இன்னா **3.2 இனியவை நாற்பது** - 3 செய்யுட்கள் பாடல் எண் - 17 நட்டாக்கு நல்ல செயல் இனிதே பாடல் எண் - 18 மன்றன் முதுமக்கள் வாழும் பதி இனிதே பாடல் எண் - 19 நட்டார்ப்புறம் கூறான் வாழ்தல் நனிஇனிதே
அலகு – 4	சிவப்பிரகாசர் - நன்னெறி – முதல் 30 பாடல் மட்டும்
அலகு – 5	அதிவீரராம பாண்டியர் - வெற்றி வேற்கை ஔவையார் - ஆத்திசூடி

	முன்சீப் வேதநாயகம் பிள்ளையின், 'நீதிநூல்' அதிகாரம் - 44 'விலங்கினத்துக்கு இடர் செய்யாமை' என்பதில் வரும் 'விலங்கினங்கட்கு வாக்கும், வினை உணர் ஞானத்தோடும்' என்று தொடங்கும் முதல் பாடல்	
நூல்	1. திருக்குறள்	பரிமேலழகர் உரை
	2. நாலாடியார்	தமிழ் இணையக் கல்விக் கழக மின் நூலகம
	3. பழமொழி	தமிழ் இணையக் கல்விக் கழக மின் நூலகம்
	4. இன்னா நாற்பது	மின் நூலகம்
	5. இனியவை நாற்பது	மின் நூலகம்
	6. நன்னெறி	மின் நூலகம்
	7. வெற்றி வேற்கை	மின் நூலகம்
	8. ஆத்திசூடி	மின் நூலகம்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the values adhered by people all through the life for moral well-being
K1, K2	CO 2	understand the noble ethics taught through literature.
K2, K4	CO 3	aware of the values and ethics upholded by Tamil socity through Literature
K2, K3	CO 4	attempt to appreciate the suitability of values insisted by ancient scholars
K4	CO5	critically analyze the works of great writers

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAT63	அணி இலக்கணம் - தண்டியலங்காரம் முழுவதும்	L	T	P	C
CORE XV முதன்மைப் பாடம் - XV		Ani Ilakkanam-Thandiyalangaram Muluvathum	5	-	-	4

Cognitive Level	**K1: Skill in poetics** **K2: Understanding** **K3: give citation** **K4: Analysis** **K5: To know the structure of Tamil verses**
Learning Objectives	The Course aims to • make students obtain writing skills with correct usage of grammar. • develop poetic proficiency • gain rich knowledge about simily, metaphor and other beauty components of Tamil verses through the literature • learn and brighten up their capacity to write classical verses • strengthen the poetry writing skills.

அலகு-1	பொது அணி இயல். 1.1 தற்சிறப்புப் பாயிரம் முதல் புறனடை வரையிலான 26 நூற்பாக்கள்
அலகு-2	பொருள் அணி இயல் -1 காப்பு முதல் விபாவனை அணி வரையிலான நூற்பாக்கள்(27 முதல் 51 வரை)
அலகு-3	பொருள் அணி இயல் -2 ஒட்டு அணி முதல் அவநுதி அணி வரையிலான நூற்பாக்கள்(52 முதல் 75 வரை)
அலகு -4	பொருள் அணி இயல் மற்றும் சொல் அணி இயல் சிலேடை அணி முதல் சித்திரகவி வரையிலான நூற்பாக்கள் (76 முதல் 98 வரை)
அலகு -5	சொல் அணி இயல் தொடர்ச்சி வழுக்களின் வகை முதல் புறனடை வரையிலான நூற்பாக்கள (99 முதல் 126 வரை)
நூல்கள்	தண்டியலங்காரம் - திருநெல்வேலி சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு

COURSE OUTCOME

At the end of the course, the students will be able to:

K1, K2	CO1	acquire knowledge of poetic beauty of Tamil literature
K1, K2	CO2	use grammatical structures of Tamil verses.
K5, K4	CO3	analyse the grammatical structure of verses in Tamil texts and know the impact of sanskrit literature
K5, K1	CO4	analyse the format of verses written in Standard Tamil.
K3	CO5	make inferences and predictions based on comprehension of a text.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	M	M	S	S	S	S	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	M
CO3	S	M	S	M	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	S	S	S	S	S	S	M	M

Strongly Correlating (S) - 3 Marks—42/60

Moderately Correlating (M) - 2 Marks—16/60

Weakly Correlating (W) - 2 Marks

No Correlation (N) - 0 Mark

COURSE CODE	U21TAT64	தமிழக கோவில் கலைகள் கல்வெட்டுகள் உணர்த்தும் பண்பாடு Tamilaga Kovil Kalaigal kalvetukal Unarthum Panpaadu	L	T	P	C
CORE XVI முதன்மைப் பாடம் - XVI			5	-	-	4
Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of temple arts					
Learning Objectives	The course aims at ➢ providing a wide spectrum of culture through the ages by temple architect, arts and inscriptions. ➢ helping the students to appreciate temple arts and culture. ➢ understanding the historical background and messages conveyed through inscriptions.					

அலகு – 1	தமிழகக் கோவில்கள் - சங்ககாலக் குறிப்புகள் - பல்லவர் காலக் குடைவரை கோயில்கள் - கற்றளிகள் - சோழர் காலக் கோயில்கள் - விமானங்கள் - நாயக்கர் காலக் கோபுரங்கள் - திருச்சுவர் – திருச்சுற்று – பிரகாரங்கள் - பிற்காலக் கோயில்கள் - கோயில்களின் அமைப்பு முறை வரலாற்று நோக்கு
அலகு – 2	கோவில்சார் கலைகள் - சிற்பக்கலை – கட்டடக்கலை – ஓவியக் கலை இசைக் கலை – வாத்தியக்கலை – நடனக்கலை – நாடகக்கலை - பிறகலைகள்
அலகு – 3	கோவில் கல்வெட்டுகள் - தமிழகக் கோவில்களில் கல்வெட்டுகள் - கோவில் கொடைகள் - நிபந்தங்கள் - திருப்பணிகள் சார் கல்வெட்டுகள் - வரலாறு
அலகு – 4	தமிழகக் கோவில்கள் சமுதாயக் கூடங்களாகத் திகழ்ந்தமை – மக்களின் வழிபாட்டுக் கூடங்கள் - மக்கள் சேவை மையங்கள் - கூட்டு வழிபாட்டு நெறிகள் - உணவளிக்கும் அறச்சாலைகள்
அலகு – 5	தமிழகக் கோவில்களும் பண்பாடும் - கோவில் திருவிழாக்கள் - ஊரார் பங்கேற்பு- பணி கொடை – பணிப்பகிர்வு – நம்பிக்கைகள் - தமிழகப் பண்பாட்டு வரலாற்றில் கோயில்கள் - பெறுமிடம்
நூல்	1. இ.கா.பெருமாள், தமிழகக் கோயில்கலைகள், கல்வெட்டுகள் உணர்த்தும் பண்பாடு தமிழகக் கோவில்கள், கல்வெட்டுகள் - பிபிசி சிறப்புக்கட்டுரை 2. முனைவர். பாக்கியமேரி, காலந்தோறும் தமிழர்கலைகள், அறிவுப் பதிப்பகம், சென்னை 2008. 3. மயிலை சீனி. வேங்கடசாமி, நுண்கலைகள், 2011 4. மயிலை சீனி. வேங்கடசாமி, தமிழர் வளர்த்த அழகுக்கலைகள், சென்னை பாவை பப்ளிகேசன், 1998 5. முனைவர்.ஆறு.இராமநாதன், நாட்டுப்புறக் கலைகள், சிதம்பரம், மெய்யப்பன், தமிழ் ஆய்வகம் 6. பொ.இராஜேந்திரன், சொ.சாந்தலிங்கம், கோயிற்கலை, சென்னை, 2014, நியூ செஞ்சுரி புக் ஹவுஸ்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the historical background of the temple arts
K1, K2	CO 2	understand the growth of temple architecture from time to time.
K2, K4	CO 3	aware of the salient features of temple culture through inscriptions
K2, K3	CO 4	know the trend of culture
K4, K6	CO5	critically analyze the inscriptions and aware of cultural, historical, political, social and economic background of Tamil society

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 mark

			L	T	P	C
COURSE CODE	**U21TAT65**	**படைப்பிலக்கியம்**				
CORE XVII முதன்மைப் பாடம் - XVII			**4**	**-**	**-**	**4**
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the art of writing**				
Learning Objectives		The course aims at ➢ providing an understanding of Tamil creative literature ➢ helping the students to know the art of writing with moral and human values. ➢ understanding the historical background of Tamil literature and gain confidence in writing on their own.				

அலகு – 1	மரபுக்கவிதை எழுதச் செய்தல் - ஈற்றடி தந்து எழுதச் செய்தல் (அ) முதல் சொல் தந்து எழுதச் செய்தல்.
அலகு – 2	புதுக்கவிதை – குறுங்கவிதை – துணுக்குப்பா எழுதச் செய்தல் - தலைப்பு தந்து எழுதச் செய்தல் - உணர்வுகள் - சூழல்கள் சொல்லப்பட்டு எழுதச் செய்தல்.
அலகு – 3	தலைப்பு தந்து மூன்று பக்க அளவில் சிறுகதை எழுதச் செய்தல் - மையக்கரு தந்து எழுத வைத்தல்
அலகு – 4	தலைப்பு தந்து ஓரங்க நாடகம் எழுதச் செய்தல்
அலகு – 5	சிறுவர் இலக்கியம் படைத்தல் - குழந்தை பாடும் வகையில் எளிய பாடல்கள் எழுதச் சொல்லல்- குழந்தைகளுக்கான கதைகள் எழுதுதல் உங்களுக்குத் தெரியுமா? சிறு விளக்க உரைகள் - துணுக்குகள் - நகைச்சுவைக் கட்டுரை எழுதுதல்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the values to be handled in creative writing for people to live happily
K1, K2	CO 2	understand the noble ethics taught through literature and develop an attitude towards creative writing.
K2, K4	CO 3	aware of the values and ethics upholded by Tamil socity and have them in their writing
K2, K3	CO 4	attempt to appreciate the suitability of values insisted by ancient scholars and decide to go in that path or to do something innovvatively
K4	CO5	critically analyze the works of great writers and Have those works as models for their writing

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

COURSE CODE	U21TAE641	திராவிட மொழிகளின் ஒப்பிலக்கணம்	L	T	P	C
ELECTIVE –IV விருப்பப் பாடம் - தாள் - IV		Thiravida mozhigalin oppilakkanam	4	-	-	3
Cognitive Level		K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of Dravidian languages.				
Learning Objectives		The course aims at ➢ providing a wide spectrum of Dravidian languages in India. ➢ helping the students to know about the base for Dravidian languages. ➢ enable them to study the similarities between protodravidian language and Tamil language ➢ understanding the place of Tamil in relation to other languages of Dravidian family.				

அலகு – 1	மொழிக் குடும்பம் - வரையறை – உலக மொழிக் குடும்பங்கள் - திராவிட மொழிக் குடும்பங்கள் - அவற்றின் தனித்தன்மைகள்
அலகு – 2	திராவிடம் என்பதன் பொருள் - மூலத் திராவிடம் - தொல் திராவிடம் - அதன் இயல்புகள் - அது தமிழுடன் ஒத்து இருத்தலைப் பரிசீலித்தல்.
அலகு – 3	திராவிட மொழிகளின் வகைபாடுகள் - தென் திராவிட மொழிகள் - அவற்றின் பொதுமைப் பண்புகள்
அலகு – 4	நடு திராவிட மொழிகள் - அவற்றின் பண்புகள் - வழங்குமிடம் - வழக்கு நிலை
அலகு – 4	வட திராவிட மொழிகள் - அவற்றின் பொதுமைக் கூறுகள் - தனித்துவப் பண்புகள்.
பாட நூல்கள்	கால்டுவெல் - திராவிட மொழிகளின் ஒப்பிலக்கணம் சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	Know the historical background of the languages spoken in Deccan and other parts of India.
K1, K2	CO 2	understand the differences between Dravidian and Indo-Aryan languages in India.
K2, K4	CO 3	Aware of the salient features of Dravidian languages and Develop critical thinking of place of Tamil with other languages of Dravidian origin
K2, K3	CO 4	Know the trend of changes occured in language of Dravidian family
K4, K6	C05	Critically analyze the Dravidian languages at different periods of time.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAE642	தமிழ் கலைச்சொல்லாக்க நெறிகள் Tamil Kalaisollakka Nerigal	L	T	P	C
ELECTIVE –IV விருப்பப் பாடம் - தாள் - IV			4	-	-	3
Cognitive Level	K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the art of coining new words in Tamil for new technical terms					
Learning Objectives	The course aims in ➢ providing the basics of translation and coining new terms in Tamil for new ideologies of science and technology ➢ helping the students to know the techniques of Translation. ➢ enable them to coin new words to denote new equipments in Tamil languages and its relevance be assessed and standardised ➢ understanding the process and rules of framing new technical terms.					

அலகு 1	கலைச்சொல் - விளக்க வரையறை – புதுச்சொற்களை உருவாக்குவதன் அவசியம் - மொழி பெயர்ப்பும் துறைசார் கலைச்சொல்லாக்கமும் - நைடாவின் மொழிபெயர்ப்பு விதிகள்
அலகு 2	தமிழ் கலைச்சொல்லாக்க முறைகள் - கருத்தாக்க விரிவு – சொல்லாக்கச் செறிவு - இரண்டனுக்கும் இடையிலான சமன்மை – பல் வகைச் சொற்கள் உருவாக்கம் - தரப்படுத்த நெறிகள்
ஆலகு 3	**3.1** அறிவியல் கலைச் சொல்லாக்க விதிமுறைகள் அனைத்துலகக் கலைச் சொல் உருவாக்க நெறிகள் 3.2 கலைத்துறைக் கலைச்சொல்லாக்க விதிமுறைகள் 3.3 கலைச்சொல்லாக்கத்தில் பயன்படுத்தப்படும் • ஒலிபெயர்ப்பு முறைகள் • இருமொழி கையாளல் • கணிதக் குறியீடுகள் • பன்மொழிப் பயன்பாடு சார் நெருடல்கள்
அலகு 4	ஊடகங்களும் தொழில் நுட்பத் தமிழும் - அச்சு ஊடகம் - மின் ஊடகம் - வானொலி – தொலைக்காட்சி – திரைப்படம் - தொலைவரி – தொலைநகலி – செயற்கைக் கோள் கணினி - இணையம் - வலைதளம் - முகநூல் - மின்னஞ்சல் - கைபேசி – பிற சாதனங்கள்.
அலகு 5	பாடத்துறை சார்ந்த பத்துத் தொழில் நுட்பச் சொற்களுக்குத் தக்க தமிழ்க் கலைச்சொற்களை உருவாக்குதல்
நூல்	முனைவர். இராதா செல்லப்பன், கலைச்சொல்லாக்கம், திருச்சி, கவியமுதம் வெளியீடு

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the translation tactics of framing new terms for new devices and concepts
K1, K2	CO 2	understand the notable features of new ideologies of different disciplines and found appropriate terms in source and target language
K2, K4	CO 3	aware of the salient features of translating texts with their cultural features.
K2, K3	CO 4	apply and attempt to solve problems in translation
K4,	CO5	critically analyze and coin new terminology for the translation of advanced science and technology

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks -39/60
Moderately Correlating (M) - 2 marks -20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21TAS61</td><td rowspan="2">கல்வெட்டியல்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SBE-I
திறன்சார் விருப்பப் பாடம்</td><td>2</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Learning
K2: Understanding
K3: Applying
K4 : Analysing
K5: knowing the art of reading Inscriptions.</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The course aims at
➢ providing a wide spectrum of messages engraved in Inscriptions through the ages.
➢ helping the students to read Inscriptions.
➢ understanding the historical background of messages conveyed through inscriptions.</td></tr>
</table>

அலகு -1	கல்வெட்டுக்கள் - நடுகல் - கல்வெட்டுக்களின் வகைகள் - நோக்கம் - தமிழ்க் கல்வெட்டுக்களின் தோற்றம், விளக்கம் வரலாறு
அலகு -2	கல்வெட்டுத் தமிழ் - பிராமிக் கல்வெட்டு – குகைக் கல்வெட்டுகள் - செப்பேடுகள் - சாசனங்கள் - மெய்க்கீர்த்திகள் - பதிவு செய்யும் செய்திகள்
அலகு -3	பழங்காலக் கல்வெட்டுச் செய்திகள்
அலகு -4	சோழர் காலக் கல்வெட்டுச் செய்திகள்
அலகு -5	பிற்காலக் கல்வெட்டு ஆவணங்கள் - தமிழ்க் கல்வெட்டியல் - துறை வெளியீடுகள்.
நூல்	தமிழகக் கல்வெட்டியல் துறை ஆவண வெளியீடுகள்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the historical background of the Inscriptions.
K1, K2	CO 2	understand the growth of Inscriptions in temples from time to time.
K2, K4	CO 3	aware of the salient features of temple culture through inscriptions
K2, K3	CO 4	know the trend of culture
K4, K6	CO5	critically analyze the inscriptions and aware of cultural, historical, political, social and economic background of Tamil society

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

NON MAJOR ELECTIVE – NME

COURSE CODE	U21TAN42	மொழி பெயர்ப்பியல்	L	T	P	C
SEMESTER - IV			2	-	-	2
Cognitive Level		**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the fundamentals TamilTranslation**				
Learning Objectives		The course aims at ➢ providing the basics of translation ➢ helping the students to know the techniques of Translation. ➢ enable them to study the Machine language translation and its relevance to Tamil languageparsing techniques. ➢ understanding the process of shallow parsing and deep parsing and natural language processing.				

அலகு – 1	**மொழிபெயர்ப்பு** - மூலமொழி - இலக்கு மொழி – மொழிபெயர்ப்பின் தேவையும், பயனும் - மொழிபெயர்ப்பாளர் தகுதிகள் - தமிழ் மொழி பெயர்ப்பின் வரலாறு
அலகு – 2	**மொழிபெயர்ப்பு வகைகள்** - முழுநிலை மொழிபெயர்ப்பு பகுதி நிலை மொழிபெயர்ப்பு சொல் நேர் மொழிபெயர்ப்பு கட்டில்லா மொழிபெயர்ப்பு தழுவல்
அலகு – 3	படைப்பிலக்கிய மொழிபெயர்ப்பு – கவிதை, கதை, கட்டுரை அறிவியல் மொழிபெயர்ப்பு – மருத்துவ நூல்கள் மொழிபெயர்ப்பு
அலகு – 4	மொழிபெயர்ப்பு முறைகள் - மொழிபெயர்ப்புக் கருவிகள் - மொழிபெயர்ப்புச் சிக்கல்கள்
அலகு – 5	மொழிபெயர்ப்புப் பயிற்சி – உரைநடை, கதை ஐந்து வாக்கியங்கள் தந்து தமிழிலிருந்து ஆங்கிலத்துக்கு மொழி பெயர்க்கச் செய்தல் ஐந்து வாக்கியங்கள் தந்து ஆங்கிலத்திலிருந்து தமிழுக்கு மொழி பெயர்க்கச் செய்தல்
பாடநூல்கள்	1. வளர்மதி, மொழிபெயர்ப்பியல் 2. சு. சண்முக வேலாயுதம், மொழிபெயர்ப்பியல் 3. கா. பட்டாபிராமன் - மொழிபெயர்ப்புக் கலை 4. சேதுமணி மணியன் - மொழிபெயர்ப்பியல் கோட்பாடு 5. நா. முகமது செரிப் - மொழிபெயர்ப்பு வழிகளும் வாய்ப்புகளும்

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the translation tactics of literature
K1, K2	CO 2	understand the notable features of literary geners and flow of writing in source and target language
K2, K4	CO 3	aware of the salient features of translating texts with their cultural features.
K2, K3	CO 4	apply and attempt to solve problems in translation
K4,	CO5	critically analyze and coin new terminology for the translation of advanced science and technology

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S)	-	3 Marks -39/60
Moderately Correlating (M)	-	2 Marks -20/60
Weakly Correlating (W)	-	1 Mark
No Correlation (N)	-	0 Mark

VALUE ADDED COURSE

COURSE CODE	U21TAV511	இதழியல்	L	T	P	C
SEMESTER - V			-	-	-	2

Cognitive Level	**K1: Learning** **K2: Understanding** **K3: Applying** **K4 : Analysing** **K5: knowing the art of writing for media**
Learning Objectives	The course aims at ➢ providing a wide spectrum of media formats and content for Tamil media ➢ helping the students to know the growth of communication media in Tamilnadu. ➢ understanding the changes needed in the mechanics of writing for media.
அலகு – 1	இதழியல் - தோற்றம் - வகைகள் - வளர்ச்சி இன்றைய நிலை - இந்திய இதழ்கள் - தமிழ் இதழ்கள் - வளர்ச்சி வரலாறு – தமிழ் இதழாளர்கள் - திரு.வி.க,- அறிஞர் அண்ணா – பெரியார் - சி.பா. ஆதித்தனார் - ஏ.என் சிவராமன் - கி.வா. ஜகந்நாதன் - கல்கி – ஏ.எஸ். அண்ணாமலை – வாசன் - தமிழ்வாணன் தமிழ் இலக்கிய இதழாளர்கள்.
அலகு – 2	செய்தி மூலங்கள் - செய்தி சேகரித்தல் - செய்தி நிறுவனங்கள் - நிருபர்கள் - தகுதிகள் - கடமைகள்
அலகு – 3	செய்தி கட்டமைப்பு – தலைப்பு – முதல் பத்தி – உடல் பகுதி – தலையங்கம் - செய்தி வகைகள் - பக்க அமைப்பு
அலகு – 4	பதிப்பாசிரியர் - ஆசிரியர் குழு - இதழ் நிர்வாகம் - விளம்பரங்கள் - விற்பனை – வாசகர் கடிதம்
அலகு – 5	இதழியல் சட்டங்கள் - இதழியல் சுதந்திரம் - இந்திய விடுதலைக்கு இதழ்களின் பங்கு - இன்றைய தமிழ் இதழ்களின் நோக்கும் போக்கும்.
பாடநூல்	1. மா.பா.குருசாமி - இதழியல் கலை 2. மா.சு.சம்பந்தன் - தமிழ் இதழியல் வரலாறு

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	identify the changes in the usage of Tamil language as per the media for communication
K1, K2	CO 2	develop critical analysis of language structure adopted for media communication by eminent media personalities.
K2, K4	CO 3	recognize the growth of media technology over the decades
K2, K3	CO 4	become proficient in the skill of writing for different media
K4, K6	CO5	know the trend and coherence of language and literature over a period of time through communication media and their impact on society.

Mapping of Cos with POS & PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks- 39/60
Moderately Correlating (M) - 2 Marks—20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

COURSE CODE	U21TAV512	தமிழ் சதக இலக்கியம்	L	T	P	C
SEMESTER - V			-	-	-	2
Cognitive Level		K1: Learning K2: Understanding K3: Applying K4 : Analysing K5: knowing the background of Sathagam literature				
Learning Objectives		The course aims at ➢ Providing an understanding of Tamil Sathagam literature. ➢ Helping the students imbibe the abiding human and moral values through the study of great pieces of Sathagam literature. ➢ Understanding the historical background of Sathagam literature and know the life style of people portrayed through Sathagam literature.				

அலகு -1	தொண்டைமண்டல சதகம் - நூலமைப்பு – நுவல்பொருள் சுருக்க வரைவு – வரலாற்றுப் பதிவுகள் - சமூக, பண்பாட்டு, வாழ்வியல் அரசியல் சார் குறிப்புகள் - நூலின் நயங்கள் - வரலாற்றுப் பயன்பாடு
அலகு -2	சோழ மண்டல சதகம் - நூல் வரலாறு – காலம் - நூலாசிரியர் வரலாறு – நூலமைப்பு - நூல் பொருள் சுருக்கம்- நூலமைப்பு -
அலகு -3	பாண்டிய மண்டல சதகம் - நூல் தோன்றிய சூழல் - காலப் பன்னை – வரலாறு – நூலாசிரியர் குறிப்பு – நூலமைப்பும், நுவல் பொருளும் இலக்கிய நயங்கள் - வரலாற்றுப் பதிவுகள்
அலகு -4	தமிழ் நாவலர் சரிதை – நூல் அமைப்பும் வரலாறும்-கருப்பொருள் சுருக்க வரைவு – நூல் ஆசிரியர் வரலாறு – காலப் பின்னணி – வரலாற்று நோக்கிலும். இலக்கிய நோக்கிலும், அணுகி ஆராய்தல்
அலகு -5	தண்டலையார் சதம் - நூலமைப்பும், நுவல் பொருளும் - இலக்கிய நயங்கள் - தனிச்சிறப்புக்கள் – பொதுமைக் கூறுகள் - இலக்கியப் பனுவல்களை வரலாற்று ஆவணங்களாகக் கொள்வதில் நேரும் சிக்கல்கள், தீர்வுகள்
நூல்கள்	1. தொண்டை மண்டல சதகம், மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம். 2. சோழ மண்டல சதகம், மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம். 3. பாண்டிய மண்டல சதகம், மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம். 4. தமிழ் நாவலர் சரிதை, மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம். 5. தண்டலையார் சதகம், மதுரை மின்நூல் தொகுப்புத் திட்ட மின் நூலகம்.

COURSE OUTCOMES

Upon completion of this course the students will be able to

K1, K2	CO1	know the historical information given by the writers of Tamil Sathagam literature.
K1, K2	CO 2	understand the notable information about social history of Tamil Society given through Sathagam Literature.
K2, K4	CO 3	aware of the salient features of Sathagam texts of different regions.
K2, K3	CO 4	attempt to appreciate the nuances of Sathagam literature
K4,	CO5	critically analyze the works of writers of Sathagam Literature.

<u>Mapping of Cos with POS & PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3	PSO 4	PSO5
CO1	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	M	S	S	M	S	S
CO3	S	S	S	S	M	M	S	S	M	S	M	S
CO4	S	M	S	S	S	M	M	S	S	S	M	S
CO5	S	S	S	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 Marks -39/60
Moderately Correlating (M) - 2 Marks -20/60
Weakly Correlating (W) - 1 Mark
No Correlation (N) - 0 Mark

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அன்னை தெரசா மகளிர் பல்கலைக்கழகம்

கொடைக்கானல்

தமிழியல் துறை

முதுகலைத் தமிழ் (எம்.ஏ. தமிழ்)

விருப்பம் சார் தெரிவுமுறை (CBCS)

பயன் சார்முறை (OBE)

பொது ஒழுங்குமுறை மற்றும் பாடத்திட்டம்

1. இணையவழி பாடத்திட்ட முதல் குழுக்கூட்ட நாள்: 28.04.2021 (https://meet.google.com/wgs.dvpu.jxx)
2. இணையவழி பாடத்திட்ட இரண்டாம் குழுக்கூட்ட நாள்: 11.06.2021
3. இணையவழி பாடத்திட்ட மூன்றாம் குழுக்கூட்ட நாள்: 12.06.2021 (https://meet.google.com/aex-.nmjy-awj)

கல்விக் குழுக்கூட்ட நாள்: 21.06.2021

2021-2022 கல்வியாண்டு முதல் நடைமுறைப்படுத்துவதற்கு ஒப்புதல் வேண்டிச் சமர்ப்பிக்கப்படுகிறது

Mother Teresa Women's University, Kodaikanal
Department of Tamil Studies
Choice Based Credit System (CBCS)
M.A Tamil Studies
(2021-2022 onwards)

1. About the Programme:

The content of the M.A. Tamil degree programme has been planned carefully and thoughtfully, to offer students, the best possible curricular experience and to bring out upright, sensitive and intelligent citizens in society. The curriculum revision has been premised on the assumption that society requires students, who will serve as its mind, heart and future. Further, one of the major objectives of the curriculum is the employability of the students upon their successful completion of the programme. The project in the final semester enhances student's research attitude and prepares them for Pre-Doctoral Research.

2. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1	தமிழ் மொழியை கற்பிக்கும் ஆசிரியர்களாகவும் பல்துறையிலும் பணியாற்றும் பணியாளராகவும் விளங்குவர்.
PEO 2	தமிழ் மொழியின் பல்வேறு இலக்கிய வகைகளையும் வடிவங்களையும் புரிந்துகொண்டு இலக்கிய விமர்சனக் கருத்துக்களையும் இலக்கிய கோட்பாடுகளையும் பயன்படுத்துவர்.
PEO 3	தமிழ் மொழி மற்றும் இலக்கியம் சார்ந்த தகவல்களைப் பெறுவதால் போட்டித்தேர்வுகளை எதிர்கொள்வர்
PEO 4	தமிழ் இலக்கியங்களை படிப்பதன் வாயிலாக தமிழ் இலக்கியங்களை படைக்கும் படைப்பாளர்களாகத் திகழ்வர்.
PEO 5	தமிழ் மொழி மற்றும் இலக்கியங்களை கற்பதன் மூலம் வாழ்வியல் விழுமியங்களைப் பின்பற்றி நடப்பதோடு பிறர்க்கும் கற்பிப்பர்
PEO 6	தமிழ் இலக்கணங்களை கற்பதால் பிழைகள் நீக்கி தமிழ் மொழியை திறம்பட கற்கவும் எழுதவும் பேசவும் முடியும்

3. Eligibility *: Women Candidate should have passed B.A Tamil or anyother degree with Part – I Tamil

4. General Guidelines for PG Programme

i. **Duration:** The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

Evaluation Pattern	Theory		Practical	
	Min	Max	Min	Max
Internal	13	25	13	25
External	38	75	38	75

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 90**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
00-49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

10.PROGRAMME OUTCOMES (POs)

Programme Outcomes	
PO 1	தமிழ் மொழி, தமிழ் இலக்கியம், தமிழ் கணினி பற்றிய ஆழமான அறிவைப் பெறுவதோடு சிறந்த வாழ்க்கையை வாழத் தாம் கற்ற விழுமியங்களைப் பயன்படுத்தமுடியும்.
PO 2	தொழில் நுட்பத் துறையில் தனது பங்காற்றத் தேவையான திறனை மேம்படுத்துதல், ஆளுமையை வளர்த்தல் மற்றும் விரிவான அறிவைப் பெற்று தனது திறனை வளர்த்துக் கொள்ள இயலும்.
PO 3	உலகத்தை வடிவமைத்த வரலாற்று, சமூக நெறி முறை, பண்பாடு, கலாச்சார மதிப்புகளையும் சித்தாந்தங்களையும் பகுப்பாய்வு செய்ய முடியும்.
PO 4	சிக்கல் தீர்க்கும் திறன், கணினி மென்பொருள் கருவிகளைக் கையாளும் திறனோடு பல்வேறு போட்டித் தேர்வு எழுதி வெற்றியைப் பெற இயலும்.
PO 5	மனித குலத்தின் நன்மைக்காக மாணவிகள் பன்முகத்திறன்களைப் பயன்படுத்தி தரவுகளைச் சேகரித்து ஆய்வுகளில ஈடுபடும் ஆய்வாளர்களாகும் திறனைப் பெறுதல்.

11. PROGRAMME SPECIFIC OUTCOMES (PSOs)

Programme Specific Outcomes	
இந்த பாடங்களைப் படிப்பதன் மூலம் மாணவியர் பெறும் பயன்.	
PSO1	தமிழ் இலக்கியங்கள், காலந்தோறும் இலக்கிய வகைமைகள், நுவல்பொருளில் ஏற்பட்ட வளர்ச்சி மாற்றம் பற்றி அறிந்து கொள்ளுதல், பிற மொழி இலக்கியங்களுடன் ஒப்பிடல், தமிழ் அகராதிகள், நிகண்டுகள் போன்ற கருவி நூல்களின் வளர்ச்சி, தமிழ் மொழி வரலாற்றின் நோக்கு, போக்கு பற்றி அறிதல்.
PSO2	தமிழ் இலக்கியங்களின் வழி மகளிர் நிலையை அறிதல்
PSO3	தமிழ் இலக்கணநூல் தொல்காப்பியம் உரைக்கும் எழுத்து, சொல், பொருள் அதிகாரக் கருத்தாக்கங்களைக் கற்றுத் தெளிதல்.
PSO4	ஆய்வு நெறிமுறைகளை அறிந்து, ஆய்வேடு உருவாக்கல், ஆய்வுக் கட்டுரைகள் எழுதும் தேர்ச்சி பெறுதல்.
PSO5	ஊடக வேலைவாய்ப்பிற்கான பயிற்சி பெறுதல், தமிழ்க் கணினி மென்பொருள் கருவிகளைக் கையாளும் பயிற்சி பெறுதல்.
PSO6	படைப்பாற்றல் பெறுதல்

முதுகலைத் தமிழ் பாடத்திட்டம்

	முதல் பருவம்						
வ.எ	பாடக் குறியீடு	தாளின் தலைப்பு	புள்ளி	மண	அக மதிப்பீடு	புற மதிப்பீடு	மொத்தம்
1.	P21TAT11	**முதன்மைப் பாடம் - I** இக்கால இலக்கியம் - Ikkala Ilakkiyam	4	5	25	75	100
2.	P21TAT12	**முதன்மைப் பாடம் - II** தொல்காப்பியம் - எழுத்து அதிகாரம் - Tholkappiyam – Eluthathigaram	4	6	25	75	100
3.	P21TAT13	**முதன்மைப் பாடம் - III** சிற்றிலக்கியம் -Chitrilakkiyam	4	5	25	75	100
4.	P21TAT14	**முதன்மைப் பாடம் - IV** இலக்கியத் திறனாய்வும், இலக்கியக் கொள்கைகளும் பெண்ணிய ஆய்வுகளும் - Ilakkiya Thiranaivum Ilakkiya Kolkaikalum Penniya Aaivugalum	4	6	25	75	100
5.	P21TAT15	**முதன்மைப் பாடம் - V** பக்தி இலக்கியம் - Bakthi Ilakkiyam	4	6	25	75	100
6.	P21TAS11	Supportive course I (Skill) Tamil Kaniniyiyal Inaiya Payanpadugal தமிழ்க் கணினி இணையப் பயன்பாடுகள்	2	2	25	75	100
		Total	**22**	**30**	**150**	**450**	**600**
	இரண்டாம் பருவம்						
வ.எ	பாடக் குறியீடு	தாளின் தலைப்பு	புள்ளி	மணி	அக மதிப்பீடு	புற மதிப்பீடு	மொத்தம்
7	P21TAT21	**முதன்மைப் பாடம் - VI** தொல்காப்பியம் - சொல் அதிகாரம் - Tholkappiyam – Chol Athigaram	4	5	25	75	100
8	P21TAT22	**முதன்மைப் பாடம் - VII** காப்பிய இலக்கியம் - Kappiya Ilakkiyam	4	5	25	75	100
9	P21TAT23	**முதன்மைப் பாடம் - VIII** தமிழ் இலக்கண வரலாறு- Tamil illakana varalaru	4	4	25	75	100

10	P21TAT24	**முதன்மைப்பாடம் - IX** இலக்கண உரையாசிரியர்கள் - Illakana Urai Aasiriyargal	4	4	25	75	100
11	P21TAT25	**முதன்மைப் பாடம் - X மேம்பட்ட கணினித் தமிழ், தமிழ்த் தரவக உருவாக்கம் தரவ உருவாக்கம் Advanced Tamil Computing and Tamil Corpus Development**	4	6	25	75	100
12		**NME (பிற துறை பாடம்)**	4	4	25	75	100
13	P21CSS22	Supportive Course- II: Computer Skills for Web Designing and Video Editing	2	2	25	75	100
		Total	**26**	**30**	**175**	**525**	**700**
	மூன்றாம் பருவம்						
வ. எ	பாடக் குறியீடு	தாளின் தலைப்பு	புள்ளி	மணி	அக மதிப்பீடு	புற மதிப்பீடு	மொத்தம்
14	P21TAT31	**முதன்மைப் பாடம் - XI** தொல்காப்பியம் பொருள் அதிகாரம் -I Tholkappiyam Porul Athigaram–I	4	5	25	75	100
15	P21TAT32	**முதன்மைப் பாடம் - XII** தமிழ் இலக்கிய உரையாசிரியர்கள் - Tamil Illakiya Uraiaasiriyargal	4	4	25	75	100
16	P21TAT33	**முதன்மைப் பாடம் - XIII** தொல்காப்பியம் பொருள் அதிகாரம் -II Tholkappiyam Porul Athigaram–II	4	6	25	75	100
17	P21TAT34	**முதன்மைப் பாடம் - XIV** பதினெண்கீழ்க்கணக்கு – அற இலக்கியம் - Pathinen Keelkanakku – Ara Ilakkiyam	4	4	25	75	100
18	P21TAT35	**முதன்மைப் பாடம் - XV** சங்க இலக்கியம் - Sanga Ilakkiyam	4	5	25	75	100
19	P21TAT36	**முதன்மைப் பாடம் - XVI** தமிழ் சிறுவர் இலக்கியம் - Tamil Siruvar Ilakkiyam	4	4	25	75	100

20	P21WSS33	Supportive course III (Women Empowerment) – Common Compulsory Paper	2	2	25	75	100
		மொத்தம்	**26**	**30**	**175**	**525**	**700**
	நான்காம் பருவம்						
வ. எ	பாடக் குறியீடு	தாளின் தலைப்பு	புள்ளி	மணி	அக மதிப்பீடு	புற மதிப்பீடு	மொத்தம்
21	P21TAE411/ P21TAE412/ P21TAE413	Elective I தமிழ் சித்தர் இலக்கியம் Tamil Sithar Illakiyam / Valviyal Neri Ilakiyam – வாழ்வியல் நெறி இலக்கியம் / **MOOC course**	4	4	25	75	100
22	P21TAE421/ P21TAE422/ P21TAE423	Elective II பெண் வழக்காற்றியல் pen vazhakkatriyal / **படைப்புக் கலை / MOOC course***	4	4	25	75	100
23	P21TAR41	Project - ஆய்வறிக்கை	8	22	25	75	100
		மொத்தம்	**16**	**30**	**75**	**225**	**300**
		மொத்தம்	**90**	**120**			**2300**

Non Major Elective (NME)

NME - I: மொழியியல்

கூடுதல் புள்ளிக்குரிய பாடங்கள்:

1. P21TAV11 - மதிப்பு கூட்டுப் பாடம் - Tamil Computing and Applications கணித்தமிழ் பயன்பாடு - 2 புள்ளிகள் (முதல் பருவம்)
2. P21TAI21 - உள்கட்டப் பயிற்சி / தொழில் பயிற்சி - 2 புள்ளிகள் (இரண்டாம் பருவம்)
3. P21TAO31 - இணையப் பாடங்கள் - 2 புள்ளிகள் (மூன்றாம் பருவம்)
4. P21TAV42 – மதிப்பு கூட்டுப் பாடம் - ஊடகத் தமிழ் - 2 புள்ளிகள் (நான்காம் பருவம்)

* Those who have CGPA 9 and want to do the project in Industry / Institution during 4th semester, these two elective papers in IV semester can be opted in third semester itself.

$ For Elective – I / Elective- II, the students can also take either one 4-credit course or two 2-credit courses in MOOC, with the approval of Departmental Committee.

Outside Class Hours (Attendance compulsory, Certificate Mandatory)

- Health, Yoga and Physical fitness.
- Library information access and utilisation
- Employability Training.
- Students Social Responsibility.

SEMESTER I

Course Code	P21TAT11	முதன்மைப் பாடம் - I இக்கால இலக்கியம் - Ikkala Ilakkiyam	L	T	P	C
Core	I		5	0	0	4
Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்					
Course Objectives	• இக்கால இலக்கியங்களை அறிதல் • சிறந்த படைப்புகளைத் திறனாய்தல் • தானே எழுதப் பயிற்சி பெறுதல் • இக்கால இலக்கியங்களை பயின்று பகுத்து வகை தொகை செய்தல் • இலக்கிய ஆக்கங்களை மதிப்பீடு செய்தல்					
அலகு – 1						
இக்கால இலக்கியங்களாகிய கவிதை, மரபுக் கவிதை, புதுக்கவிதை, நாவல், சிறுகதை, நாடகம், உரைநடை ஆகியவற்றின் வரையறை, தோற்றம், வளர்ச்சி, வரலாறு, இன்றைய நிலை, தடம் பதித்தச் சான்றோர்களும் அவர்களது புகழ் பெற்ற இலக்கிய ஆக்கங்களும் பற்றிய சுருக்க வரைவு.						
அலகு – 2	கவிதை இலக்கியம்					

2.1 பாரதியார்-கவிதைகள்	1. பெண்கள் விடுதலைக் கும்மி (15 கவிதைகள் மட்டும்)
பொதுமைப்பாடல்களில் வரும்	1. புதுமைப் பெண் 2. பெண்மை
வசன கவிதையில் வரும்	3. சக்தி 4. மகா சக்திக்கு விண்ணப்பம் 5. ஹே காளி
பல்வகைப்பாடல்களில் வரும்	6. கவிதா தேவியின் அருள் வேண்டல் 7. ராதைப் பாட்டு 8. வள்ளிப்பாட்டு (1), (2)
பாரதி அறுபத்தாறில் வரும்	9. பெண் விடுதலை 10. தாய் மாண்பு 11. பாப்பாப் பாட்டு
வாழ்த்துப்பாக்களில் வரும்	12. நிவேதிதா தேவி
சமூகம் என்பதில் வரும்	13. மனைத் தலைவிக்கு வாழ்த்து

சுதந்திரப் பாடல்களில் வரும்	14. சுதந்திர தேவியின் துதி
2.2 பாரதிதாசன் கவிதைகள்	- குடும்ப விளக்கு – முதல் பாகம்
2.3 நாமக்கல் கவிஞர் கவிதைகள் (6 கவிதைகள் மட்டும்)	1. தமிழிசை 2. கவியமுதம் 3. திருவள்ளுவர் 4. ஔவை 5. கம்பன் 6. அமரகவி பாரதி
அலகு –3	**நாவல் இலக்கியம்**
நாவல் இலக்கியம் - சு.சமுத்திரம் - வேரில் பழுத்த பலா (சாகித்திய அகாதெமி பரிசு பெற்றது)	
அலகு –4	**சிறுகதை இலக்கியம்**
சிறுகதை இலக்கியம் – புதுமைப் பித்தன் படைப்புகள் தொகுதி I - சிறுகதைத் தொகுப்பிலுள்ள 10 கதைகள் மட்டும் 1. கலியாணி 2. கனவுப் பெண் 3. நன்மை பயக்கும் எனின் ... 4. நிகும்பலை 5. காஞ்சனை 6. நியாயந்தான் 7. நம்பிக்கை 8. மனநிழல் 9. மாயவலை 10. கண்ணன்குழல்	
அலகு –5	**நாடகம், உரைநடை**
5.1 சுந்தரம் பிள்ளை – மனோன்மணீயம் - நாடகம். 5.2 இரா.பி சேதுப்பிள்ளை – தமிழ் இன்பம் (இலக்கிய கட்டுரைகள்) (சாகித்திய அகாதெமி பரிசு பெற்றது)	
பயில்முறைப் பயிற்சி	
மாணவர் தன் விருப்பத்துக்கு ஏற்ப – தமிழ் பெண் எழுத்தாளரது இலக்கியப் படைப்பைத் தேர்வு செய்து வாசித்து அதன் நிறை குறைகளைப் பரிசீலிக்கும் திறனாய்வுக் கட்டுரை ஒன்றினைப் பத்து பக்க அளவில் சமர்ப்பிக்க வேண்டும். பயில் முறைப்பயிற்சி வாசிப்பையும், திறனாய்வுத் திறனையும் மேம்படுத்துவதற்கானது. **இதில் தேர்வுக்குரிய வினா ஏதும் கேட்கப்படக் கூடாது.**	

Book(s) for Study

1	சி.சு செல்லப்பா, புதுக்குரல்கள் (எழுத்து வெளியீடு) கவிதை நூலை மாணவியர் படிக்கச் செய்யலாம்.

Book(s) for Reference

1	பாரதியார் கவிதைகள்
2	பாரதிதாசன் - குடும்ப விளக்கு

3	சி.சு செல்லப்பா, புதுக்குரல்கள் (எழுத்து வெளியீடு)
4	நாமக்கல் கவிஞர் கவிதைகள் - தமிழ் இணைய கல்விக் கழக மின் நூலகம்
5	சு.சமுத்திரம் - வேரில் பழுத்த பலா - மதுரை மின் நூல் தொகுப்புத் திட்ட நூலகம்
6	புதுமைப் பித்தன் படைப்புகள் - மதுரை மின் நூல் தொகுப்புத் திட்ட நூலகம்
7	சுந்தரம் பிள்ளை – மனோன்மணீயம், தமிழ் இணைய கல்விக் கழக மின் நூலகம்
8	இரா.பி சேதுப்பிள்ளை – தமிழ் இன்பம் (இலக்கிய கட்டுரைகள்), சென்னை பழனியப்பா பிரதர்ஸ் 2007, மதுரை மின் நூல் தொகுப்புத் திட்ட நூலகம்

Course Outcome

CO1	இக்கால இலக்கியங்களை அறிதல்	[K2]
CO2	சிறந்த படைப்புகளைத் திறனாய்தல்	[K3]
CO3	தானே எழுதப் பயிற்சி பெறுதல்	[K3] , [K6]
CO4	இக்கால இலக்கியங்களை பயின்று பகுத்து வகை தொகை செய்தல்	[K5]
CO5	இலக்கிய ஆக்கங்களை மதிப்பீடு செய்தல்	[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	1	2	2	2	2	2
CO2	3	3	2	2	1	2	2	2	3	2	3
CO3	3	3	2	3	3	3	3	3	3	2	1
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT12	தொல்காப்பியம் - எழுத்து அதிகாரம்	L	T	P	C
Core	II		6	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• மொழி இலக்கண அடிப்படை விதிகளை அறிதல் • இலக்கண மரபு இன்றளவும் மாறாமல் தொடர்ந்து வரும் பாங்கை உணர்தல் • பிழை இன்றி மொழி கையாளும் பயிற்சி பெறுதல் • அடிப்படை விதிகளைக் கற்றுத் தேர்ச்சி பெறுதல் • இலக்கண விதிகளை இன்றைய மொழியுடன் பொருத்திக் காணல்
அலகு – 1	**பாயிரம்** - நூல் மரபு, மொழி மரபு
அலகு –2	பிறப்பியல், புணரியல்
அலகு –3	தொகை மரபு, உருபியல்
அலகு – 4	உயிர் மயங்கியல், புள்ளி மயங்கியல்
அலகு – 5	குற்றியலுகரப் புணரியல்

பயில் முறைப் பயிற்சி

மாணவர் தனக்கு விருப்பமான சிறுகதை, கவிதை, கட்டுரை, நாடகம், புதினப் பகுதியிலிருந்து மூன்று (அ) நான்கு பக்கங்களைத் தேர்வு செய்து, அப்பகுதியில் இடம் பெற்றுள்ளசொற்களில், சொல்லின் முதலில் வந்த எழுத்துக்கள், சொல்லின் இடையில் வந்த எழுத்துக்கள், சொல்லின் இறுதியில் வந்த எழுத்துக்களை அடிக்கோடிட்டுதொல்காப்பிய மொழிமரபு நூற்பாக்களுடன், அவை பொருந்தி வருதல் மரபு (அ) வேறுபடும் நிலையைச் சுட்டிக்காட்டி, பத்து, பத்து சொற்களைச் சான்று காட்டி பயில் முறை கட்டுரை ஒன்றினை ஆறு பக்கங்களுக்குள் எழுதி, ஒவ்வொருவரும் சமர்ப்பிக்க வேண்டும்.

குறிப்பு: பயில் முறை பயிற்சி மாணவர்கள் அறிவுத் தெளிவு பெறுதல் பொருட்டே ஆகும்.

இப்பகுதியில் இருந்து தேர்வுக்கு வினா ஏதும் இடம்பெறக் கூடாது.

Book(s) for Study

1	தொல்காப்பியம் - இளம்பூரணர் உரை- சைவ சித்தாந்த நூல் பதிப்புக் கழக வெளியீடு, சென்னை.

Course Outcome		
CO1	மொழி இலக்கண அடிப்படை விதிகளை அறிதல்	[K1]
CO2	இலக்கண மரபு இன்றளவும் மாறாமல் தொடர்ந்து வரும் பாங்கை உணர்தல்	[K2]
CO3	பிழை இன்றி மொழி கையாளும் பயிற்சி பெறுதல்	[K3]
CO4	அடிப்படை விதிகளைக் கற்றுத் தேர்ச்சி பெறுதல்	[K3]
CO5	இலக்கண விதிகளை இன்றைய மொழியுடன் பொருத்திக் காணல்	[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	1	3	2	2	3	2	2	2	3	2	3
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAT13</td><td rowspan="2">சிற்றிலக்கியம்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>III</td><td>5</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">• தனித்த இலக்கிய வகைகளது தோற்றம் பற்றி அறிதல்
• சிற்றிலக்கிய இலக்கண விதிமுறைகளைப் பரிசீலித்தல்
• நுவல்பொருள் மரபின் பின்னணி அறிதல்.
  ○ புலமை வெளிப்பாடு
  ○ தெய்வம் போற்றல்
  ○ தனி மனிதர் போற்றல்
• சிற்றிலக்கியங்களைத் திறனாய்தல்
• எண்ணிக்கையில் பெருகிய திறத்தை மதிப்பிடுதல்</td></tr>
<tr><td colspan="2">அலகு – 1</td><td colspan="5">தமிழ் சிற்றிலக்கியத் தோற்றம் - வளர்ச்சி – வரலாறு – எண்ணிக்கை – வகைகள் - தமிழ் இலக்கண நூல்கள் தரும் இலக்கண வரையறைகள் - சுருக்க வரைவு.</td></tr>
<tr><td colspan="2">அலகு –2</td><td colspan="5">சேரமான் பெருமாள் நாயனாரின் ‘திருக்கைலாய ஞான உலா – 197 அடிகள்.</td></tr>
<tr><td colspan="2">அலகு –3</td><td colspan="5">சின்னப்ப நாயக்கரின் பழனிப்பிள்ளைத்தமிழ் முழுவதும்</td></tr>
<tr><td colspan="2">அலகு – 4</td><td colspan="5">நம்பியாண்டார் நம்பிகள் அருளிய, ஆளுடைய பிள்ளையார் திருக்கலம்பகம் - முழுவதும் - 49 செய்யுட்கள்.</td></tr>
<tr><td colspan="2">அலகு – 5</td><td colspan="5">தமிழில் சித்திரக்கவிகள் - திருமங்கை ஆழ்வாரின், திருஎழு கூற்றிருக்கை.</td></tr>
<tr><td colspan="7">Book(s) for Reference</td></tr>
<tr><td>1</td><td colspan="6">சேரமான் பெருமாள் நாயனார், திருக்கைலாய ஞான உலாப.964-968. பதினோராம் திருமுறை. ச.வே.சுப்பிரமணியன், (ப.ஆ) பன்னிரு திருமுறை, சென்னை, மணிவாசகர் பதிப்பகம் 2009.</td></tr>
<tr><td>2</td><td colspan="6">சின்னப்ப நாயக்கர்,பழனிப் பிள்ளைத்தமிழ், சென்னை. உ.வே.சாமிநாதையர் நூல் நிலைய வெளியீடு 1932, மு.ப, 2020, இ.ப.,</td></tr>
<tr><td>3</td><td colspan="6">நம்பியாண்டார் நம்பி, ஆளுடைய பிள்ளையார் திருக்கலம்பகம், பக்கம் - 1049 – 1054 -49 செய்யுட்கள்- பதினோராம் திருமுறை, ச.வே.சுப்பிரமணியன் (ப.ஆ1) பன்னிரு திருமுறை, சென்னை, மணிவாசகர் பதிப்பகம், 2009.</td></tr>
<tr><td>4</td><td colspan="6">திருமங்கை ஆழ்வார், திருவெழு கூற்றிருக்கை- நாலாயிரத் திவ்விய பிரபந்தம் - மூன்றாவது ஆயிரம் - இயற்பா – பாஷ்யகாராச்சாரியார் (ப.ஆ) சிதம்பரம், ஆதித்யா ஸ்ரேயா பதிப்பகம், 2005.</td></tr>
</table>

Course Outcomes		
CO1	• தனித்த இலக்கிய வகைகளது தோற்றம் பற்றி அறிதல்	[K1]
CO2	• சிற்றிலக்கிய இலக்கண விதிமுறைகளைப் பரிசீலித்தல்	[K3]
CO3	• நுவல்பொருள் மரபின் பின்னணி அறிதல். ○ புலமை வெளிப்பாடு ○ தெய்வம் போற்றல் ○ தனி மனிதர் போற்றல்	[K2]
CO4	• சிற்றிலக்கியங்களைத் திறனாய்தல்	[K4]
CO5	• எண்ணிக்கையில் பெருகிய திறத்தை மதிப்பிடுதல்	[K5]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	2
CO3	3	3	2	3	3	3	3	3	3	2	1
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT14	இலக்கியத் திறனாய்வும், இலக்கியக்கொள்கைகளும் பெண்ணிய ஆய்வுகளும்	L	T	P	C
Core	IV		6	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• இலக்கியத்தைத் திறனாய்வு செய்யும் பயிற்சி பெறுதல் • இலக்கிய கொள்கைகளை உருவாக்குதல் • பெண்ணிய ஆய்வு மேற்கொள்ளுதல் • கட்டுரை எழுதப் பயிற்சி பெறுதல் • பெண்ணிய நோக்கில் ஆய்வு செய்தல்
அலகு – 1	இலக்கியம் - வரையறை - இலக்கியத் தோற்றத்துக்கான காரணங்கள் - அறிவியல் - இலக்கியம் இடையிலான வேறுபாடு - இலக்கியமும், வாழ்க்கையும் - இலக்கியமும் திறனாய்வும், மதிப்பீடுகளும், பயன்களும்.
அலகு –2	இலக்கியக் கொள்கை – விளக்கம் - வரலாறு - இலக்கியக் கொள்கைகளின் வகைகள் - அக வெழுச்சி கொள்கை – தெய்வீக அகத்தெழுச்சி- அவயவிக் கொள்கை- அறிவியல் கொள்கை – அழகியல் கொள்கை – உணர்ச்சிக் கொள்கை – சமுதாய கொள்கை- இலக்கிய கொள்கை- இலக்கியத் திறனாய்வு இடையிலான உறவுகள்.
அலகு –3	இலக்கியத் திறனாய்வு – விளக்கம் - இலக்கியத் திறனாய்வு வகைகள், விதிமுறைத் திறனாய்வு – விளக்கமுறைத் திறனாய்வு – மதிப்பீட்டு முறைத் திறனாய்வு – வரலாற்று முறைத் திறனாய்வு – படைப்பு முறைத் திறனாய்வு – மரபு வழித் திறனாய்வு – அழகியல் திறனாய்வு - மூலபாடத் திறனாய்வு – ஒப்பீட்டு முறைத் திறனாய்வு – வாழ்க்கை வரலாற்று முறைத் திறனாய்வு – பாராட்டு முறைத் திறனாய்வு – அறிவியல் முறைத் திறனாய்வு – சமுதாயவியல் திறனாய்வு- உளவியல் அணுகுமுறை- மொழியியல் அணுகுமுறை – உருவவியல் அணுகுமுறை- அமைப்பியல் திறனாய்வு – மார்க்சியத் திறனாய்வு – திறனாய்வின் பயன்கள்.
அலகு – 4	தொல்காப்பியக் கொள்கைகள் - இலக்கிய வடிவம் - உள்ளடக்கம் - திணைகள் - முதல்பொருள், கருப்பொருள், உரிப்பொருள் - இலக்கிய அகம்- புறம் -கொள்கைகள் - அற இலக்கியக் கொள்கைகள் - காப்பியக் கொள்கைகள் - சிற்றிலக்கியக் கொள்கைகள் - இக்கால இலக்கியக் கொள்கைகள்.

அலகு – 5	இலக்கியத்தில் கற்பனை – கற்பனை வகைகள் - உணர்ச்சிகள் - மொழி நடை- நவீனத் திறனாய்வு அணுகுமுறைகள – பெண்ணியத் திறனாய்வு – விளிம்புநிலை மக்கள் வாழ்வியல் - இனவரைவியல் அணுகுமுறைகள்.	
Book(s) for Study		
1	சு.பாலச்சந்திரன் - இலக்கியத் திறனாய்வு	
2	தா.ஏ.ஞானமூர்த்தி - இலக்கியத் திறனாய்வு	
3	அ.அ.மணவாளன் - இருபதாம் நூற்றாண்டின் இலக்கியக் கோட்பாடுகள்	
4	மு.வரதராசன் - இலக்கியத் திறன்	
5	மு.வரதராசன் - இலக்கிய மரபு	
6	அரங்க.சுப்பையா - இலக்கியத் திறனாய்வு - இசங்கள் - கொள்கைகள்	
7	இலக்கியக் கொள்கைகள் - உலகத் தமிழ் ஆராய்ச்சி நிறுவன வெளியீடு.	
8	அ.ச. ஞானசம்பந்தன் , இலக்கியக் கலை.	
Course Outcomes		
CO1	• இலக்கியத்தைத் திறனாய்வு செய்யும் பயிற்சி பெறுதல்	[K6]
CO2	• இலக்கியக் கொள்கைகளை உருவாக்குதல்	[K6]
CO3	• பெண்ணிய ஆய்வு மேற்கொள்ளுதல்	[K4] ,[K5]
CO4	• கட்டுரை எழுதப் பயிற்சி பெறுதல்	[K3]
CO5	• பெண்ணிய நோக்கில் ஆய்வு செய்தல்	[K5]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAT15</td><td rowspan="2">பக்தி இலக்கியம்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>V</td><td>6</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">• சமயஞ்சார் இலக்கிய மரபை அறிதல்
• இலக்கிய வளர்ச்சிக்கு சமயங்களின் கொடை பற்றி பரிசீலித்தல்
• சைவ, வைணவ இலக்கிய நுவல் பொருளைக் கற்றல்
• கம்பராமாயணத்தை கற்றல்
• கிறித்தவ இலக்கியம், இசுலாமிய இலக்கியங்களைக் கற்றல்</td></tr>
<tr><td colspan="2">அலகு – 1</td><td colspan="5">தமிழில் சமய இலக்கிய தோற்றப் பின்னணி</td></tr>
<tr><td colspan="7">தமிழகத்தில் சைவம் வைணவம், சமணம், பௌத்தம், கிறித்தவம், இசுலாமியம் ஆகிய சமயங்களைச் சார்ந்து தமிழ் இலக்கியங்கள் தோன்றி வளர்ந்த வரலாறு பற்றிய சுருக்க வரைவு.</td></tr>
<tr><td colspan="2">அலகு –2</td><td colspan="5">சைவ சமயஞ்சார் இலக்கியம்</td></tr>
<tr><td colspan="7">பன்னிரு திருமுறை- நூல் குறிப்பு – பதினெண் சைவ சித்தாந்தங்கள் - நூல் குறிப்பு – சைவத் திருமடங்கள் - சைவ சமய இதழ்கள் - குறிப்பு

2.1 திருஞான சம்பந்தர் - தேவாரம் - 4.திருவாவடுதுறை- “இடரினும் தளரினும் எனதுறு நோய்” என்று தொடங்கும் 2834 வது பாடல் முதல் “அலை புனல் ஆவடுதுறை அமர்ந்த” எனும் 2844 வரை உள்ள 11 பாடல்கள் மட்டும்.

2.2திருநாவுக்கரசர் - தேவாரம் - ஐந்தாம் திருமுறை – 9 – திருமுறைக்காடு – “ஓத மால் கடல் பரவி உலகு எலாம்” என்றும் தொடங்கும் 5312 ஆவது பாடல் முதல் “குறைகாட்டான் விட்ட தேர் குத்த மாமலை” எனும் 5320 வது பாடல் வரை உள்ள 9 பாடல்கள் மட்டும்.

2.3 சுந்தரர் - ஏழாம் திருமுறை- தேவாரம் - 5 திருவீரட்டானம் - போற்றித் திருத்தாண்டகம் - “எல்லாம் சிவன் என நின்றாய் போற்றி” என்று தொடங்கும் 6287 வது பாடல் முதல் “முக்கணா போற்றி முதல்வா் போற்றி” எனும் 6296 வது பாடல் வரையிலான 10 பாடல்கள் மட்டும்.

2.4 மாணிக்க வாசகர் - எட்டாம் திருமுறை – திருவாசகம் - 19 திருத்தசாங்கம் - “ஏரார் இளங்கிளியே” என்று தொடங்கும் 358 வது பாடல் முதல், “சோலைப் பசுங்கிளியே” எனும் 367 வது பாடல் வரையிலான 10 பாடங்கள் மட்டும்.

2.5 காரைக்காலம்மை – பதினோராம் திருமுறை – 3.திரு இரட்டை மணிமாலை – “கிளர்ந்து உந்து வெந்துயர் வந்தடும்போது” எனும் முதல் பாடல் முதல் “உத்தமராய் வாழ்வார” எனும் இருபதாவது பாடல் வரையிலான 20 பாடல்கள் மட்டும்.</td></tr>
</table>

அலகு –3	வைணவ சமயம் சார் இலக்கியம்

3.1 நாலாயிரத் திவ்விய பிரபந்தம் - நூல் குறிப்பு – நாத முனிகள் - இராமானுசர் - திவ்விய பிரபந்த உரைகள்.

3.2 நாலாயிரத் திவ்விய பிரபந்தம் - முதலாயிரம் பெரியாழ்வார் திருமொழி – ஏழாம் திருமொழி – தளர்நடைப் பருவம் - "தொடர் சங்கிலி கை சலார் பிலா ரென்னத் தூங்கு பொன்மணி ஒலிப்ப" என்று தொடங்கும் 86 வது பாடல் முதல் "ஆயர் குலத்தினில் வந்து தோன்றிய அஞ்சன வண்ணன்" எனும் 96 வது பாடல் வரையிலான 11 பாடல்கள்.

3.2.1 ஆண்டாள் - நாச்சியார் திருமொழி – பதினான்காம் திருமொழி – "பட்டி மேய்ந்தோர் காரேறு பலதெவற்கு ஓர் கீழ்க்கன்றாய்" எனும் 637 வது பாடல் முதல் "பருந்தாட் களிற்றுக்கு அருள் செய்த பரமன்" எனும் 646 வது பாடல் வரையிலான 10 பாடல்கள்.

3.3 நாலாயிரத் திவ்விய பிரபந்தம் - இரண்டாம் ஆயிரம் - திருமங்கை ஆழ்வார் - பெரிய திருமொழி – ஆறாம் திருமொழி – நைமிசாரணியம் - "வாணிலா முறுவல்" என்று தொடங்கும் 998 வது பாடல் முதல், "ஏதம் வந்து அணுகா வண்ணம்" எனும் 1007 வது பாடல் வரையிலான 10 பாடல்கள்.

3.4 நாலாயிரத் திவ்விய பிரபந்தம் - மூன்றாம் ஆயிரம் - இயற்பா – பேயாழ்வார் - மூன்றாம் திருவந்தாதி – "பார்த்த கடுவன் சுனை நீர் நிழல் கண்டு ஏறும்" எனும் 2349 வது பாடல் முதல் "ஆய்ந்த அருமறையோன் நான் முகத்தோன்" எனும் 2358 வது பாடல் வரையிலான 10 பாடல்கள்.

3.5 நாலாயிரத் திவ்விய பிரபந்தம் - நான்காம் ஆயிரம் - நம்மாழ்வார் - திருவாய்மொழி – பத்தாம் திருவாய் மொழி – "மாலை நண்ணித் தொழுது எழுமினோ வினை கெட" எனும் 3656 வது பாடல் முதல் "மால் உமது வாஞ்சை முற்றும்" எனும் 3666 தனியன் வரையிலான 12 பாடல்கள்.

அலகு – 4	கம்பராமாயணம்

பால காண்டம் - 22 கடிமணப் படலம் - "இடம்படு புகழ்ச் சனகர் கோன் இனிது பேண" என்று தொடங்கும் 1160 வது பாடல் முதல் "ஈந்து அளவு இல்லது ஓர் இன்பம் நுகர்ந்தே" எனும் 1262 ஆவது பாடல் வரையிலான 103 பாடல்கள்.

அலகு - 5	கிறித்தவ இலக்கியம் - இசுலாமிய இலக்கியம்

கிறித்தவ இலக்கியம் - தேம்பாவணி – கதை சுருக்க வரைவு –
இசுலாமிய இலக்கியம் - சீறாப்புராணம் - கதை சுருக்க வரைவு.
5.1 – தேம்பாவணி- முதல் காண்டம் - 6. ஈரறம் பொருத்து படலம் -454-526 வரை 73 செய்யுள்கள்
5.2 – சீறாப்புராணம்- இரண்டாவது காண்டம் - 7வது படலம் - ஹபீபு மக்கத்துக்கு வந்த படலம் - 419 -510 வரை 89 செய்யுட்கள்.

Book(s) for Study

1	ச.வே.சுப்பிரமணியன் (ப.ஆ), பன்னிரு திருமுறை, சென்னை, மணிவாசகர் பதிப்பகம்.
2	பாஷ்யகாராச்சாரியார், நாலாயிரத் திவ்விய பிரபந்தம், முதலாயிரம், இரண்டாம் ஆயிரம், மூன்றாம் ஆயிரம், நான்காம் ஆயிரம், சிதம்பரம், ஆதித்யா ஸ்ரேயாப் பதிப்பகம்.

3	ச.வே. சுப்பிரமணியன் (ப.ஆ) கம்பராமாயணம், சென்னை மணிவாசகர் பதிப்பகம்.
4	தேம்பாவணி – மதுரை மின் நூல் தொகுப்புத் திட்டம்
5	சீறாப் புராணம் - மதுரை மின் நூல் தொகுப்புத் திட்டம்.

Course Outcomes

CO1	• சமயஞ்சார் இலக்கிய மரபை அறிதல்	[K1]
CO2	• இலக்கிய வளர்ச்சிக்கு சமயங்களின் கொடை பற்றி பரிசீலித்தல்	[K4]
CO3	• சைவ, வைணவ இலக்கிய நுவல் பொருளைக் கற்றல்	[K2]
CO4	• கம்பராமாயணத்தைக் கற்றல்	[K1] ,[K2]
CO5	• கிறித்தவ இலக்கியம், இசுலாமிய இலக்கியங்களைக் கற்றல்	[K1] ,[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

SEMESTER II

<table>
<tr><td>Course Code</td><td>P21TAT21</td><td rowspan="2">தொல்காப்பியம் - சொல் அதிகாரம்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>VI</td><td>5</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td>Course Objectives</td><td colspan="6">• மொழி இலக்கண அடிப்படை விதிகளை அறிதல்
• இலக்கண மரபு இன்றளவும் மாறாமல் தொடர்ந்து வரும் பாங்கை உணர்தல்
• பிழை இன்றி மொழி கையாளும் பயிற்சி பெறுதல்
• அடிப்படை விதிகளை கற்றுத் தேர்ச்சி பெறுதல்
• இலக்கண விதிகளை இன்றைய மொழியுடன் பொருத்திக் காணல்</td></tr>
<tr><td>அலகு – 1</td><td colspan="6">கிளவியாக்கம்</td></tr>
<tr><td>அலகு –2</td><td colspan="6">வேற்றுமை இயல், வேற்றுமை மயங்கியல்</td></tr>
<tr><td>அலகு –3</td><td colspan="6">விளி மரபு, பெயரியல்</td></tr>
<tr><td>அலகு – 4</td><td colspan="6">வினையியல், இடையியல்</td></tr>
<tr><td>அலகு - 5</td><td colspan="6">உரியியல், எச்சவியல்</td></tr>
<tr><td colspan="7">பயில் முறைப் பயிற்சி</td></tr>
<tr><td colspan="7">மாணவர் தன் விருப்பத்துக்கு ஏற்ப ஏதேனும் ஒரு சிறுகதை, புதினம், கட்டுரை, நாடகம், செய்யுட்களின் பகுதி – ஐந்து பக்க அளவிலான இலக்கியப் பகுதியைத் தேர்வு செய்து அதில் இடம்பெற்றிருக்கும் சொற்கள், திணை, பால், சுட்டு, வினா, மூவிடப் பெயர்கள், வேற்றுமை உருபுகள், விளித்தல் முறை, வினைச் சொற்கள், இடைச் சொற்கள், உரிச் சொற்கள், இயற்சொல், திரிசொல், திசைச் சொல், வடசொல், பிறசொல், உருபுகளின் மயக்கம் என்று பகுத்துப் பரிசீலித்து ஐந்து முதல் பத்து பக்க அளவிலான கட்டுரை எழுதிச் சமர்ப்பித்தல் வேண்டும்.

பயில்முறைசார் இப்பகுதி தெளிவு பெறுதற்கான பயிற்சியே தவிர இதிலிருந்து தேர்வுக்கான வினா ஏதும் இடம் பெறக்கூடாது.</td></tr>
<tr><td colspan="7"></td></tr>
</table>

Book(s) for Study	
1	தொல்காப்பியம் - சொல் அதிகாரம் - சேனா வரையர் உரை – திருநெல்வேலி சைவ சித்தாந்த நூற்பதிப்புக் கழக வெளியீடு.

Course Outcome		
CO1	• மொழி இலக்கண அடிப்படை விதிகளை அறிதல்	[K1]
CO2	• இலக்கண மரபு இன்றளவும் மறாமல் தொடர்ந்து வரும் பாங்கை உணர்தல்	[K2]
CO3	• பிழை இன்றி மொழி கையாளும் பயிற்சி பெறுதல்	[K3]
CO4	• அடிப்படை விதிகளை கற்றுத் தேர்ச்சி பெறுதல்	[K3]
CO5	• இலக்கண விதிகளை இன்றைய மொழியுடன் பொருத்திக் காணல்	[K4],[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAT22</td><td rowspan="2">காப்பிய இலக்கியம்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>VII</td><td>5</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">• தமிழ்க் காப்பியங்களை அறிதல்
• காப்பிய இலக்கண விதிகள், கட்டமைப்பைக் கற்றுத் தேர்தல்
• நுவல் பொருளின் விழுமியங்களை விளக்குதல்
• திறனாய்தல்
• ஒப்பிடுதல்</td></tr>
<tr><td colspan="2">அலகு – 1</td><td colspan="5">பெருங்காப்பிய நிலை பேசுங்காலை என்னும் தண்டியலங்கார காப்பிய இலக்கண வரையறை – தமிழில் ஐம்பெரும் காப்பியங்கள் - ஐஞ்சிறு காப்பியங்கள் - பாரத, இராமாயண நூல்கள் - திருவிளையாடல் புராணம், கந்த புராணம் உள்ளிட்ட புராணங்கள் - கிளைக் கதைகள்- சிறுகாப்பிய மரபு – சுருக்க வரைவு.</td></tr>
<tr><td colspan="2">அலகு –2</td><td colspan="5">சிலப்பதிகாரம்

வஞ்சிக் காண்டம் முழுவதும்</td></tr>
<tr><td colspan="2">அலகு –3</td><td colspan="5">மணிமேகலை – 5 காதைகள் மட்டும்
26 வஞ்சி மாநகர் புக்க காதை
27 சமயக் கணக்கர் தம் திறம் கேட்ட காதை
28 கச்சி மாநகர் புக்க காதை
29 தவத்திறம் பூண்டு தருமம் கேட்ட காதை
30 பவத்திறம் அறுக எனப் பாவை தோற்ற காதை</td></tr>
<tr><td colspan="2">அலகு – 4</td><td colspan="5">சீவக சிந்தாமணி
13.முத்தி இலம்பகம்
13.1 விசயை துறவு – “நீரேந்தி நெய் மிதந்து” எனும் 2599 வது செய்யுள் முதல் “முழுது உலகு எழில் ஏத்து” எனும் 2651 வது செய்யுள் வரையிலான 53 செய்யுட்கள் மட்டும்</td></tr>
<tr><td colspan="2">அலகு – 5</td><td colspan="5">5.1 எச்.ஏ.கிருஷ்ண பிள்ளை - இரட்சணிய யாத்திரிகம் - கதைச் சுருக்க வரைவு.
5.2 கவிமணி தேசிக விநாயகம் பிள்ளை – ஆசிய ஜோதி – கதைச் சுருக்க வரைவு.</td></tr>
<tr><td colspan="7">பயில் முறைப் பயிற்சி</td></tr>
<tr><td colspan="7">‘அறம், பொருள், இன்பம், வீடு அடைதல் நூற்பயனே’ என்று அறநெறி உணர்த்தும் இலக்குடன் காப்பியம் படைப்பது தமிழ் இலக்கிய மரபு. பாவிகம் என்பர். அவ்வகையில் மாணவர் தனக்கு விருப்பமான ஏதேனும் ஒரு காப்பிய நூலின் கதையமைப்பில் இடம் பெற்றிருக்கும் அறநெறியைச் சுட்டிக் காட்டி ஐந்து பக்க அளவில் கட்டுரை எழுதிச் சமர்பிக்க வேண்டும்.

பயில்முறைப் பயிற்சியில் இருந்து தேர்வுக்கான வினா ஏதும் இடம்பெறக் கூடாது.</td></tr>
</table>

Book(s) for Study	
1	தண்டியலங்காரம்
2	ச.வே.சு (உ.ஆ) ஐம்பெருங்காப்பியங்கள் - மூலமும் தெளிவுரையும், சென்னை, மணிவாசகர் பதிப்பகம்,2013.
3	ஹெச்.ஏ.கிருஷ்ண பிள்ளை, இரட்சணிய யாத்திரிகம்
4	கவிமணி தேசிக விநாயகம் பிள்ளை, ஆசிய ஜோதி.

Course Outcomes		
CO1	• தமிழ்க் காப்பியங்களை அறிதல்	[K1]
CO2	• காப்பிய இலக்கண விதிகள், கட்டமைப்பைக் கற்றுத் தேர்தல்	[K2]
CO3	• நுவல் பொருளின் விழுமியங்களை விளக்குதல்	[K3]
CO4	• திறனாய்தல்	[K5]
CO5	• ஒப்பிடுதல்	[K4]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**

K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAT23</td><td rowspan="2">தமிழ் இலக்கண வரலாறு</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>VIII</td><td>4</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td>Course Objectives</td><td colspan="6">• இலக்கண உருவாக்க நெறிகளைக் கண்டறிதல்
• இலக்கண அடிப்படைகளைத் தெரிந்து கொள்ளுதல்
• காலம்தோறும் உருவான புது இலக்கிய வகைகள், அவற்றுக்கான இலக்கண நூல்கள் உருவான சூழல் அறிதல்
• இன்றைய மொழிக்கான இலக்கண உருவாக்கத் திறன் தெரிதல்
• தமிழ் இலக்கண வரலாறு பற்றி தெரிந்து கொள்ளுதல்</td></tr>
<tr><td>அலகு – 1</td><td colspan="6">தமிழ் இலக்கண மரபு
தொல்காப்பியம் கூறும் எழுத்து, சொல், பொருள் மரபு.
வீரசோழியம் கூறும் எழுத்து, சொல், பொருள், யாப்பு, அணி எனும் ஐந்திலக்கண மரபு
வண்ணச் சரபம் தண்டபாணி சுவாமிகள் கூறும் புலமை இலக்கண மரபுடன் அறுவகை
இலக்கண மரபுகள் பற்றிய சுருக்க வரைவு.</td></tr>
<tr><td>அலகு –2</td><td colspan="6">தமிழ் எழுத்திலக்கண நூல்களின் வரலாறு – எட்டு நூல்கள் - தொல்காப்பியம் - வீரசோழீயம் - நேமிநாதம் - நன்னூல் - இலக்கண விளக்கம் - தொன்னூல் விளக்கம் - முத்து வீரியம் - சுவாமிநாதம்.</td></tr>
<tr><td>அலகு –3</td><td colspan="6">தமிழ்ச்சொல் இலக்கண நூல்களின் வரலாறும், நுவல் முறையும் - தொல்காப்பியம் -வீரசோழீயம் - நேமிநாதம் - நன்னூல் - பிரயோக விவேகம் - இலக்கண விளக்கம் - இலக்கணக் கொத்து – தொன்னூல் விளக்கம் - முத்து வீரியம் - சுவாமிநாதம் - பதினொரு நூல்கள்.</td></tr>
<tr><td>அலகு – 4</td><td colspan="6">பொருள் இலக்கண நூல்கள் - அகப்பொருள் இலக்கண நூல்கள் - இறையனார் களவியல், தமிழ்நெறி விளக்கம் - நம்பியகப் பொருள், களவியல் காரிகை – மாறன் அகப்பொருள். புறப்பொருள் இலக்கண நூல்கள் - புறப்பொருள் வெண்பா மாலை - இலக்கண விளக்கத்தின் புறத்திணையியல்.</td></tr>
<tr><td>அலகு - 5</td><td colspan="6">5.1 தமிழ் யாப்பிலக்கண நூல்களின் வரலாறு – தொல்காப்பியச் செய்யுளியல் - யாப்பருங்கலம் - யாப்பருங்கலக் காரிகை, யாப்பதிகாரம் போல்வன

5.2 சான்றிலக்கிய நூல்கள் - சிதம்பரச் செய்யுட் கோவை, தஞ்சைவாணன் கோவை போல்வன

5.3 தமிழ் பாட்டியல் இலக்கண நூல்கள் - பன்னிரு பாட்டியல், வெண்பாப் பாட்டியல், சிதம்பரப் பாட்டியல் போல்வன</td></tr>
</table>

	5.4 பிரபந்த இலக்கண நூல்கள் - பிரபந்த மரபியல், பிரபந்தத் திரட்டு, பிரபந்த தீபிகை போல்வன 5.5 அணியிலக்கண நூல்கள் - தண்டியலங்காரம், மாறன் அலங்காரம் போல்வன

குறிப்பு:

கி.பி இரண்டாம் நூற்றாண்டில் தோன்றிய தொல்காபபியம் முதல் இருபதாம் நூற்றாணடில் தோன்றிய விருத்தப்பாவியல் வரை தமிழில் 49 இலக்கண நூல்கள் தோன்றிய பாரம்பரியச் சிறப்பை அறிமுகம் செய்யும் இப்பாடத்தில் வினாக்கள் இலக்கண நூற்பாக்களை மையமிட்டு அமைதல் கூடாது.

Book(s) for Study

1	இரா.இளங்குமரன், இலக்கண வரலாறு சென்னை, ச.வே.சுப்பிரமணியன் (ப.ஆ), மணிவாசகர் பதிப்பகம், 2006
2	தமிழ் இலக்கண நூல்கள் மூலம் முழுவதும், சிதம்பரம், மெய்யப்பன் பதிப்பகம், 2009, இ.ப

Course Outcomes

CO1	• இலக்கண உருவாக்க நெறிகளைக் கண்டறிதல்	[K2]
CO2	• இலக்கண அடிப்படைகளைத் தெரிந்து கொள்ளுதல்	[K1]
CO3	• காலம்தோறும் உருவான புது இலக்கிய வகைகள், அவற்றுக்கான இலக்கண நூல்கள் உருவான சூழல் அறிதல்	[K2]
CO4	• இன்றைய மொழிக்கான இலக்கண உருவாக்கத் திறன் தெரிதல்	[K6]
CO5	• தமிழ் இலக்கண வரலாறு பற்றி தெரிந்து கொள்ளுதல்	[K2]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT24	இலக்கண உரையாசிரியர்கள்	L	T	P	C
Core	IX		4	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• உரையாசிரியர்களது கொடையை உணர்தல் • உரை எழுதும் திறன் பெறுதல் • பயிற்சி பெறுதல் • உரை நயங்களைக் கண்டறிதல் • உரை வரலாறு அறிதல்
அலகு – 1	தமிழ் இலக்கண உரையாசிரியர்கள் - தொல்காப்பிய உரையாசிரியர்கள் - இளம்பூரணர் - சேனாவரையர் - பேராசிரியர் - தெய்வச் சிலையார் - கல்லாடர் - பழைய உரை - இறையனார் அகப்பொருள் உரை.
அலகு –2	நச்சினார்க்கினியரது வரலாறும், சிறப்பு இயல்புகளும் - தொல்காப்பிய உரைத்திறன் - பல்கலைப் புலமைத் திறன்.
அலகு –3	நன்னூல் உரையாசிரியர்கள் - நன்னூல் உரைகள் - மயிலை நாதர் - சங்கர நமச்சிவாயர் - ஆண்டிப்புலவர் - இராமாநுசக் கவிராயர் - விசாகப் பெருமாள் ஐயர் - ஆறுமுக நாவலர் - சடகோப இராமாநுசர்
அலகு – 4	சிவஞான முனிவரது வரலாறும், சிறப்பியல்புகளும் - அவரது நன்னூல் விருத்தியுரை - சூத்திர விருத்தி - இலக்கண விளக்கச் சூறாவளி – மறுப்புரை நூல்கள்
அலகு – 5	யாப்பருங்கல விருத்தியுரை – யாப்பருங்கலக் காரிகை உரை – தண்டியலங்கார உரை – நம்பி அகப்பொருள் விளக்க உரை – பாட்டியல் உரைகள் - ஐந்திலக்கண நூல்களும் உரைகளும் - அணிநூல் உரைகள்

Book(s) for Study

1	மு.வை.அரவிந்தன், உரையாசிரியர்கள், சென்னை, மணிவாசகர் பதிப்பகம்

Course Outcomes

CO1	• உரையாசிரியர்களது கொடையை உணர்தல்	[K3]
CO2	• உரை எழுதும் திறன் பெறுதல்	[K6]
CO3	• பயிற்சி பெறுதல்	[K6]

CO4	• உரை நயங்களைக் கண்டறிதல்	[K4] , [K5]
CO5	• உரை வரலாறு அறிதல்	[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT25	Advanced Tamil Computing and Tamil Carpus Development மேம்பட்ட கணினித் தமிழ், தமிழ்த் தரவக உருவாக்கம்	L	T	P	C
Core	X		6	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டுப் பயிற்சி** **K4: பகுத்தல் - வகை தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• கணினித்தமிழ் பாகுபடுத்தும் கருவிகளை அறிதல் • கணித்தமிழ் கருவிகளைப் பயன்படுத்தும் திறன் பெறுதல் • இயற்கை மொழி ஆய்வு கருவிகளைத் தமிழில் உருவாக்குதல் • கணினிவழித் தமிழ் மொழிபெயர்ப்பு நுட்பங்களில் தேர்ச்சி பெறுதல் • தமிழ் தரவகத்தைக் கணினியில் உருவாக்குதல்
அலகு – 1	மேம்பட்ட தமிழ் கணினியியல் கருவிகள் உருவாக்கம் - தமிழ் பிரதி பாகுபடுத்தும் கருவிகள் - தொடர்களைக் கட்டுடைத்துப் படிக்கும் பாகுபாட்டிகள் - சொல் பகுப்பி – சொல் அலகுகளைக் கண்டறிதல் - தமிழ்க் கணினியியல் அறிமுகம் - பயன்பாட்டிலுள்ள பல்வேறு கருவிகள்
அலகு – 2	ஆழமற்ற பாகுபடுத்தி - ஆழமற்ற பாகுபடுத்தி – விளக்க வரையறை (விதிமுறைகளின் அடிப்படையிலும், இயந்திர வழி கற்றல் சார் அமைப்பின் அடிப்படையிலும்). – தொடரைப் பல்வேறு மொழி அலகுகளாகப் பகுத்தல் (பெயர்கள், வினைகள், பெயரடைகள் போல்வன) பிறகு அவற்றைப் பொருள் தரும் முறையில் இணைத்தல் (பெயர் தொகுதிகள், வினைத் தொகுதிகள் போன்றன) இயற்கை மொழி ஆய்வு பயன்பாட்டிற்கு ஏற்புடைத்து - பேச்சின் பகுதிகளைத் தேடிக் கண்டுபிடிப்பிகள் - பெயர்த் தொடர் / வினைத் தொடர் தேர்ந்தெடுப்பிகள் சொல் உட்கூறு கண்டறிவி.
அலகு – 3	ஆழமான பாகுபடுத்தி விளக்க வரையறை - ஆழமான பாகுபடுத்தியை உருவாக்குதல் - இலக்கண விதிமுறைகளின் அடிப்படை - கணினிமுறை அடிப்படை - உருபன்களைப் பாகுபடுத்துதல் - தமிழ் சார்பு பாகுபடுத்தி - தமிழில் உருவாக்குதல்.
அலகு – 4	இயந்திர மொழிபெயர்ப்பு - இயந்திர மொழிபெயர்ப்புத் தளங்கள் - இயந்திர மொழிபெயர்ப்புக் கருவிகள் - இயந்திர மொழிபெயர்ப்பு மொழிகள் - மூல மொழி - இலக்கு மொழி - மொழிபெயர்ப்புத் தொழில் நுட்பங்கள் - மொழி பெயர்ப்பு நெறிகள் - விதிகள் - மொழி பெயர்ப்பின் பயன்பாடு – மொழிபெயர்ப்பதில் எதிர்கொள்ளும் மொழி சார், பண்பாடு சார் – தொழில்நுட்பக் கருவி சார் சிக்கல்களும் தீர்வு கண்டறி செயல்பாடுகளும்.
அலகு – 5	தமிழ் தரவக உருவாக்கம் - தமிழ் நுவல் பொருள் உருவாக்க முறைகள் - விக்கிப்பீடியா மற்றும் தமிழ் வலைமனை வளாகங்கள் - வெவ்வேறு இலக்கண கூறுகளைத் தமிழில் பகுத்தல் அதற்கான பகுப்பாய்வி கருவியின் துணை கொண்டு தமிழ் உள்ளடக்கத்தைப் பகுத்தல்.(Palinka – தமிழ் கருவி)

Book(s) for Study	
1	கணிப்பொறியில் தமிழ். த. பிரகாஷ் - பெரிகாம் நூல் வெளியீடு மற்றும் விற்பனை, 36அசீஸ்முல்க் இரண்டாம் தெரு, ஆயிரம் விளக்கு. சென்னை 2005.
2	தமிழ் இயற்கை மொழி ஆய்வு - கு.சுப்பையா பிள்ளை – உலகத் தமிழ் ஆராய்ச்சி நிறுவன வெளியீடு 2012
3	கணிப்பொறி வழித் தமிழ் வினைகளின் பகுப்பாய்வு - சென்னை, செவ்வேள் கபிலன், மொழியியல் கழகம். 1994.
4	கணினித் தமிழ் முனைவர். இல. சுந்தரம் - சென்னை விகடன் பிரசுரம் 2015
5	கம்ப்யூட்டர் A to Z காம்கேர். கே. புவனேசுவரி - சென்னை விகடன் பிரசுரம் 2009
6	இன்டாநெட் A to Z காம்கேர். கே. புவனேசுவரி - சென்னை விகடன் பிரசுரம் 2010
7	தமிழ் மென்பொருட்கள் பன்னிருகை வடிவேலன் - சென்னை நோக்கு,2014
8	பைதான் புரோகிராமிங் சோமசுந்தரம் சென்றாயன் - அமேசான் கிண்டில். 2020
9	தமிழும் கணிப்பொறியும், மா. ஆண்டோ பீட்டா. – சென்னை கற்பகம் புத்தகாலயம். 2002.
10	கணிப்பொறி அறிவியல் தகவல் தொடர்பு. – தமிழ் வளர்ச்சிக் கழகம் தொழில் நுட்பம் மு. பொன்னவைக்கோ, சென்னை பல்கலைக்கழகம்,2012
11	Corpus Linguistics: An Introducation Kindle Edition;Author: NiladriSekhar Dash; Pearson; 1st Edition (1st October 2007)
12	An Introduction to Corpus Linguistics; Author: Graeme Kennedy; Routledge:1998
13	Natural Language Processing with Phython: Analyzing Text with the Natural Language Toolkit Ist Edition: Steven Bird, Ewan Klein, Edward Loper.
14	Machine Translation; Pushpak Bhattacharya; Chapman and Hall / CRC;2015
Related Online Contents (Websites)	
15	GATE.ac.uk – relaseases/gate-2.0alpha3-build516/doc/userguide.html
16	NLTK website: 1.Language Processing and Python (nltk.org)
17	AU-KBC Tools: http://78.46.86.133:8080/aukbe-nlp/
18	Search Engine AU-KBC: Searchko:www.searchko.co.in
19	PALinkA: A high-end tool for syntactic and semantic annotation for Tamil Text: Customized by AU-KBC for Tamil. To download: http://78.46.86.133/PALinkA.tar.gz

Course Outcomes		
CO1	• கணினித்தமிழ் பாகுபடுத்தும் கருவிகளை அறிதல்	[K1], [K2]
CO2	• கணித்தமிழ் கருவிகளைப் பயன்படுத்தும் திறன் பெறுதல்	[K3]
CO3	• இயற்கை மொழி ஆய்வு கருவிகளைத் தமிழில் உருவாக்குதல்	[K6]
CO4	• கணினிவழித் தமிழ் மொழிபெயர்ப்பு நுட்பங்களில் தேர்ச்சி பெறுதல்	[K3]
CO5	• தமிழ் தரவகத்தைக் கணினியில் உருவாக்குதல்	[K6]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

<u>Mapping of COs with POs & PSOs:</u>

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAN21	மொழியியல்	L	T	P	C
NME - I			6	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• மொழியியல் நோக்கில் தமிழிலக்கியம், தமிழ் இலக்கணத்தை அணுகுதல் • அகராதி உருவாக்கப் பயிற்சி பெறுதல் • தமிழ் மொழியின் கட்டமைப்பை இன்றைய மொழியியல் நோக்கில் பரிசீலித்தல் • தமிழ் ஒலியன் உருபன் தொடர் அமைப்பு, சொல் பொருள் பற்றி கற்றல் • காலந்தோறும் நேரிட்ட சொல் பொருள் மாற்றங்களைப் பரிசீலித்தல்
அலகு – 1	மொழியும் மொழியியலும் - மொழியியல் வரையறை - மொழியியலின் பிரிவுகள் - ஒலிகள் - ஒலியியல் - ஒலியியல் வகைகள் - ஒலி உறுப்புகள் - குரல் எழுப்புதல் - ஒலித்தல் - உயிரொலிகள் - மெய் ஒலிகள் - பிற ஒலிகள்
அலகு –2	ஒலியனியல் என்றால் என்ன? - ஒலியன் வரையறை –ஒலியன் - மாற்றொலியன் - ஒலியன் சேர்க்கைகள் - ஒலியன் அசைகள்
அலகு –3	உருபனியல் என்றால் என்ன? - உருபன் விளக்க வரையறை - உருபு – உருபன் வகைகள் - மாற்றுருபன் - வேர்ச்சொல் - அடிச்சொல் - ஒட்டுகள் - உருபு வகைகள் - ஓரினமாதல் - வேறினமாதல்
அலகு – 4	தொடரியல் - தமிழ்த் தொடர் அமைப்பு – பெயர்ச்சொல், வினைச்சொல், வேற்றுமை உருபுகள், பெயரடை, வினையடை, காலம் காட்டும் வினை உருபுகள், உரிச்சொல் செய்வினைத் தொடர், செயப்பாட்டு வினைத் தொடர் - எளிய தொடர், கூட்டுத் தொடர், கலவைத் தொடர் - எழுவாய், பயனிலை, செயப்படு பொருள் - திணை - எண் - பால் - இடம் தொடர்களில் அமைதல்
அலகு – 5	சொல் பொருளியல் - ஒரு பொருள் பன்மொழி - பல பொருள் ஒரு மொழி – காலப் போக்கில் நேரும் சொல் பொருள் மாற்றம் - கடன் வாங்கல் - மங்கல வழக்கு – குழூஉக் குறி - இடக்கரடக்கல் - பேச்சு மொழி – எழுத்து மொழி - இயற்சொல் - திசைச்சொல் - திரிசொல் - வடசொல் - பயன் பாடுகள்.

Book(s) for Study

1	கி. கருணாகரன், வ. ஜெயா- மொழியியல், குமரன் பதிப்பகம் சென்னை
2	இராதா செல்லப்பன், மொழியியல், கவியமுதம் வெளியீடு, திருச்சி
3	முத்துச் சண்முகன், இக்கால மொழியியல், மதுரை 1980.

Course Outcomes		
CO1	• மொழியியல் நோக்கில் தமிழிலக்கியம், தமிழ் இலக்கணத்தை அணுகுதல்	[K1], [K2]
CO2	• அகராதி உருவாக்கப் பயிற்சி பெறுதல்	[K3]
CO3	• தமிழ் மொழியின் கட்டமைப்பை இன்றைய மொழியியல் நோக்கில் பரிசீலித்தல்	[K6]
CO4	• தமிழ் ஒலியன் உருபன் தொடர் அமைப்பு, சொல் பொருள் பற்றி கற்றல்	[K3]
CO5	• காலந்தோறும் நேரிட்ட சொல் பொருள் மாற்றங்களைப் பரிசீலித்தல்	[K6]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAS11	தமிழ் கணினி இணையப் பயன்பாடுகள்	L	T	P	C
Supportive course	I		2	0	0	2

Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்
Course Objectives	• கணினி இணையவழி தமிழைக் கையாளும் பயிற்சி பெறுதல் • கணினித் தமிழ் மென்பொருள்களை தெரிந்துகொள்ளுதல் • தமிழ் செயலிகளை உருவாக்கும் திறன் பெறுதல் • இயந்திர மொழிபெயர்ப்பைக் கையாளுதல் • கணித்தமிழில் இன்றைய நவீன கருவிகளைக் கையாளுதல்
அலகு – 1	கணினியின் கட்டமைப்பும், செயல்பாடும் - வன்பொருள், மென்பொருள் தொழில்நுட்பங்கள்.
அலகு –2	கணித் தமிழ் அச்சு செய்தலும், அஞ்சல் பரிமாற்றமும் வேர்ட் (Word) எக்ஸல் (Excel) பவர் பாயிண்ட் (Power Point) அக்சஸ் (Access)
அலகு –3	கணினியில் தமிழ் எழுத்துக்கள் - தமிழ் மென்பொருட்கள் - தமிழ் சொற்பிழை திருத்தி – சந்திப் பிழை திருத்தி - இலக்கணப் பிழை திருத்தி – பேச்சு எழுத்து மாற்றி – ஒலி எழுத்து உணரி – கையெழுத்து உணரி – தமிழ் மென்பொருளைப் பெறும் முறைகள் - தமிழ் மென்பொருள் தோன்றிய வரலாறு.
அலகு – 4	இணையமும் தமிழும் - இணையத்தின் அடிப்படைப் பயன்கள் - தமிழ் இணைய தள முகவரிகள் - மாநாடுகள் - இணைய வழி கல்விப் பணிகள் - இணையத்தில் தமிழ் அச்சு இதழ்கள் - இணையத்தில் தமிழ் மின் இதழ்கள். இணைய வழி தமிழ் கற்றல், கற்பித்தல் - இணைய நூலகப் பயன்பாடு – மின் கற்றலின் பண்புகள் - வகைகள் - பயன்கள் - இணைய அகராதிகள் பயன்பாடு – தமிழ் இணைய அகராதியின் தனிச்சிறப்பு - இணைய அகராதியைப் பயன்படுத்தும் முறை மற்றும் தேடல் வகை - இணையத் தமிழ் இதழ்களின் முகவரிகள் - தமிழ் இணைய நூலகங்கள் - தமிழ்ச் சுவடிகள் கணினியில் - தமிழ் நூல்களைப் பதிவிறக்கம் , பதிவேற்றம் செய்யத் தக்க இணைய முகவரிகள்.
அலகு – 5	தமிழ் மின்னஞ்சல் - தமிழ் வலைப் பூக்கள் - வலைப் பூக்கள் உருவாக்கம் - தமிழ் மின் எழுத்துரு பதிவிறக்கம் செய்தல் - தமிழ் விக்கிப் பீடியா – மின் வணிகம் - விக்கிப் பீடியா தரவுகள் - விக்கிபீடியாவில் எழுதும் முறை- சமூக ஊடகங்கள் -- இணைப்பு முறை – (Linking Method) - வகுப்பறை- படிவங்கள் - கலந்து உரையாடல் - கருத்தரங்கிற்குப் பயன்படும் இணைய இணைப்புகள் - (Web link) ஒலி வடிவ கருத்துரை பதிவு (Audio Lecture) ஒலி-ஒளி வடிவ உரைப் பதிவு முறைகள் (Video Lectures) மூடுல் தளம் (Moodle Lecture) மின் பாடங்கள் (MOOC courses).

Book(s) for Study		
1	த.பிரகாஷ், கணிப்பொறியில் தமிழ், சென்னை, பெரிகாம் வெளியீடு 2005.	
2	கு. சுப்பையா பிள்ளை, தமிழ் இயற்கை மொழி ஆய்வு, உலகத்தமிழ் ஆராய்ச்சி நிறுவனம், 2012	
3	இல.சுந்தரம், கணினித் தமிழ், சென்னை, விகடன் பிரசுரம்.	
4	துரை.மணிகண்டன், இணையமும், தமிழும், சென்னை நல் நிலம் 2008.	
5	துரை.மணிகண்டன், த.வானதி,'தமிழ் கணினி இணையப் பயன்பாடுகள், தஞ்சாவூர், கமலினி பதிப்பகம், 2016.	
6	க.துரையரசன், இணையமும் இனிய தமிழும், திருச்சி இசைப் பதிப்பகம், 2009	
7	த.பிரகாஷ், இணையத் தமிழில் மின்னஞ்சல்.	
8	துரை.மணிகண்டன், இணையத்தில் தமிழ்த் தரவு தளங்கள், கௌதம் பதிப்பகம், சென்னை.	
9	துரை.மணிகண்டன், இணையத்தில் தமிழ் வலைபூக்கள், கௌதம் பதிப்பகம், சென்னை.	
Course Outcomes		
CO1	• கணினி இணையவழி தமிழைக் கையாளும் பயிற்சி பெறுதல்	[K3]
CO2	• கணினித் தமிழ் மென்பொருள்களை தெரிந்துகொள்ளுதல்	[K2]
CO3	• தமிழ் செயலிகளை உருவாக்கும் திறன் பெறுதல்	[K3]
CO4	• இயந்திர மொழிபெயர்ப்பைக் கையாளுதல்	[K3]
CO5	• கணித்தமிழில் இன்றைய நவீன கருவிகளைக் கையாளுதல்	[K3]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு 6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

SEMESTER III

Course Code	P21TAT31	தொல்காப்பியம் - பொருளதிகாரம் - 1	L	T	P	C
Core	XI		5	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• இலக்கிய கருப்பொருள் பற்றி அறிதல் • தமிழர் வாழ்வியல் நெறிகளை உணர்தல் • விழுமியங்களைப் போற்றுதல் • நன்னெறிகளைப் பின்பற்றுதல் • பழந்தமிழர் வாழ்வியலைத் தெரிந்து கொள்ளுதல்
அலகு - 1	அகத்திணையியல்
அலகு - 2	புறத்திணையியல்
அலகு - 3	களவியல்
அலகு - 4	கற்பியல்
அலகு - 5	பொருளியல்

பயில்முறை பயிற்சி:

பதினெண்கீழ்க்கணக்கு நூல்களுள் இடம்பெற்றிருக்கும் அகநூல்கள் ஆறு,புறநூல் ஒன்று ஆகியவற்றிலிருந்து மாணவர் தனக்கு பிடித்த பத்து செய்யுட்களைத் தெரிவுசெய்து, அவை தொல்காப்பியப் பொருளதிகார இலக்கண மரபைக் கொண்டு அமைந்துள்ளமையைக் கதை மாந்தர் கூற்றுக்கள் முதல், கரு, உரிப்பொருள் இடம்பெறல், களவு, கற்பியல் கூறுகள், அமைந்துள்ள விதத்தைப் பரிசீலித்து ஐந்து பக்க அளவில் கட்டுரை சமர்ப்பிக்கவேண்டும். வெண்பாயாப்பில் அமைந்துள்ள செய்யுட்களைத் தொல்காப்பிய பொருளதிகாரக் கருத்துக்களின் அடிப்படையில் அணுகும் பயிற்சிக் கட்டுரை இதுவாகும். **இதிலிருந்து தேர்வுக்கான வினா ஏதும் கேட்கப்படக் கூடாது.**

Book(s) for Study

1	தொல்காப்பியம் - பொருளதிகாரம் - இளம்பூரணர் உரை - திருநெல்வேலி சைவசித்தாந்த நூற்பதிப்புக் கழகம்.

Course Outcomes		
CO1	• இலக்கியக் கருப்பொருள் பற்றி அறிதல்	[K2]
CO2	• தமிழர் வாழ்வியல் நெறிகளை உணர்தல்	[K2]
CO3	• விழுமியங்களைப் போற்றுதல்	[K3]
CO4	• நன்னெறிகளைப் பின்பற்றுதல்	[K3]
CO5	• பழந்தமிழர் வாழ்வியலைத் தெரிந்து கொள்ளுதல்	[K1]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAT32</td><td rowspan="2">தமிழ் இலக்கிய உரையாசிரியர்கள்</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Core</td><td>XII</td><td>4</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">• உரை எழுதுநெறி அறிதல்
• உரை காணும் ஆற்றல் பெறுதல்
• வாசிப்பை மிகுவித்தல்
• உரையாசிரியர்களது கொடையை உணர்தல்
• உரை நயங்களைக் கண்டறிதல்</td></tr>
<tr><td colspan="2">அலகு- 1</td><td colspan="5">உரை என்பதன் விளக்கம் - உரைவகைகள் - உரையாசிரியர்கள்தம் தனித் திறன்கள் - தமிழ் உரைகளின் தோற்றமும், வளர்ச்சியும், இன்றைய நிலையும்.</td></tr>
<tr><td colspan="2">அலகு- 2</td><td colspan="5">சங்க இலக்கிய உரைகள் - பத்துப்பாட்டு உரைகள் - எட்டுத்தொகை உரைகள் - பதினெண்கீழ்க் கணக்கு உரைகள் - திருக்குறள் உரைகள் - பரிமேலழகர் உரைத் திறன்.</td></tr>
<tr><td colspan="2">அலகு- 3</td><td colspan="5">தமிழ்க் காப்பிய உரையாசிரியர்கள் - அரும்பத உரையாசிரியர் - அடியார்க்கு நல்லார் - சமய திவாகர வாமன முனிவர் - கம்பராமாயண உரைகள் - புராண, இதிகாச உரைகள்</td></tr>
<tr><td colspan="2">அலகு- 4</td><td colspan="5">தமிழ் சமய இலக்கிய உரையாசிரியர்கள் - நாலாயிரத் திவ்விய பிரபந்த வியாக்கியானங்கள், திருமுறை உரைகள், சைவ சித்தாந்த உரைகள் - சைவசாத்திர உரைகள்- சிவஞான முனிவரின் உரைத்திறன்.</td></tr>
<tr><td colspan="2">அலகு- 5</td><td colspan="5">தமிழ் சிற்றிலக்கிய உரைகள்

திருக்கோவையார் - தக்கயாகப் பரணி - மூவருலா – பழைய உரை, நீதிநூல் உரைகள், பத்தொன்பதாம் நூற்றாண்டு இலக்கிய உரையாசிரியர்கள் , இருபதாம் நூற்றாண்டு இலக்கிய உரையாசிரியர்கள்.</td></tr>
<tr><td colspan="7">Book(s) for Study</td></tr>
<tr><td>1</td><td colspan="6">மு.வை.அரவிந்தன், உரையாசிரியர்கள், சென்னை மணிவாசகர் பதிப்பகம்.</td></tr>
</table>

Course Outcomes		
CO1	• உரை எழுதுநெறி அறிதல்	[K2]
CO2	• உரை காணும் ஆற்றல் பெறுதல்	[K2]
CO3	• வாசிப்பை மிகுவித்தல்	[K3]
CO4	• உரையாசிரியர்களது கொடையை உணர்தல்	[K4]
CO5	• உரை நயங்களைக் கண்டறிதல்	[K5]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT33	தொல்காப்பியம் பொருள்அதிகாரம் - II (இறுதி நான்கு இயல்கள் மட்டும்)	L	T	P	C
Core	XIII		6	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• இலக்கிய யாப்பியல் மரபு அறிதல் • மெய்ப்பாடுகள் பற்றிப் பரிசீலித்தல் • அணிகள் பற்றித் திறனாய்தல் • மரபுசார் பயிற்சி பெறுதல் • உவமைகளின் வகைகளைக் கண்டறிதல்
அலகு – 1	மெய்ப்பாட்டியல்
அலகு – 2	உவமயியல்
அலகு – 3	செய்யுளியல் - 1259 நூற்பா முதல் 1376 வரை
அலகு – 4	செய்யுளியல் -1377 வது நூற்பாமுதல் 1499 வரை
அலகு – 5	மரபியல்

பயில்முறைப் பயிற்சி:

மாணவர் தன் விருப்பத்திற்கேற்ப இலக்கியத்தைத் தேர்வுசெய்து,அதில் ஐந்துசெய்யுட்கள் அல்லது இக்கால இலக்கியம் ஆயின் அதன் ஐந்துபக்கங்களில் இடம்பெற்றிருக்கும் மெய்ப்பாடுகள் (அ) உவமைகள் உவமஉருபுகள் செய்யுள் உறுப்புகள்,மரபுசார்ஆண்பால் பெயர்கள்,பெண்பால் பெயர்கள், இளமைப் பெயர்கள் பற்றி நான்குபக்கஅளவில் கட்டுரை எழுதிச் சமர்ப்பிக்கவேண்டும். இது மாணவரதுபுரிதலுக்காகவும் பயிற்சிக்காகவுமானது.
இதில் தேர்வுக்கானவினாக்கள் கேட்கக் கூடாது.

Book(s) for Study

1	தொல்காப்பியம் - பொருளதிகாரம் - இளம்பூரணர் உரை - திருநெல்வேலி சைவசித்தாந்த நூற்பதிப்புக் கழகவெளியீடு

Course Outcomes

CO1	• இலக்கிய யாப்பியல் மரபு அறிதல்	[K2]
CO2	• மெய்ப்பாடுகள் பற்றிப் பரிசீலித்தல்	[K4]
CO3	• அணிகள் பற்றித் திறனாய்தல்	[K5]
CO4	• மரபுசார் பயிற்சி பெறுதல்	[K6]
CO5	• உவமைகளின் வகைகளைக் கண்டறிதல்	[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT34	பதினெண்கீழ்க்கணக்கு - அறஇலக்கியம்	L	T	P	C
Core	XIV		4	0	0	4

Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்
Course Objectives	• அறஞ்சார் விழுமியங்களைப் போற்றல் • வாழ்வியல் அறங்களைக் கடைப்பிடிக்கும் பயிற்சி பெறுதல் • நன்னெறிசார் வாழ்வினைப் பின்பற்றுதல் • அறஇலக்கியத்தைக் கற்றல் • அறஇலக்கிய போக்கும் நோக்கும் கண்டறிதல்
அலகு – 1	பதினெண்கீழ்க்கணக்கு நூல்கள் - காலம் - நூலமைப்பு– அறநூல்கள் பதினொன்று–அகநூல்கள் - ஆறு, புறநூல்- ஒன்று - யாப்பமைவும் பொருளமைதியும் - சுருக்கவரைவு.
	1.1 திருக்குறள் - அறத்துப்பால் - பத்து அதிகாரங்கள்
	5. இல்வாழ்க்கை 6. வாழ்க்கைத் துணைநலம் 7. மக்கள் பேறு 8. அன்புடைமை 9. விருந்தோம்பல் 10.இனியவை கூறல் 11. செய்ந்நன்றிஅறிதல் 12. நடுவுநிலைமை 13. அடக்கமுடைமை 14. ஒழுக்கம் உடைமை மொத்தம் 100 குறட்பாக்கள்
அலகு –2	**நாலடியார் - ஐந்துஅதிகாரங்கள்**
	அதிகாரம் - 4 -அறன் வலியுறுத்தல் அதிகாரம் - 9 -பிறர் மனை நயவாமை அதிகாரம் - 16 - மேன் மக்கள் அதிகாரம் - 38 - பொதுமகளிர் அதிகாரம் - 39 - கற்புடைமகளிர் - மொத்தம் 50 செய்யுட்கள்

அலகு –3	**3.1 நான்மணிக்கடிகை**
	“எள்ளற்க என்றும் எளியார் என்று” என்னும் முதல் பாடல் முதல் “இன்னாமை வேண்டின் இரவு எழுக” என்னும் பதினைந்தாவது பாடல் வரையிலான பதினைந்து செய்யுட்கள்.
	3.2 பழமொழி
	“பெரியநட்டார்க்கும் பகைவர்க்கும் சென்று” என்று தொடங்கும் பத்தாவது செய்யுள் முதல் ‘இசைவகொடுப்பதூம், இல் என்பதூஉம்” என்னும் இருபத்துநான்காவதுசெய்யுள் வரையிலான 15 செய்யுட்கள்.
	3.3 சிறுபஞ்ச மூலம்
	“பொருள் உடையான் கண்ணதேபோகம்” என்னும் முதலாவதுசெய்யுள் முதல், ‘கதம் நன்று சான்றாண்மை தீது’ எனும் பதினைந்தாவது செய்யுள் வரையிலான 15 செய்யுட்கள்.
அலகு – 4	**4.1 திரிகடுகம்**
	“தாளாளன் என்பான் கடன்படாவாழ்பவன்” எனும் பனிரண்டாவது செய்யுள் முதல் “ஒல்வது அறியும் விருந்தினனும்” எனும் இருபத்து ஆறாவது செய்யுள் வரையிலான பதினைந்து செய்யுட்கள்.
	4.2 ஆசாரக் கோவை
	“நன்றி அறிதல் பொறையுடைமை” எனும் முதல் பாடல் முதல் “வைகறையாமம் துயில் எழுந்து தான் செய்யும்” என்னும் நான்காவது பாடல் வரையிலான நான்கு செய்யுட்கள்.
	4.3 முதுமொழிக் காஞ்சி
	1. சிறந்தபத்து “ஆர்கலி உலகத்து மக்கட்கு எல்லாம் ஓதலின் சிறந்தன்று ஒழுக்கம் உடைமை” என்னும் செய்யுள் முதல் “முற்பெருகலிற்பின் சிறுகாமை சிறந்தன்று” என்னும் செய்யுள் வரை
அலகு - 5	**5.1 ஏலாதி**
	“அவாஅறுக்கல் உற்றான், தளரான் அவ்வைந்தின்” என்று தொடங்கும் பதினோராவது செய்யுள் முதல் “பாடுஅகம் சாராமை” எனும் இருபத்தைந்தாவது செய்யுள் வரையிலான 15 செய்யுட்கள்.
	5.2 இன்னாநாற்பது
	“பந்தம் இல்லாதமனையின் வனப்பு இன்னா” என்னும் முதல் செய்யுள் முதல் “புல் ஆர் புரவிமணி இன்றிஊர்வு இன்னா” எனும் பதினைந்தாவது செய்யுள் வரையிலான 15 செய்யுட்கள்.

	5.3 இனியவைநாற்பது
	"பிச்சைபுக்கு ஆயினும் கற்றல் மிக இனிதே" என்னும் முதல் செய்யுள் முதல் "பிறன் மனை பின்நோக்காப் பீடு இனிது" எனும் பதினைந்தாவது செய்யுள் வரையிலான 15 செய்யுட்கள்.
பயில்முறைப் பயிற்சி:	
மாணவர் தம் மனம் கவர்ந்த பத்து அற இலக்கிய விழுமியங்களைத் தேர்வு செய்து மூன்று பக்க அளவில் எழுதிச் சமர்ப்பித்தல் வேண்டும்.	
Book(s) for Study	
1	ச.வே.சுப்பிரமணியன்(ப.ஆ) தமிழ்ச் செவ்வியல் நூல்கள்,சென்னைமணிவாசகர் பதிப்பகம் . 2008
Course Outcomes	

CO1	• அறஞ்சார் விழுமியங்களைப் போற்றல்	[K2]
CO2	• வாழ்வியல் அறங்களைக் கடைப்பிடிக்கும் பயிற்சி பெறுதல்	[K4]
CO3	• நன்னெறிசார் வாழ்வினைப் பின்பற்றுதல்	[K5]
CO4	• அறஇலக்கியத்தைக் கற்றல்	[K6]
CO5	• அறஇலக்கிய போக்கும் நோக்கும் கண்டறிதல்	[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT35	சங்கஇலக்கியம்	L	T	P	C
Core	XV		5	0	0	4
Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்					
Course Objectives	• செவ்வியல் மரபறிதல் • சங்க இலக்கிய நுவல் பொருள் அறிதல் • திறனாய்தல் • விழுமியங்களை அறிதல் • சங்ககால மக்களின் வாழ்வியலைப் புரிந்து கொள்ளுதல்					
அலகு – 1	**நற்றிணை**					
	ஔவையார் பாடிய 7 செய்யுட்கள் செய்யுள் எண் - 129, 187, 295, 371, 381, 390, 394, (129) பெருநகைகேளாய் தோழி (187) நெய்தல் கூம்ப,நிழல் குணக்குஒழுக (295) முரிந்தசிலம்பின்,நெரிந்தவள்ளியின் (371) காயாங் குன்றத்துக் கொன்றைபோல (381) அருந்துயர் உழத்தலின் உண்மைசான்ம் எனப் (390) வாளை வாயின் பிறழுநாளும் (394) மரம் தலை மணந்த…நனந்தலைக் கானத்து					
	1-2 குறுந்தொகை:					
	வெள்ளிவீதியார் - பாடிய 8 செய்யுட்கள் - 27, 44, 58, 130, 146, 149, 169, 386 (27)கன்றும் உண்ணாது, கலத்தினும் படாது (44)காலேபரிதப்பினவே,கண்ணே (58) இடிக்கும் கேளிர் நும் குறை ஆக (130) நிலம் தொட்டுப் புகாஅர்,வானம் ஏறார் (146) அம்மவாழிதோழி! நம் ஊர்ப் (149) அளிதோதானேநாணே! நம்மொடு (169) சுரம் செல் யானைக் கல் உறுகோட்டின் (386) வெண் மணல் விரிந்தவீததைகானல்					
	1.3 - ஐங்குநுறூறு கபிலர் பாடியகுறிஞ்சித்திணையில் 26. குன்றக் குறவன் பத்து 251 "குன்றக் குறவன் ஆர்ப்பின் எழிலி" என்று தொடங்கும் பாடல் முதல் "குன்றக் குறவன் காதல் மடமகள்" எனும் 260 வது பாடல் வரையிலான - 10 செய்யுட்கள்.					

அலகு –2	**கலித் தொகை**
	சோழன் நல்லுருத்திரன் பாடிய முல்லைக்கலி பாடல்கள் - 17 “தளிபெறு தண்புலத்துத் தலைப்பெயற்கு அரும்பு ஈன்று” என தொடங்கும் 101 ஆவது பாடல் முதல் “மாண உருக்கிய நன் பொன் மணிஉறீஇ” எனும் 117 வதுபாடல் வரையிலான பாடல் வரை
அலகு –3	**3-1 அகநானூறு**
	அம்மூவனார் பாடிய 10, 140, 280, 370, 390 ஆகிய 5 பாடல்கள் (10) வான் கடல் பரப்பில் தூவற்குஎதிரிய (140) பெருங்கடல் வேட்டத்துச் சிறுகுடிப் பரதவர் (280) பொன் அடர்ந்தன்ன,ஒள் இணர்ச் செருந்தி (370) வளைவாய்க் கோதையர் வண்டல் தைஇ (390) உவர் விளைஉப்பின் கொள்ளைசாற்றி
	3.2. பரிபாடல்
	ஆசிரியர் நல்லந்துவனார் பாடிய 6,8,11, 20,ஆகிய 4 செய்யுட்கள் (6) நிறைகடல் முகந்துஉராய்,நிறைந்துநீர் துளும்பும் தம் எனும் வையைப் பாடல் (8)மண்மிசைஅவிழ்துழாய் மலர்தருசெல்வத்துப் எனும் செவ்வேள் பற்றிய பாடல் (11) விரிகதிர் மதியமொடு,வியல்விசும்புபுணர்ப்பஎனும் வையைபற்றிய பாடல். (20) கடல்குறைபடுத்தநீர் கல் குறைபட எறிந்து எனும் வையை பற்றிய பாடல்
அலகு – 4	**4-1 புறநானூறு**
	அள்ளூர் நன்முல்லையார் - 306 - 1 ஒக்கூர் மாசாத்தியார் - 279 - 1 ஔவையார் - 87, 140, 290, 390 - 4 காக்கைப் பாடினியார் நச்செள்ளையார் - 278 - 1 காவற்பெண்டு - 86 - 1 குறமகள் இளவெயினியார் - 157 - 1 பாரிமகளிர் - 112 - 1 பூதப்பாண்டியன் தேவிபெருங்கோட்பெண்டு – 246 - 1 பேய்மகள் இளவெயினி - 11 - 1 மாறோக்கத்துநப்பசலையார் - 280 - 1 வெண்ணிக் குயத்தியார் - 66 - 1 வெறிபாடிய காமக்கணியார் - 302 - 1 - ஆகிய 15 செய்யுள்கள் (306) களிறுபொரக் கலங்குகழல் முள்வேலி (279) கெடுகசிந்தை,கடிது இவள் துணிவே (87) களம் புகல் ஓம்புமின், தெவ்விர், போர் எதிர்ந்து (140) தடவுநிலைப் பலவின்,நாஞ்சில் பொருநன் (290) இவற்குஈந்துஉண்மதி,கள்ளே,சினப்போர் (390) அறவைநெஞ்சத்துஆயர்,வளரும் (278) நரம்புஎழுந்துஉலறிய நிரம்பாமென்தோள் (86) சிற்றில் நற்றூண் பற்றி, நின்மகன்

	((157) தமர் தற் தப்பின் அதுநோன்றல்லும் (112) அற்றைத் திங்கள் அவ்வெண் நிலவின் (246) பல் சான்றீரே! பல் சான்றீரே!
	4.2. பதிற்றுப்பத்து
	இளஞ்சேரல் இரும்பொறையைப் பெருங்குன்னூர் கிழார் பாடிய ஒன்பதாம் பத்துப் பாடல்கள். “குட்டுவன் இரும்பொறைக்கு மையூர் கிழாஅன்” என்று தொடங்கும் பதிகச் செய்யுள் முதல் “மீன்வயின் நிற்ப, வானம் வாய்ப்ப” எனும் 90 ஆவது செய்யுள் வரையிலான 11 செய்யுட்கள்
அலகு - 5	பட்டினப்பாலை முழுவதும்

Book(s) for Study

1	தமிழ்ச் செவ்வியல் நூல்கள் தொகுப்பு, தமிழ்ப் பல்கலைக்கழகம் தஞ்சை.
2	ச.வே சுப்பிரமணியன் (ப.ஆ) தமிழ்ச் செவ்வியல் நூல்கள் - சென்னை, மணிவாசகர்,பதிப்பகம், 2008.

Course Outcomes

CO1	• செவ்வியல் மரபறிதல்	[K2]
CO2	• சங்க இலக்கிய நுவல் பொருள் அறிதல்	[K4]
CO3	• திறனாய்தல்	[K5]
CO4	• விழுமியங்களை அறிதல்	[K6]
CO5	• சங்ககால மக்களின் வாழ்வியலைப் புரிந்து கொள்ளுதல்	[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAT36	தமிழ் சிறுவர் இலக்கியம்	L	T	P	C
Core	XVI		4	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• குழந்தை இலக்கிய உருவாக்கப் பயிற்சி பெறுதல் • வரலாறு அறிதல் • வகைமை உணர்தல் • நவீனவடிவில் ஊடகங்களில் கையாளத் தேர்ச்சி பெறுதல் • குழந்தை இலக்கிய நுவல்பொருளைப் பரிசீலித்தல்
அலகு – 1	தமிழ் சிறுவர் இலக்கியத்தின் தோற்றம், வளர்ச்சி, வரலாறு, இன்றைய நிலை, தடம் பதித்த சான்றோர்களும் அவர்களது பங்களிப்பும் - சுருக்கவரைவு.
அலகு –2	குழந்தைப் பாடல்கள் - பாடல் வகைகள்- கதைப் பாடல்கள் - கவிமணிதேசிக விநாயகம் பிள்ளை–அழ.வள்ளியப்பா- பூவண்ணன்.
அலகு –3	குழந்தைகளுக்கான கதை இலக்கியங்கள் - தமிழகக் கதைகள் - அயல் மாநிலக் கதைகள் - விக்கிரமாதித்தன் கதைகள் - தெனாலிராமன் கதைகள் - பீர்பால் கதைகள் - அயல் நாட்டுக் கதைகள் - முல்லாநசீருத்தின் கதைகள் - புராணக் கதைகள் - இதிகாசக் கதைகள் - வீரதீரசாகசக் கதைகள் - வேதாளம், ஒற்றைக் கை மாயாவி கதைகள் - துப்பறியும் கதைகள் - நீதிக் கதைகள் - சிறுவர் சித்திரப் படக் கதைகள் - அயல் நாட்டு மொழிபெயர்ப்பு கதைகள்.
அலகு – 4	சிறுவர் நாடகங்கள் - நாடக வகைகள் - புதினங்கள் - சிறுவர் இதழ்கள் - வானொலி நிகழ்ச்சிகள் - தொலைக்காட்சி நிகழ்ச்சிகள் - சிறுவர் திரைப்படங்கள் - சிறுவர் இணைப்பு இதழ்கள்.
அலகு - 5	சிறுவர் இலக்கிய வளர்ச்சிக்கான போட்டிகள் -பரிசுகள் - சிறுவர்களுக்கான கேலிச் சித்திரக் கணினிபடங்கள் - தொடர்கள் - கதைமாந்தர்கள் -சிறுவர் இலக்கியம். இன்றைய நோக்கும், போக்கும் - சிறுவர் விளையாட்டுகள் - அன்றும், இன்றும், கணினி விளையாட்டுகளின் விளைவுகள்.

Book(s) for Study

1	வே.தா.கோபாலகிருஷ்ணன், குழந்தை இலக்கியவரலாறு,சென்னை,சாந்தி நூலகம், 1960.

2	கிரி.பி.வி.பாப்பாபாட்டுபாடியபாவலர்கள்,சென்னை,சைவசித்தாந்த நூற்பதிப்புக் ககம்.	
3	அகமது பஷீர்.குழந்தை இலக்கியத் திறனாய்வு,சென்னை, ஜே.சீ.ஏ. வெளியீட்டகம், 1978.	
4	சுகுமாரன்,தமிழ்குழந்தை இலக்கியம்,சென்னை,தாமரைபப்ளிகேஷன்ஸ்,2015.	
5	அழ.வள்ளியப்பா,மலரும் உள்ளம் (தொகுதிI,II) சென்னை 2011.	
6	பூவண்ணன்,சிறுவர் இலக்கியக் களஞ்சியம் (தொகுதி 1 முதல் 15வரை) கோவை,பூவண்ணன் பதிப்பகம், 1995-96,1997-1998)	
7	பூவண்ணன்,அழ.வள்ளியப்பா-இந்திய ‘இலக்கியசிற்பிகள், புதுதில்லி, சாகித்திய அகாதமி வெளியீடு, 2008.	
Course Outcomes		
CO1	• குழந்தை இலக்கிய உருவாக்கப் பயிற்சி பெறுதல்	[K6]
CO2	• வரலாறு அறிதல்	[K2]
CO3	• வகைமை உணர்தல்	[K2]
CO4	• நவீனவடிவில் ஊடகங்களில் கையாளத் தேர்ச்சி பெறுதல்	[K6]
CO5	• குழந்தை இலக்கிய நுவல்பொருளைப் பரிசீலித்தல்	[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

SEMESTER IV

Course Code	P21TAE41	தமிழ் சித்தர் இலக்கியம்	L	T	P	C
Elective Option	I 1		4	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• சித்தர் இலக்கிய நெறி அறிதல் • தமிழில் சித்தர் இலக்கிய வகைமை அறிதல் • மெய்ஞானம் தெளிதல் • நோய் தீர்க்கும் வழிமுறைகளைத் தெரிந்து கொள்ளுதல் • சித்திகள் பற்றித் தெரிந்து கொள்ளுதல்
அலகு – 1	சித்தர்கள் யாவர்? – பதினெண்சித்தர் பாடல்கள் - தமிழில் சித்தர் இலக்கியம் - வரையறை – விளக்கம் - வரலாறு.
அலகு –2	திருமூலர் திருமந்திரத்தில் சித்தர் இலக்கியக் கூறுகள் - தாயுமானவர் - குணங்குடி மஸ்தான் சாகிபு பாடல்களில் சித்தர் இலக்கியக் கூறுகள் - பெரிய ஞானக்கோவை அறிமுகம்
அலகு –3	சிவவாக்கியர் பாடல், பட்டினத்தார் பாடல் உரைக்கும் வாழ்வியல் கருத்துக்கள்
அலகு – 4	இடைக்காட்டுச் சித்தர் - பாம்பாட்டிச் சித்தர் - அகப்பேய்ச் சித்தர் பாடல்களின் வழி சித்தர்களது மெய்ம்மைத்தேடல்களும், ஞானக் கருத்துக்களும்
அலகு – 5	பத்திரகிரியார் மெய்ஞ்ஞானப் புலம்பல் வழி மெய்ஞான தத்துவக் கூறுகள்.

Book(s) for Reference

1	பதினெண்சித்தர்களது பாடல் திரட்டு, மணிவாசகர் நூலகம்.
2	சித்தர் இலக்கியம் - தமிழ் இணையக் கல்விக்கழக மின் நூலகம்.

Course Outcomes

CO1	• சித்தர் இலக்கிய நெறி அறிதல்	[K2]
CO2	• தமிழில் சித்தர் இலக்கிய வகைமை அறிதல்	[K2]
CO3	• மெய்ஞானம் தெளிதல்	[K5]
CO4	• நோய் தீர்க்கும் வழிமுறைகளைத் தெரிந்து கொள்ளுதல்	[K1]
CO5	• சித்திகள் பற்றித் தெரிந்து கொள்ளுதல்	[K1]

K1: புரிதல் **K2:** அறிவு பெறுதல் **K3:** பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் **K5 :** மதிப்பீடு **K6:** படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAE412	வாழ்வியல் நெறி இலக்கியம்	L	T	P	C
Elective Option	I 2		4	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• வாழ்வியல் விழுமியங்கள் பற்றி அறிதல் • நன்னெறி மரபறிதல் • வாழ்வியல் அறங்களைப் பின்பற்றி மாட்சியுடன் வாழும் பயிற்சி பெறுதல் • இன்றைய நடைமுறை வாழ்வில் அவை பயன்படும் விதம் குறித்துத் தெளிவு பெறுதல் • தமிழர் தம் வாழ்வியல் அறங்களை அறிந்து கொள்ளுதல்
அலகு – 1	ஆத்திசூடி, கொன்றை வேந்தன் கூறும் வாழ்வியல் நெறிகள்
அலகு –2	மூதுரை, நல்வழி உரைக்கும் வாழ்வியல் நன்னெறிகள்
அலகு –3	வெற்றி வேற்கை (நறுந்தொகை) உலகநீதி கூறும் அறநெறிகள்
அலகு – 4	நீதிநெறி விளக்கம், அறநெறிச்சாரம் நுவலும் வாழ்வியல் அறங்கள்
அலகு – 5	நீதிநூல் நுவலும் வாழ்வியல் மாட்சி.

Book(s) for Study

1	வாழ்வியல் நெறி இலக்கியம் - தமிழ் இணையக் கல்விக்கழக மின்நூலகம்.

Course Outcomes

CO1	• வாழ்வியல் விழுமியங்கள் பற்றி அறிதல்	[K2]
CO2	• நன்னெறி மரபறிதல்	[K2]
CO3	• வாழ்வியல் அறங்களைப் பின்பற்றி மாட்சியுடன் வாழும் பயிற்சி பெறுதல்	[K6]
CO4	• இன்றைய நடைமுறை வாழ்வில் அவை பயன்படும் விதம் குறித்துத் தெளிவு பெறுதல்	[K3]
CO5	• தமிழர் தம் வாழ்வியல் அறங்களை அறிந்து கொள்ளுதல	[K1]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் - வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAE421	பெண் வழக்காற்றியல்	L	T	P	C
Elective Option	II 1		4	0	0	4
Cognitive Level	K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்					
Course Objectives	• மகளிரின் வாழ்வியல் வழக்காறுகளை அறிதல் • கள ஆய்வு செய்தல் • மரபின் தொடர்ச்சியையும் மாற்றங்களையும் கண்டறிதல். • மகளிர் விளையாட்டுகளைத் தெரிந்து கொள்ளுதல் • பெண் பாடல்களைப் பரிசீலித்தல்					
அலகு – 1	பெண் வழக்காற்றியல் - வரைவிலக்கணம் - பெண் பாடல்கள் - தாலாட்டு– ஒப்பாரி– பிறந்தவீட்டார்–புகுந்தவீட்டார் உறவு நிலைப் பாடல்கள் - கதைப்பாடல் - வள்ளிகதை – அல்லி கதை – நல்லதங்காள் கதை–மாசாணி அம்மன் கதை வரலாறு					
அலகு –2	புழங்குபொருட்கள் - மனையில் புழங்கும் பொருட்கள் - அட்டில் கருவிகள் - முகத்தல் - அளத்தல் - நிறுத்தல் - நீட்டல் சார் அளவைக் கருவிகள்					
அலகு –3	தழையாடை– மலர்– அணிகலன்கள் - ஒப்பனைப் பொருட்கள் - ஒப்பனை முறைகள் - தலைமுடி அலங்காரம் - தொய்யில் எழுதுதல் - மருதாணிப் பூச்சு–சுண்ணப்பொடிகள் - மை எழுதல்					
அலகு – 4	வழிபாடுகள் - வேலன் வெறியாட்டு – குரவைக் கூத்து–துணங்கைக் கூத்து–மண நிகழ்வில் மகளிர் பங்கு– (சிலப்பதிகார மங்கலவாழ்த்துப் பாடல் வழி) – நலங்குப் பாடல் - ஆய்ச்சியர், வேட்டுவர் வழிபாடு–விரிச்சி பார்த்தல் - கண், தோள் துடித்தல் - முளைப் பாலிகை–பொங்கல் வைத்தல் - மாவிளக்குபோடுதல்					
அலகு – 5	**விளையாட்டுகள்:**					
	புனலாடல் (குறிஞ்சிப்பாட்டு) நீராடல் (பரிபாடல், திருப்பாவை, கழங்கு, ஊசல், சாழல், அம்மானை, வள்ளைப்பாட்டு, தெள்ளேனம் - கூடல் இழைத்தல் - சிற்றில் இழைத்தல் - தாயம் - பல்லாங்குழி–நொண்டியடித்தல் - கயிறுகுதித்தல் - ஆடல் - மயிலாட்டம் - பாம்பாட்டம் - கரகாட்டம் - கண் பொத்தி ஆடும் ஆட்டம், ஓடிப்பிடித்தல் -பந்தாடல் - மணற்பாவை–மலர்ப் பந்து – மணலுள் ஒளித்து வைத்து எடுக்கச் சொல்லுதல் - சோழி உருட்டல்.					
Book(s) for Study						
1	நாட்டுப்புற இலக்கியம் - தமிழ் இணையக் கல்விக்கழக மின்நூலகம்.					

Course Outcomes		
CO1	• மகளிரின் வாழ்வியல் வழக்காறுகளை அறிதல்	[K2]
CO2	• கள ஆய்வு செய்தல்	[K3]
CO3	• மரபின் தொடர்ச்சியையும் மாற்றங்களையும் கண்டறிதல்.	[K4]
CO4	• மகளிர் விளையாட்டுகளை தெரிந்து கொள்ளுதல்	[K1]
CO5	• பெண் பாடல்களை பரிசீலித்தல்	[K5]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் - வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

<u>Mapping of COs with POs & PSOs:</u>

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) **- 3 marks**
Moderately Correlating (M) **- 2 marks**
Weakly Correlating (W) **- 1 mark**

Course Code	P21TAE422	படைப்புக் கலை	L	T	P	C
Elective Option	II 2		4	0	0	4

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objective	• படைப்பிலக்கியப் பயிற்சி பெறுதல் • எழுது திறன் பெறுதல் • திறனாயும் தேர்ச்சி பெறுதல் • படைப்பிலக்கியத்தின் நயங்களைப் போற்றுதல் • கருத்து வெளியீட்டு நுட்பங்களை அறிதல்
அலகு- 1	கவிதை எழுதுதல் - புதுக்கவிதை எழுதுதல் தலைப்புக்கேற்பத் தந்த அடி அளவிற்குள் (1-15 அடிகள்) புதுக்கவிதை எழுதுதல். மரபுக் கவிதை எழுதுதல், குழந்தைப்பாடல் எழுதுதல்
அலகு- 2	சிறுகதை எழுதுதல் - தந்த தலைப்பில் நான்கு பக்க அளவில் சிறுகதை எழுதுதல் அறிவூட்டும் குழந்தைகளுக்கான கதை எழுதுதல் - அறிவியல் கதை எழுதுதல்
அலகு- 3	கட்டுரை எழுதுதல் - ஐந்து பக்க அளவு 1. இலக்கியத் திறனாய்வுக் கட்டுரை 2. தன் வரலாற்றுக் கட்டுரை 3. பொதுக் கட்டுரை 4. வாழ்க்கை வரலாற்றுக் கட்டுரை 5. அறிவியல் தொழில்நுட்பக் கட்டுரை 6. செய்திக் கட்டுரை
அலகு- 4	கடிதம் எழுதுதல்: 4-1 பணி வாய்ப்புக் கடிதம் 4-2 ஆசிரியர்கள்,நூலகர், நிர்வாகிகள், உயர் அதிகாரிகளுக்குக் கடிதம் எழுதுதல்
அலகு- 5	ஊடகங்களுக்கு எழுதுதல் 1. துணுக்கு 2. ஓரங்க நாடகம் 3. உரையாடல் 4. தொடர் 5. குறும்படம் 6. வில்லுப்பாட்டு வடிவில் எழுதுதல்

Book(s) for Study	
1	கி.வா.ஜகந்நாதன், தினமணி கட்டுரைகள்
Course Outcomes	

CO1	• படைப்பிலக்கியப் பயிற்சி பெறுதல்	[K6]
CO2	• எழுது திறன் பெறுதல்	[K3]
CO3	• திறனாய்வில் தேர்ச்சி பெறுதல்	[K5]
CO4	• படைப்பிலக்கியத்தின் நயங்களைப் போற்றுதல்	[K4]
CO5	• கருத்து வெளியீட்டு நுட்பங்களை அறிதல்	[k4]

K1: புரிதல் **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி**
K4: பகுத்தல் - வகைத்தொகை செய்தல் **K5 : மதிப்பீடு** **K6: படைத்தல்**

<u>Mapping of COs with POs & PSOs:</u>

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

<table>
<tr><td>Course Code</td><td>P21TAR41</td><td rowspan="2">ஆய்வுநெறிகள்
ஆய்வறிக்கை</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">Project</td><td>0</td><td>0</td><td>22</td><td>8</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: புரிதல்
K2: அறிவு பெறுதல்
K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல்
K5 : மதிப்பீடு
K6: படைத்தல்</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">• ஆய்வு நெறிகளை அறிதல்
• ஆய்விற்கான தகவல்களை சேகரித்தல்
• தலைப்பிற்கு ஏற்பக் கள ஆய்வின் வழி தகவல்களைச் சேகரித்தல்
• தலைப்பிற்கு ஏற்ப இலக்கியங்களின் வழி தகவல்களைச் சேகரித்தல்
• ஆய்வு நெறிகளின்படி ஆய்வறிக்கை உருவாக்குதல்</td></tr>
<tr><td colspan="7">மாணவர்கள் தம் விருப்பத்திற்குஏற்ப இலக்கிய, இலக்கண நூல்களைத் தேர்வுசெய்து அதைப் பரிசீலித்து 50 முதல் 60 பக்க அளவிலான ஆய்வறிக்கை சமர்பிக்கலாம்.

கள ஆய்வுசெய்து தகவல் சேகரித்து ஆய்வறிக்கை சமர்பிக்கலாம்.

ஊடகநிகழ்ச்சிகள், திரைப்படங்கள், நாளிதழ்கள் இதழ்களது உள்ளடக்கம் குறித்துப் பரிசீலித்து ஆய்வு அறிக்கை சமர்பிக்கலாம்.</td></tr>
<tr><td colspan="7">ஆய்வுநெறிகள் தாள்: -</td></tr>
<tr><td colspan="2">அலகு – 1</td><td colspan="5">இலக்கிய ஆய்வு– நூல் தேர்வு–தரவு சேகரித்தல், வகைப்படுத்துதல் - தொகைசெய்தல், - பகுத்துப் பார்த்தல் - புரிந்துகொள்ளல் - வெளிப்படுத்தல் காரண – காரிய முறைப்படி பரிசீலித்து முடிவு கூறுதல் -
(சான்று–வ.சுப. மாணிக்கனாரின் தமிழ்க்காதல்)</td></tr>
<tr><td colspan="2">அலகு –2</td><td colspan="5">இலக்கணஆய்வு -இலக்கண விதிமுறைகளைபரிசீலித்தல் - இலக்கண நூல் தேர்வு - இலக்கணவிதிகளைப் பிரித்தல் - வகைப்படுத்துதல்-</td></tr>
<tr><td colspan="2">அலகு –3</td><td colspan="5">இலக்கியபிரதியைத் தேர்வுசெய்தல் - இலக்கணவிதிகளைப் பொருத்திப் பார்த்தல் - ஒன்றுபடும் நிலையையும் ,வேறுபடும் நிலையையும் - குறித்துக் கொள்ளுதல் - பகுப்பாய்தல் - முடிவு கூறுதல்.</td></tr>
<tr><td colspan="2">அலகு – 4</td><td colspan="5">கள ஆய்வு - இருக்கை ஆய்வு – கள ஆய்வுநெறிகள் - கருவிகள் - நேர்காணல் , வினாநிரல் - உற்றுநோக்கல் - சேகரித்தத் தரவுகளதுஉண்மைத்தன்மைகள் - பதிவுகள் - பிற்சேர்க்கைகள்</td></tr>
<tr><td colspan="2">அலகு – 5</td><td colspan="5">நாளிதழ்களில் வெளியாகும் நூல் மதிப்புரைகள் - திரைப்படவிமர்சனங்கள் - திறனாய்வுகள் - முடிவுகள் - ஐயம் - தெளிவு – துணிவு - முடிவு கூறுதல்</td></tr>
<tr><td colspan="7">பயில் முறைபயிற்சி:</td></tr>
<tr><td colspan="7">மாணவர் தன் விருப்பத்திற்கேற்ப ஒரு இலக்கிய நூலை,மதிப்பிட்டு (அ)</td></tr>
</table>

இலக்கணவிதியைப் பரிசீலித்து (அ) கள ஆய்வில் குறிப்பிட்ட ஒன்று பற்றிய தரவுகளைச் சேகரித்து நூல் மதிப்புரை (அ) விமர்சனம் (அ) திறனாய்வு செய்து ஐந்து பக்க அளவில் கட்டுரை எழுதிச் சமர்பிக்கவேண்டும். இப்பகுதியில் தேர்வுக்கான வினா எதுவும் கேட்கக் கூடாது. இத்தாள் மாணவர் ஆய்வறிக்கை உருவாக்க உதவும் இலக்கினைக் கொண்டது.		
Course Outcomes		
CO1	• ஆய்வு நெறிகளை அறிதல்	[K2]
CO2	• ஆய்விற்கான தகவல்களைச் சேகரித்தல்	[K3]
CO3	• தலைப்பிற்கு ஏற்பக் கள ஆய்வின் வழி தகவல்களைச் சேகரித்தல்	[K4]
CO4	• தலைப்பிற்கு ஏற்ப இலக்கியங்களின் வழி தகவல்களைச் சேகரித்தல்	[K4]
CO5	• ஆய்வு நெறிகளின்படி ஆய்வறிக்கை உருவாக்குதல்	[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

VALUE ADDED PROGRAMME

Course Code	P21TAV11	Tamil Computing and Applications கணித் தமிழ் பயன்பாடு	L	T	P	C
SEMESTER - I			2	0	0	2
Cognitive Level		K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டுப் பயிற்சி K4: பகுத்தல் - வகைதொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்				
Course Objectives		• தமிழ் மொழியைப் பகுத்து ஆராய கணினியைப் பயன்படுத்துதல் • மொழியியல்சார் பகுப்பிற்குப் பின் தமிழ்த் தரவகத்தை உருவாக்குதல் • இயந்திர மொழிபெயர்ப்பிற்கு உரிய கருவிகளைக் கையாளுதல் • கணித்தமிழ்ச் செயலிகள் உருவாக்கம் பற்றி அறிதல் • கணித்தமிழ்க் கருவிகள் உருவாக்கம் பற்றி அறிதல்				
அலகு – 1		சொல் பொருளியல் பாகுபடுத்திகள் - சொல் பொருளியல் அறிமுகம்- சொல் பொருள் அங்கீகரிப்பு, சொல் பொருள் தடுமாற்றம் அகற்றுதல் - பல சொல் வெளிப்பாடுகள் - சொல் இரட்டைக் கிளவி – தமிழ் கருவிகள்				
அலகு –2		**கணினி வழித் தமிழ் கட்டமைப்பு**				
		• தமிழ் எழுத்துக்கள் (முதல் எழுத்து, சார்பெழுத்து) • தமிழ் ஒலிகள் (குறில், நெடில்)(ஒலி அளவு) • ஒலிக்கும் முறை (வல்லினம், மெல்லினம், இடையினம்) • ஒலியனியல் (வேர்ச்சொல், அடிச்சொல், பகுதி, விகுதி, சாரியை, சந்தி) • உருபனியல் (பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்) (இயற்சொல், திசைச்சொல், திரிசொல், வடசொல்) (பெயரடை)				

அலகு –3	**சொல் பகுப்பி**
	• சொல் அலகுகளைக் கண்டறிதல் • பேச்சின் பகுதிகளைத் தேடிக் கண்டுபிடிப்புகள் • பெயர்தொடர், வினைத்தொடர் தேர்ந்தெடுப்பிகள் • சொல் உட்கூறு கண்டறிவி • சொல் - பொருளியல் பாகுபடுத்திகள் • சொல் - பொருள் தடுமாற்றம் அகற்றுதல் • பல சொல் ஒரு பொருள் பயன்பாடுகள் • இரட்டைக்கிளவி
அலகு – 4	தமிழ்த் தொடர்களைக் கட்டுடைத்துப் பகுக்கும் பாகுபாட்டிகள்- தமிழ் உள்ளடக்கப் பகுப்பாய்வுக் கருவிகள் தொடர்கள் - எளிய தொடர், கூட்டுத்தொடர், கலவைத் தொடர், தெரிநிலை வினைமுற்றுத்தொடர் ∴ குறிப்பு வினைமுற்றுத் தொடர் பெயரெச்சத் தொடர் ∴ வினையெச்சத் தொடர், வினாத்தொடர், பெயர்த்தொடர், தன்வினைத் தொடர் / பிறவினைத் தொடர் செய்வினைத் தொடர் / செயப்பாட்டு வினைத் தொடர்)
அலகு – 5	**தமிழ் கணினியில் ஆய்வறிக்கை உருவாக்குதல்**
	• தமிழ் கணினியில் ஏதேனும் ஒரு பயன்பாட்டு தமிழ் செயலியை உருவாக்குதல்

Book(s) for Reference

1.	Natural Language Understanding: James Allen, Benjamin/ Cummings Publishing Company, 1995
2.	GATE.ac.uk – release/gate-2.0alpha3-build516/doc/userguide.html
3.	NLTK Website: 1. Language Processing and Python (nltk.org)
4.	AU-KBC Tools: http:78.46.86.133:8080/aukbc-nlp/
5.	Search Engine AU-KBC : Searchko : www.searchko.co.in
6.	Machine Translation Systems AU-KBC: Tamil-Malaylam MT system: http://78.46.86.133:8080/tamMalMtSys/
7.	Tamil Virtual Academy Tool: Tamil Computing Tools / தமிழ் இணையக்கல்விக் கழகம் Tamil Virtual Academy (Tamilvu.org)
8.	Book Title : Kaninithamizh Tamil Computing (in Tamil) Author: Prof.IlaSundaram, Publisher: Vikatan, Year: 2016, Price: 230.00
9.	Book Title : Computational Approches to Tamil Linguistics (in English) Author: Prof.VasuRenganathan Publisher: Crea Publications, Year: 2016, Price: 1250.00

10.	Book Title : Speech and Languages Processing (in English) Author: Dan Jurafsky and James H.Martin Publisher: Pearson Education India, Year: 2013, Price: 1100.00
11.	Book Title : Python Programming (in Tamil) Author: Somasundaram Chenrayan Publisher: Amazon Kindle, Year: 2020, Price: 75.00
12.	Book Title : Iyarkai Mozhiyaaivu Tamizh Author: Prof.Subbaiyapillai / கு.சுப்பையா பிள்ளை pages: 140, Year: 2012, Published by: உலகத் தமிழ் ஆராய்ச்சி நிறுவனம்
13.	Book Title : Tamilum Kanipporiyum / தமிழும் கணிப்பொறியும் Author: M.Anto Peter / மா.ஆண்டோ பீட்டர் Year: 2002, Published by: சென்னை கற்பகம் புத்தகாலயம்
14.	Book Title : Valartamil – Ariviyal Enaiyath Tamil / வளர்தமிழில் அறிவியல் இணையத் தமிழ் Author: Prof.Ponavaiko, Prof.Krishna murthi, Prof.Subbaiyapillai Publisher: அனைத்திந்திய அறிவியல் தமிழ்க் கழகம், Year: 2003
15.	Book Title : Kaniporiyil Tamil Author: T.Prakash / த.பிரகாஷ் Publisher: Perikam (நூல் வெளியீடு மற்றும் விற்பனை)36, அசீஸ்முல்க் இரண்டாம் தெரு, ஆயிரம் விளக்கு, சென்னை-6 Language: Tamil / தமிழ், Pages: 112, Year: 2005
16.	Book Title : Recent Trends in Languages and Literature Authors: Dr.L.Darwin, Dr.G.Palanirajan, Dr.Umaraj, Dr.Rajesh, Dr.Akilan, Dr.Kumarasen
17.	Book Title : Natural Language Processing and Information Retrieval Authors: Tanveer Siddiqui and U S Tiwary Publisher: Oxford University Press, New Delhi Year: 2008…Fifth Edition 2015, Pages: 408, Price: 525.00

Course Outcomes

CO1	• தமிழ் மொழியைப் பகுத்து ஆராய கணினியைப் பயன்படுத்துதல்	[K2]
CO2	• மொழியியல்சார் பகுப்பிற்குப் பின் தமிழ்த் தரவகத்தை உருவாக்குதல்	[K3]
CO3	• இயந்திர மொழிபெயர்ப்பிற்கு உரிய கருவிகளைக் கையாளுதல்	[K4]
CO4	• கணித்தமிழ்ச் செயலிகள் உருவாக்கம் பற்றி அறிதல்	[K4]
CO5	• கணித்தமிழ்க் கருவிகள் உருவாக்கம் பற்றி அறிதல்	[K5]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

Course Code	P21TAV42	ஊடகத் தமிழ்	L	T	P	C
SEMESTER - IV			2	0	0	2

Cognitive Level	**K1: புரிதல்** **K2: அறிவு பெறுதல்** **K3: பயன்பாட்டு பயிற்சி** **K4: பகுத்தல் - வகைத்தொகை செய்தல்** **K5 : மதிப்பீடு** **K6: படைத்தல்**
Course Objectives	• ஊடகத்திற்கு ஏற்ப படைப்பிலக்கியப் பயிற்சி பெறுதல் • ஊடகத்திற்கு ஏற்ப எழுது திறன் பெறுதல் • ஊடகங்களில் கையாளப்படும் தமிழைத் திறனாயும் தேர்ச்சி பெறுதல் • ஊடக நிகழ்ச்சிகளின் நயங்களைப் போற்றுதல் • கருத்து வெளியீட்டு நுட்பங்களை அறிதல்
அலகு – 1	ஊடகங்கள் - மரபு வழி – அச்சு வழி – மின் வழி – ஊடகங்கள் - மொழி வழி தகவல் தொடர்பியல்-ஊடகவியல் - சொற் பொருள் விளக்கம் - வரையறை – அறிஞர்களின் கருத்துக்கள் - ஊடகத் தோற்றம் - வளர்ச்சி – வரலாறு – வகைகள் - பணிகள் - இன்றைய நிலை.
அலகு –2	அச்சு வழி ஊடகம் - அச்சுக்கலை - இதழியல் - செய்தித்தாள் - இதழ்கள் - விளக்கம் - வரையறை –வகைகள் - வார – மாத இதழ்கள் - காலாண்டு – அரையாண்டு – ஆண்டு இதழ்கள் - சிறுவர் - மகளிர் - இளைஞர் - கல்வி – வணிகம் - மருத்துவம் - இலக்கியம் - அரசியல் - திரைப்பட – ஆய்வு இதழ்கள்- இணையத்தில் அச்சு இதழ்கள் - மின் இதழ்கள் - பல்கலைக்கழக மானியக்குழு CARE Listed Journals பட்டியலில் இடம்பெற்றிருக்கும் தமிழ் ஆய்வு இதழ்கள்.
அலகு –3	இதழ்கள் - நாளிதழ்களின் அமைப்பு – உள்ளடக்கம் - செய்தி சேகரிப்பு – செய்திக் களங்கள் - செய்தி அறிக்கை –செய்தி வகைகள் - அரசியல், திரைப்படம், கல்வி, மருத்துவம் - வணிகம் - வேலை வாய்ப்புச் செய்திகள் - நிருபர்கள் - தகுதிகள் - ஆசிரியர்கள் - செய்திக் கட்டமைப்பு – தலைப்பு – முகப்பு – உடல் பகுதி – பக்க ஒருங்கமைப்பு – தலையங்கம்- சிறப்பு நிகழ்வுகள்.
அலகு – 4	விளம்பரம் - இலக்கணம் - வகைகள் - பத்திரிகைச் சட்டங்கள் - இணையச் சட்டங்கள் - பதிப்புரிமை சட்டங்கள் அறிவுச் சொத்துகாப்புரிமைச் சட்டம் - (Intellectual copy Right Act)- காப்பியடித்தல் தடை மென்பொருள் - நெறிகள் - Plagiarism check software - இந்திய – உலகச் செய்தி நிறுவனங்கள் - பத்திரிகை மன்றம்.
அலகு – 5	மின் ஊடகத் தொழில் நுட்ப வளர்ச்சி- அஞ்சல், தந்தி, வானொலி- திரைப்படம்- தொலைவரி – தொலை நகலி – தொலைக்காட்சி- செயற்கைக்கோள்- தகவல் தொழில் நுட்பம்- கணினி இணையம் - வளைத்தளம் - முகநூல் மின் அஞ்சல் -

	அலைபேசி- வலைப்பூக்கள்- பிற சாதனங்கள்.

பயில்முறைப் பயிற்சி

மாணவர் தன் விருப்பத்துக்கேற்ப ஏதேனும் ஒரு ஊடகத் தமிழ் பகுதியைத் தேர்வு செய்து, அதில் கையாளப்படும். தமிழ், தொடரமைப்பு, சொல் அமைப்பு, மொழி நடை, உச்சரிப்பு, பிறமொழிச் சொற்கள், கடன் வாங்கல், புதிய கலை சொற்களை உருவாக்கிய முறை, மொழி பெயர்ப்பு, வடிவம், எழுது வழங்குமுறை குறித்துப் பரிசீலித்து ஐந்து பக்க அளவில் கட்டுரை சமர்ப்பிக்க வேண்டும்.

இதில் தேர்வுக்கான வினா இடம்பெறுதல் கூடாது.

Book(s) for Study

1	மா.பா.குருசாமி - இதழியல் கலை, திண்டுக்கல், குரு தேமொழி பதிப்பகம்.
2	ச.ஈசுவரன், இரா.சபாபதி, தகவல் தொடர்புகளும் நெறிமுறைகளும், சென்னை, சாரதி பதிப்பகம்.
3	அ.ஆலிஸ் - மக்கள் தகவல் தொடர்பியல், கலைச்சொல் அகராதி, திருச்சி, மதுமதி வெளியீடு.
4	அ.சாந்தா – மக்கள் ஊடகத் தொடர்பியல், மதுரை, மீடியா பப்ளிகேஷன்ஸ்

Course Outcomes

CO1	• ஊடகத்திற்கு ஏற்ப படைப்பிலக்கியப் பயிற்சி பெறுதல்	[K6]
CO2	• ஊடகத்திற்கு ஏற்ப எழுது திறன் பெறுதல்	[K6]
CO3	• ஊடகங்களில் கையாளப்படும் தமிழைத் திறனாயும் தேர்ச்சி பெறுதல்	[K5],[K6]
CO4	• ஊடக நிகழ்ச்சிகளின் நயங்களைப் போற்றுதல்	[K5]
CO5	• கருத்து வெளியீட்டு நுட்பங்களை அறிதல்	[K1],[K2]

K1: புரிதல் K2: அறிவு பெறுதல் K3: பயன்பாட்டு பயிற்சி
K4: பகுத்தல் - வகைத்தொகை செய்தல் K5 : மதிப்பீடு K6: படைத்தல்

Mapping of COs with POs & PSOs:

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	2	2	2	2	2	2	3
CO2	3	3	2	2	3	2	2	2	3	2	1
CO3	3	3	2	3	3	3	3	3	3	2	2
CO4	3	3	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	2

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark

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Department of English

M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN, DINDIGUL

DEPARTMENT OF ENGLISH

ACADEMIC YEAR: 2021 TO 2022

PROGRAMME AND COURSE OUTCOMES

UG / PG / M.Phil	Semester	Paper / Course	Course Objectives
UG	I	COMMUNICATIVE ENGLISH I	1. The Communicative English has been prepared with a view to enrich and equip the student entering college: having the wherewithal to cope with the demands of education in an institution of higher learning and making the most of the opportunity of tertiary education, with the learning tools. 2. To be a life transforming experience for the students entering college and set them on the path to realizing their full potential.
UG	I	AGE OF SHAKESPEARE AND MILTON	1. Providing a wide spectrum of literary exuberance of the great masters of both the ages of Shakespeare and Milton for the young minds to revel in the luxury of representative literary pieces in each genre and to be informed and inspired. 2. Helping the students imbibe the abiding human and moral values through the study of great pieces of literature. 3. Developing critical and creative faculties in students.
UG	I	ADVANCED ENGLISH GRAMMAR	1. To make students attain writing skills by making them applying the usage of grammar. 2. To develop fluency among the students. 3. To assess the experience and fluency in English transforming their personality. 4. To learn and brighten up their career. 5. To strengthen the communication skills through exercise and Quiz.
UG	I	SOCIAL HISTORY OF ENGLAND	1. Make the students Understand different movements that originated in England. 2. Make them understand the religious, political, literary, and social problems as reflected in the literature of these periods 3. Help students appreciate the seminal works of prominent writers of these periods 4. Introduce the important incidents and movements in English history. 5. Help the students obtain a comprehensive view of the periods in the history of England. 6. Inculcate an interest in understanding literature with the background
UG	II	COMMUNICATIVE ENGLISH II	1. The Communicative English for Semester II has built on the competencies developed in Semester 1 and carries forward the objective to enrich and equip the student in the first year of the course: having the wherewithal to cope with the demands of education in an institution of higher learning and making the most of the opportunity of tertiary education.

			2. To be a life transforming experience for the students entering college and set them on the path to realizing their full potential.
UG	II	AGE OF DRYDEN AND POPE	1. Make them understand the religious, political, literary, and social problems as reflected in the literature of these periods 2. Help students appreciate the seminal works of prominent writers of these periods 3. Enable students to understand the characteristics of the Metaphysical poetry 4. Enhance the students' understanding of the literary conventions followed during these periods highlight the salient features of Comedy of Manners
UG	II	INDIAN WRITING IN ENGLISH	1. Enable the students to have an understanding of the historical and political movements in India 2. Enable the students to gain knowledge about Indian cultural ethos and its uniqueness 3. Encourage the students to analyze the cultural traits of Indian English Literature during the colonial and post-colonial periods 4. Motivate the students to compare and contrast the Indian writers' literary acumen with that of the British writers 5. Inspire the students to critically evaluate the merits and demerits of Indian Writing in English

UG	II	HISTORY OF ENGLISH LITERATURE	1. To make students attain writing skills by making them applying the usage of grammar. 2. To develop fluency among the students. 3. To assess the experience and fluency in English transforming their personality. 4. To learn and brighten up their career. 5. To strengthen the communication skills through exercise and quiz.
UG	III	GENERAL ENGLISH I	1. To sensitize students to learn Language through Literature 2. To develop their skills in comprehension and communication 3. To improve their fluency in the English language 4. To enhance their LSRW skills 5. To enable them to appreciate the nuances of Language with the integration of Technology
UG	III	AGE OF DRYDEN AND POPE	1. To introduce the Age of Dryden and Pope. 2.To study the contemporary writers. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics .
UG	III	(ALLIED) HISTORY OF ENGLISH LITERATURE II FROM THE AGE OF TRANSITION TO PRESENT AGE.	1. To continue the study of History of English Literature. 2. To learn the specific trends of different writers of the Age. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	III	ELECTIVE- SUBALTERN STUDIES	1. To introduce students the theme of subaltern studies 2. To study the subaltern writers and their specific concepts. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	III	NON MAJOR ELECTIVE GENERAL APPLICATION SKILLS IN ENGLISH USAGE	1. To learn the general application skills in English usage. 2. To familiarize the basic structures of English and develop application skills. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics
UG	III	SBS – BUSINESS ENGLISH COMMUNICATION	1. To introduce students the Business English Communication. 2. To orient the students to develop the communication skills. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.

UG	IV	GENERAL ENGLISH II	1. To sensitize students to learn Language through Literature To develop their skills in comprehension and communication 2. To improve their fluency in the English language 3. To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing; 4. To enable them to appreciate the nuances of Language and Literature 5. To use English effectively for study purpose across the curriculum;
UG	IV	CORE – I - AGE OF WORDSWORTH	1. To introduce students the Age of Wordsworth. 2. To Study the contemporaries of Age of Wordsworth. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	IV	CORE II-AGE OF TENNYSON	1. To acquaint the student with the Age of Tennyson. 2. To Study the contemporaries of Age of Tennyson. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	IV	(ALLIED) LITERARY CRITICISM	1. To introduce the students the literary criticism and its related theories. 2. To learn the concepts and criticism of critics. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics .
UG	IV	(ELECTIVE) POST COLONIAL LITERATURE – I	1. To introduce the Post Colonial Literature, Coloniser and Colonised countries. 2. To study the theme adopted by the native speakers. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	IV	NON- MAJOR ELECTIVE-PRESENTATION SKILLS	1.To strengthen the speaking and writing skills. 2.To develop Self-confidence. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	IV	SBS – WRITING SKILLS	1. To introduce the students the structure, mechanics, vocabulary and different modes of writing. 2. To master the structure of Language 3. To prepare the students for Competitive Exams. 4. To enable the students write error free English error free on various topics.
UG	V	MODERN AGE	1.To make the students to update the recent trends in Literature 2. To enrich the nuances of the Modern Age and Literature 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	AMERICAN LITERATURE	1. To introduce students a few select writing in American Literature 2. To expose the students aware of transcendentalism and other movements

			3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	SHAKESPEARE	1. To introduce Shakespeare to the students 2. To expose and aware of major characters of Shakespeare 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	FUNDAMENTALS OF LANGUAGE	1. To introduce students the Fundamentals of Language, Phonetics and aspects of developing language 2. To strengthen the pronunciation skills. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	POST COLONIAL LITERATURE – II	1. To introduce the Post Colonial Literature of the Colonized Countries 2. To enrich the knowledge of post colonial themes and concepts. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	ELECTIVE – TRANSLATION THEORY AND PRACTICE	1. To study the elements of Translation, theories and practice 2. To expose translation techniques and problems. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	V	ENGLISH FOR COMPETITIVE EXAMINATIONS	1. To enhance the students' capability to appear for various Competitive Examinations 2. To enrich the English language skills to face the interviews. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	INTRODUCTION TO LITERARY THEORIES	1.To introduce the select Literary Theories. 2. To strengthen the knowledge of particular theories to apply. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	COMPARATIVE LITERATURE	1. To introduce compare and contrast in different Literatures. 2. To expose different schools of Literature and terms. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	WOMEN'S WRITING	1.To introduce the works of Prominent Women Writers and their themes in various literatures. 2.To encourage creative writing 3.To prepare the students for Competitive Exams. 4. To enable the students speak and write in English

			fluently on various topics.
UG	VI	ENGLISH LANGUAGE TEACHING	1. To introduce teaching methods, approaches and techniques. 2. To strengthen the knowledge of the student as a Learner/a Teacher. 3. To prepare as an Efficient English Teacher. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	CONTEMPORARY LITERATURE	1.To make the students to understand and update the recent trends in Contemporary Literature. 2. To update the knowledge of current trends 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	ELECTIVE – JOURNALISM AND MASS COMMUNICATION	1. To impart the knowledge of media 2. To expose the significance of Print Media and its features. 3. To prepare the students for Competitive Exams and to become a media person. 4. To enable the students speak and write in English fluently on various topics.
UG	VI	SBE - THE ART OF PUBLIC SPEAKING	1.To enrich the knowledge of English Oral Communication Skill. 2. To speak error free English confidently. 3. To prepare the students for Competitive Exams. 4. To enable the students speak and write in English fluently on various topics.
PG	I	BRITISH LITERATURE I	1. To provide a wide spectrum of literary exuberance of the great masters of both the ages of Shakespeare and Milton for the young minds to revel in the luxury of representative literary pieces in each genre and to be informed and inspired. 2. Helping the students imbibe the abiding human and moral values through the study of great pieces of literature. 3.Developing critical and creative faculties in students. 4. The students will get a clear understanding of Shakespeare and Milton
PG	I	BRITISH LITERATURE II	1.To enable the students to understand British Literature written in the sixteenth and seventeenth centuries 2. To introduce the writings of Dryden and Pope 3. To have a better understanding of Drama and fiction of 16th and 17th century. 4. The Student will gain knowledge of the writers of this age
PG	I	INDIAN WRITING IN ENGLISH	1. analyze poetic techniques and themes in Indian writing in English 2. Distinguish strategies and topics in Indian English Literature from that of Western models 3. Assess literature as a kind that portrays the country with specific accentuation on postcolonial Indian experience of the country, its set of experiences, governmental issues and the job of memory 4. Evaluate current composition as a portrayal of India's variety integrate writing and society discussing the social construction of Indian culture and Human Rights issues.

PG	I	CHAUCER AND THE ELIZABETHAN AGE	1. Introduce the great masters of the early period such as Chaucer, Spencer, Shakespeare, Marlowe and Donne. 2. Introduce students to the seminal practitioners of English Literature and laying the foundation for contextualising specific texts against definite historical backdrops. 3. Introduce the music and quaintness of the English sounds and vocabulary of the earliest period in English literary history to the students to enable them to have a historical perspective of the developments over the centuries.
PG	I	THE AUGUSTAN AND THE ROMANTIC AGE	1. make them understand the religious, political, literary, and social problems as reflected in the literature of these periods 2. help students appreciate the seminal works of prominent writers of these periods 3. enable students to understand the characteristics of the Metaphysical poetry 4. enhance the students' understanding of the literary conventions followed during these periods 5. highlight the salient features of Comedy of Manners
PG	I	CHILDREN'S LITERATURE	1. provide an overview of the history of children's literature from its origins as oral literature intended for adults to written literature encompassing all major genres 2. indicate historical shifts in the purposes for children's literature: as didactic literature intended to provide moral instruction, or as literature intended to stimulate the imagination or provide useful information in interesting ways 3. show how different purposes are related to different ways of viewing childhood 4. examine the history and characteristics of the various genres of children's literature 5. examine the work of major illustrators of the nineteenth and twentieth century
PG	I	WOMEN'S WRITING	1. make students understand Gender and Women's Studies as an academic field of study 2. be familiar with its major concepts, history, assumptions, and theories/theorists, and recognize its epistemological and methodological diversity and character. 3. analyze the ways in which societal institutions and power structures impact the material realities of women's lives. 4. evaluate information derived from various women's writing. 5. interpret information from a

			variety of sources including Print and electronic media, film, video, and other information technologies
PG	I	TECHNOLOGY IN TEACHING ENGLISH	1. acquaint participants with technology tools, learn to implement network-related programs with concepts of Web Developing. 2. integrate these tools into their English language teaching. 3. enhance English language teaching professionals around the world acquire and maintain basic knowledge and skills in technology for professional purposes. 4. help participants utilize technology in lesson planning, materials development, feedback, and assessment. Practice different phases of software/system development. 5. facilitate professional communication, collaboration, and efficiency improvement by participating in online discussions .Students will be able to demonstrate adequate skills in oral and written communication for technical English language, actively participate in group discussions and interviews and exhibit evidence of vocabulary building.
PG	II	INDIAN LITERATURE IN ENGLISH TRANSLATION	1. create awareness among the students of the rich and diverse literary cultures of ancient India 2. introduce students to the major literary works of Indian classical dramatist. 3. understand the importance of devotion and dedication in human life. 4. enable the students to appreciate the Indian classical literature and to realize its value in practical aspects of life. 5. understand the didacticism and ethical value contained in Indian classical literature
PG	II	THE VICTORIAN AGE	1. providing a wide spectrum of literary exuberance of the great masters of The Victorian Age for the young minds to revel in the luxury of representative literary pieces in each genre and to be informed and inspired. 2. Helping the students imbibe the abiding human and moral values• through the study of great pieces of literature. 3. Developing critical and creative faculties in students
PG	II	THE CONTEMPORARY LITERATURE	1. apply key concepts, terminology and methodologies in the analysis of contemporary works 2. identify contemporary literary works, historical, social, political, cultural and aesthetic contexts. 3. Articulate how literary works respond to and influence societies and cultures, ethically, politically and historically. 4. engage with literary works through other

			media: e.g. film, drama, concerts, lectures or readings.
PG	II	SUBALTERN LITERATURE	1. have a wider knowledge of the trials and tribulations endured by downtrodden people 2. enhance their ability to read text analytically to understand the social discrimination 3. cultivate ability to analyze the elements and strategies of various genres 4. comprehend literary writing as a platform for recording the voice of the voiceless 5. evaluate the power of creative writing as a means to recover.
PG	II	LITERARY CRITICISM I	1. introduce to the basics of Literary Criticism Widens the knowledge of literary and focuses on their importance 2. help to write a critical appreciation 3. Provide an insight of practical criticism in grain the mind towards creative writing, appreciation, critical thinking and critical 4. analyse and accentuate expression of thoughts and views for critical appreciation and judgmental reviews
PG	II	WRITING SKILLS	1. introduce the students to the structure, mechanics, vocabulary and different modes of writing. 2. master the structure of Language prepare the students for Competitive Exams. 3. enable the students to write error-free English error-free on various topics.
PG	II	ART OF PUBLIC SPEAKING	1. to enrich the knowledge of English Oral Communication skill. 2. To speak error-free English confidently. 3. to prepare the students for Competitive Exams. 4. to enable the students to speak and write in English fluently on various topics

PG	III	AMERICAN LITERATURE	1. To make students understand the dimensions of American Literature in the universal literary context 2.To help students study the representative works of American writers 3. To provide a working knowledge of the characteristics of various literary genres 4. To develop analytical skills and critical thinking through reading, discussion, and written assignments.
PG	III	WORLD CLASSICS IN TRANSLATION	1.To expose students the various concepts of Comparative Literature from a Research perspective. Provide students a perspective of world classics. 2.To provide a working knowledge of the characteristics of various literary genres. 3.To develop analytical skills and critical thinking through reading, discussion and written assignments.
PG	III	LITERARY THEORY AND CRITICISM	1.This paper seeks to introduce students to the tradition of literary criticism in the West, from the beginnings in Greek and Latin to the first half of the twentieth century. 2.The three units are devoted to classical literary criticism, the Romantic period, and early twentieth century criticism. In addition to the prescribed texts, students will be required to acquaint themselves with the books and essays referred to in "Recommended Reading". 3. The Students will enable to write about and discuss elements of poetry, novel(s), short stories and drama and how the elements relate to the theme and work as a whole
PG	III	WRITING FOR THE MEDIA	1.To enable the students acquire skills of writing for the media. 2.To promote the chances of employability
PG	III	RESEARCH METHODOLOGY	1.To expose students to the theory and mechanics of research writing 2.To provide students with knowledge on the fundamental aspects of research. 3.To develop skills to locate, evaluate, and incorporate relevant source materials into the construction and expression of an informed point of view 4.The Students will analyze literary works for their aesthetic features and thematic patterns
PG	IV	POST COLONIAL LITERATURE	1.To equip the learner with the diverse literary experiences in the literatures of common wealth countries 2.To give a view of the history of Common Wealth literature. 3.To deepen the students understanding of the salient features of the pieces. 4.The Student will Identify styles, themes, and works of major writers
PG	IV	WOMEN'S WRITING	1.To introduce and popularize feminist writings and to highlight issues that concern women and to give

			students a fresh insight into the feminist discourse. 2.To Identify, analyze, and evaluate arguments as they occur in their own and others' work 3.The Student will trace the development of themes and genres within their historical contexts
PG	IV	PROJECT	1.To enable the students to develop career orientated skills. 2.To prepare the presentation plan to use visual aids 3. Writing skills and points to be taken care of for a clear presentation
M.Phil	I	RHETORIC, STYLISTIC AND MECHANICS OF REASEARCH WRITING	1. Identify the research gaps 2.Become a competent researcher 3. Acquire the language of research 4.Able to apply critical tools in her research 5.Will be methodological.
M.Phil	I	LITERARY THEORY AND CRITICISM	1. Apply theory to literary works 2. Distinguish between theory and application 3. Understand the methodological framework 4. Evaluate theoretical terminology
M.Phil	II	AREA PAPER	
M.Phil	II	DISSERTATION	

Department of History

MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL

DEPARTMENT OF HISTORICAL STUDIES AND TOURISM MANAGEMENT

B.A HISTORY

SYLLABUS TO BE IMPLEMENTED FROM THE ACADEMIC YEAR

2021-2022

(CHOICE BASED CREDIT SYSTEM)

Mother Teresa Women's University, Kodaikanal
Department of Historical Studies and Tourism Management
Choice Based Credit System (CBCS)
(2021-2022 onwards)
B.A. History

1. About the Programme

Considering the need for revising and updating the Syllabi from time to time, and as per the UGC/TANSCHE guidelines, the B.A. HistoryProgrammeoffers broad-based curriculum. The Programme is offered through semester pattern and credit system.The outcome based curriculum facilitates the students' understanding of the recent trends in historical studies and tourism. Facilities are provided to earn extra credits through Add on Online course in the third semester, internship in the fourth semester, Value Added Course in the fifth semester, each carrying two additional credits. Extension activities in the sixth semester are compulsory with 3 credits. Professional English is a compulsory paper with 4 credits. Third and fourth semester have NME with 3 credits each. It will help the students acquire needed skills for business communication that is the need of the hour.

2. Programme Educational Objectives (PEOs)

PEO 1	To prepare students to understand historical concepts, terms and definitions
PEO 2	To educate the students in the evolution of culture and heritage and create involvement and interest in the preservation of our culture and heritages
PEO 3	To enable the students to get interest in the subject and motivate them to become intellectually sharper and innovative.
PEO 4	To offer unlimited opportunities to the students for their better future like progressing to higher studies, research, facing all the competitive examinations and getting placements.
PEO 5	To make them responsible citizens with social responsibility and national consciousness.

3. Eligibility

Candidate should have passed the higher secondary examination or CBSE or other equivalent examination from any schools.

4. General Guidelines for UG Programme

i. Duration: The Programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. Medium of Instruction: English

iii. Evaluation: Evaluation of the candidates shall be through Internal Assessment and External Examinations.

	Theory		Practical	
	Min	**Max**	**Min**	**Max**
Internal	**10**	**25**	**10**	**25**
External	**30**	**75**	**30**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz (5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External Examination for Core and Elective Papers**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions - 2 questions from each Unit	**10**
2	**B**	**5*4=20** (Internal Choice with 2 questions from each Unit (Either/or)	**20**
3	**C**	**3*15=45** Open Choice - Any three Questions out of 5 - one question from each Unit	**45**
Total Marks			**75**

***Minimum credits required to pass - 156**

5. Conversion of Marks to Grade Points and Letter Grade (Performance in a Course / Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination, Students with 71% to 74% of attendance must apply for condonation in the prescribed form with the prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the prescribed form with the prescribed fee along with the Medical Certificate. Students with less than 65% are not eligible to appear for the examination and they shall re-do the semester(s) after completion of the course, with the prior permission of the Controller of the Examination, and The Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and The Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

9. Programme Outcomes (POs)

On successful completion of B.A. History programme, the students will be able to

PO1	understand and interpret concepts, terms, and definitions and develop intellectual flexibility and knowledge; understand the mechanism driving change and its significance in the present time.
PO2	apply the lessons learnt from history that will guide and motivate them to grow as responsible citizens with leadership skills and team work.
PO3	acquire knowledge about arts and architecture, literature, the teachings of various religions and leaders and develop positive attitude, constructive thinking and tolerance.
PO4	gain new ideas and experiences from classroom and outside learning, discussions and interactions and opens gate for them to perceive various cultures around them.
PO5	appreciate and admire the contributions and sacrifices of kings ,leaders, freedom fighters and social reformers for the development of the nation and thereby develop patriotic feeling and social commitment.
PO6	analyze, interpret and understand various cultures, legislations, constitutional and human rights and responsibilities and thereby become responsible citizens with independent thinking and decision-making ability.
PO7	develop communicative and soft skills and secure sufficient knowledge and skills to face various competitive examinations.

10. Programme Specific Outcomes (PSOs)

At the end of the program, the student will be able to

PSO1	know and appreciate the location of history within Social Sciences establish connections across frontiers of disciplines, examine Arts and Culture, Gender and Marginality
PSO2	gain profound knowledge of historical events and critically examine them,. come to know about how nations developed, about heroes of the past, and much more.
PSO3	differentiate the features of good governance and civic responsibilities and wrong policies and become responsible citizens and develop patriotism and social commitments.
PSO4	enrich knowledge about society, right governance successful leadership traits, women's history ,Human Rights , environmental issues and also acquire soft skills , understand how the society we live in came into existence.
PSO5	progress for higher learning, attain employability skills to compete in various competitive examinations and employment opportunities in teaching profession , private and public sectors.

B.A HISTORY CURRICULUM

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			T	P	CIA	ESE	Total
FIRST SEMESTER							
U21LTA11	**Part-I** – Tamil I	3	6	0	25	75	100
U21LEN11	**Part -II** – English II	3	6	0	25	75	100
U21HIT11	**Core I** - History of India up to1206 AD	4	5	0	25	75	100
U21HIT12	**Core II** - History of Tamil Nadu up to 1336 AD	4	5	0	25	75	100
U21HIA11	**Allied I** - Modern Governments I	4	5	0	25	75	100
U21EVS11	Environmental Studies	2	3	0	25	75	100
U21PEAS11	Professional English I	4	6	0	25	75	100
	Total	**24**	**36**				**700**
SECOND SEMESTER							
U21LTA22	**Part-I** – Tamil II	3	6	0	25	75	100
U21LEN22	**Part-II** – English – II	3	6	0	25	75	100
U21HIT21	**Core III** - History of India, 1206-1707	4	5	0	25	75	100
U21HIT22	**Core IV** - History of Tamil Nadu, 1336-1800	4	5	0	25	75	100
U21HIA22	**Allied II** - Modern Governments –II	4	5	0	25	75	100
U21VAE21	Value Education	3	3	0	25	75	100
U21PEAS22	Professional English II	4	6	0	25	75	100
	Total	**25**	**36**				**700**
THIRD SEMESTER							
U21LTA33	Part I - Tamil III	3	6	0	25	75	100
U21LEN33	Part II - English III	3	6	0	25	75	100
U21HIT31	**Core V** - History of India, 1707-1947	4	5	0	25	75	100
U21HIE31	**Elective – I** - Epigraphy	3	4	0	25	75	100
U21HIA33	**Allied III** - History of Indian Women till 1985	4	5	0	25	75	100
U21CSS31	**SBE I** – Computer Skills for Office Management	2	**2**	0	25	75	100
	Non-Major Elective – I	2	2	0	25	75	100
U21PEAS33	Professional English III	4	6	0	25	75	100
	Total	**25**	**36**				**800**

FOURTH SEMESTER							
U21LTA44	Tamil –IV	3	6	0	25	75	100
U21LEN44	English- IV	3	6	0	25	75	100
U21HIT41	**Core VI** –History of Tamil nadu 1800-1947	4	4	0	25	75	100
U21HIT42	**Core VII** - History of World Civilization Upto 476 AD	4	4	0	25	75	100
U21HIA44	**Allied IV** - Principles And Methods of Archaeology	4	4	0	25	75	100
U21HIE42	**Elective –II**- Principals of Public Administration	3	3	0	25	75	100
U21MSS42	**SBE-II** - Managerial Skills	2	2	0	25	75	100
	Non -Major Elective – II	2	2	0	25	75	100
U21PEAS44	Professional English IV	4	6	0	25	75	100
	Total	**29**	**37**				**900**
FIFTH SEMESTER							
U21HIT51	**Core-VIII** – History of Europe, 1453 – 1789	4	5	0	25	75	100
U21HIT52	**Core-IX** - Constitutional History Of India, 1858 – 1950	4	5	0	25	75	100
U21HIT53	**Core X** - History of Tamil nadu 1947 – 1989	4	5	0	25	75	100
U21HIT54	**Core XI** – History of America, 1776 – 1945	4	5	0	25	75	100
U21HIT55	**Core-XII** – History of World Civilization-II	4	5	0	25	75	100
U21HIE53	**Elective–III** - Fundamentals of Tourism In India	3	3	0	25	75	100
U21HIS53	**SBE- III** – Computer Applications in History	2	2	0	25	75	100
	Total	**25**	**30**				**700**
SIXTH SEMESTER							
U21HIT61	**Core -XIII** – International Relations Since 1945 AD	4	5	0	25	75	100
U21HIT62	**Core XIV** – History of Science and Technology, 1800-2000	4	5	0	25	75	100
U21HIT63	**Core XV** – History of Europe, 1789 – 1945	4	5	0	25	75	100

U21HIT64	**Core-XVI** History of India, 1947 – 1985	4	5	0	25	75	100
U21HIT65	**Core-XVII**– History of Far East Since 1900	4	5	0	25	75	100
U21HIE64	**Elective –IV** Elements of Historiography	3	3	0	25	75	100
U21HIS64	**SBE-IV**-Archives Keeping	2	2	0	25	75	100
U21EAS61	Extension Activities	3	0	0	100	-	100
	Total	**28**	**30**		**-**	**-**	**800**
	Grand Total	**156**	**205**		**Grand Total**		**4600**

NON MAJOR ELECTIVE

U21HIN31- NME- I - Event Management

U21HIN42 - NME- II - History for Competitive Exams

ADDITIONAL CREDIT COURSES (Each carries 2 Credits)

U21HIO31 - Online Course – III Semester

U21HII41 - Internship – IV Semester

U21HIV51 - Value Added Course – V Semester – History of science and Technology 1800 -2000

Bloom's Taxonomy in fixing the Course Objectives:

The curriculum of B.A., (Eng. Lit) has been designed and the Course Objectives and outcomes of the programmes are set, following the Bloom's Taxonomy Cognitive Domain. Accordingly, it is segmented into six levels of Course Objectives, to be attained by each course. They are -

K1 / Knowledge = Remember
K2 / Comprehension = Understand
K3 / Application = Apply
K4 / Analysis = Analyze
K5 / Evaluation = Evaluate
K6 / Synthesis = Create

Bloom's Taxonomy Action Verbs:

K1 / Knowledge	Arrange, Define, Describe, Duplicate, Identify, Label, List, Match, Memorize, Name, Order, Outline, Recognize, Relate, Recall, Repeat, Reproduce, Select, State
K2 / Comprehension	Classify, Convert, Defend, Describe, Discuss, Distinguish, Estimate, Explain, Express, Extend, Generalize, Give example(s), Identify, Indicate, Infer, Locate, Paraphrase, Predict, Recognize, Rewrite, Review, Select, Summarize, Translate

K3 / Application	Apply, Change, Choose, Compute, Demonstrate, Discover, Dramatize, Employ, Illustrate, Interpret, Manipulate, Modify, Operate, Practice, Predict, Prepare, Produce, Relate, Schedule, Show, Sketch, Solve, Use, Write
K4 / Analysis	Analyze, Appraise, Breakdown, Calculate, Categorize, Compare, Contrast, Criticize, Diagram, Differentiate, Discriminate, Distinguish, Examine, Experiment, Identify, Illustrate, Infer, Model, Outline, Point out, Question, Relate, Select, Separate, Subdivide, Test
K5 / Evaluation	Appraise, Argue, Assess, Attach, Choose, Compare, Conclude, Contrast, Defend, Describe, Discriminate, Estimate, Evaluate, Explain, Judge, Justify, Interpret, Relate, Predict, Rate, Select, Summarize, Support, Value
K6 / Synthesis	Arrange, Assemble, Categorize, Collect, Combine, Comply, Compose, Construct, Create, Design, Develop, Devise, Explain, Formulate, Generate, Plan, Prepare, Rearrange, Reconstruct, Relate, Reorganize, Revise, Rewrite, Set up, Summarize, Synthesize,Tell, Write

Mapping COs with POs:

For the B.A., Degree Programme, the Educational objectives and the Programme Specific Objectives are specified. The Programme Outcomes are designed according to the curriculum, teaching, learning and evaluation process. For each course, the definite Outcomes are set, giving priority to the cognitive domain. The Course Outcomes are mapped with the Programme Outcomes and programme specific outcomes. The performance of the learners is assessed and the attainment rate is fixed, by using the measurements **Strongly Correlating (S), Moderately Correlating (M), Weakly Correlating (W), No Correlation (N)**. The restructuring of the curriculum is done based on the rate of attainment.

SEMESTER – I

<table>
<tr><td>COURSE CODE</td><td>U21HIT11</td><td rowspan="2">HISTORY OF INDIA UPTO 1206 AD</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -I</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1:Knowledge
K2: Understand
K4 Analyze
K5 Evaluate
K6 Create</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">The Course aims to
➢ learn the culture and civilization
➢ understand the administration and ruling methodology of rulers
➢ analyze and interpret the history
➢ know worldwide trade contacts of ancient people
➢ apply administration and irrigation methodology</td></tr>
</table>

UNIT - I: Ancient Indian History

Physical features of India – Sources of Ancient Indian History –The Vedas- Ramayana & Mahabharatha- The Dharmasastras- The Puranas- The Buddhist Literature- Jain Literature- Mudrarakshasa- Arthasastra- Harshachariitha- Works of Kalidasa- Rajatharangini- Chronicles- Archaeological Sources - Epigraphy - Numismatics - Monuments - Sangam Literature - Foreign Accounts - Greek - Chinese - Arab Writers- Pre Historic Period –Stone age culture –Races- Indus Valley Civilization – Indus Sites –Extent – features – cause for the decline -Unity in Diversity –Indus Valley Civilization

UNIT- II: Vedic Society

The Aryans -Vedic Age – Society and culture in the Rig Vedic Age – Changes in the later Vedic period – Vedic literature-The Epic Age- The Age of the Dharma Sastras-Rise of Jainism and Buddhism – Teachings of Buddhism and Jainism - Impact of Persian and Greek contact - Spread of Religion – Decline - Alexander's Invasion and its Effects

UNIT -III : Mauryas andGuptas

The Age of Mauryas – Sources- Kautilya's Arthasastra – Indica of Megasthnese- Chandragupta Maurya- Bindusara- Ashoka – Kalinga War- Administration – Art-Culture -The Sungas and Kanvas – Pushyamitra- Importance of Sunga Period- The Kanvas- society -The Satavahanas- Political and social condition - Satavahana Art- The Sakas and Pahlavas- Rise and fall of the Kushana empire- Gandhara Art- Mathura School of Art.-- Guptas Age –Administration– Social and Economic condition – Women-Art- Architecture -Literature – the Golden age – Decline- The Vakatakas- Harsha Vardhana- Administartion Northern India after Harsha- Social and cultural Condition of Northern India.

UNIT -IV: Sathavahanas – Chalukya- Rajputs

The Rajput - Administration- Social Life - Culture - Literature- Art

The Rastrakutas - Genesis of the Rashtrakutas- Dantidurga- Krishna I- Tripartite Struggle between Palas, Prathiharas and Rashtrakutas-Administration- Religious and Cultural Condition - Art.The Chalukyas - The rise of the Western Chalukyas of Badami- Kirthivarman I- Pulikesin II- Later Western Chalukyas of Kalyani- The Eastern Chalukyas- Vishnuvardhana- The Deccan under the Chalukyas.

UNIT –V: Conquest of India

Indian Society on the eve of Arab conquest -– Arab invasion of Sindh – Muhammad-bin-Kasim - Consequences of the Arab Conquest.- Muhamad Ghazini - Encounter with Maharaja Jayapala- Somnath temple- Muhamad Ghori - Rajput chief Prithvi Raj Chauhan -First Battle of Terrain - Impact –Qutb-al-Din Aibak.- The Genesis of the Delhi Sultanate.

Maps

1. Sites of the Indus Valley Civilizations.
2. Asoka's empire
3. The Gupta Empire
4. Harsha's Empire.
5. Invasion route

Text Book

1. R.C. Majumdar and Srivastva, History of India (From 320 to 1206 A.D.), Surjeet Book Depot, New Delhi, 1996
2. A.L. Basham, The wonder that was India, Grow Press, New York, 1954.

Reference Books

1. D.D. Koasambi, The Culture and Civilization of Ancient India: In Historical Outline Vikas, New Delhi, 1971.
2. R.S. Sharma, Material Culture and Social Formation in Ancient India, MacMillan, New Delhi, 1983.
3. R.C. Majumdar (ed.), History and Culture of Indian People, Bharatiya Vidya Bhavan Bombay, 1960.
4 Kalpana, Rajaram and R. Vidhya, Facet of Indian Culture, spectrum Books, New Delhi, 2013.
5. Jawaharlal Nehru, The Discovery of India, Oxford University Press, 21st Impression, New Delhi, 2001.

Course Outcomes

On successful completion of the course, the students will be able to

K1, K2	CO1	better focus on the history of India
K1,K2,K5	CO2	understand the Indian culture and literature.
K1,K4, K5	CO3	examine the international contacts of Indians
K1,K2, K4	CO4	explore the evolution of Indian history
K6	CO5	students would demonstrate skills to learn more about Indian history

Mapping of COs with POs& PSOs

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	M	M	S	S	S	M	M	S
CO2	S	S	M	S	M	M	S	M	S	M	M	S
CO3	S	M	M	S	M	M	S	S	M	M	M	M
CO4	S	M	S	S	M	M	S	S	M	M	M	M
CO5	S	S	M	S	M	M	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21HIT12</td><td rowspan="2">HISTORY OF TAMILNADU UPTO 1336 AD</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -II</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Knowledge
K2: Understand
K4 Analyze
K5 Evaluate
K6 Create</td></tr>
<tr><td>Course Objectives</td><td colspan="6">The Course aims to
➢ learn the political, social and economic conditions of ancient Tamil Nadu
➢ understand the antiquity of Tamil Nadu
➢ interpret the history of ancient Tamil Nadu
➢ analyse the cultural heritage of Tamils.
➢ appreciate the socio-political- cultural life of ancient Tamil people.</td></tr>
</table>

UNIT- I: Archaeological Excavations

Sources :Archaeological – Numismatics – Literature – Pre-history of Tamil Nadu: Paleolithic age, Mesolithic age, Neolithic age, Iron age and Megaliths of Tamilagam -

Sangam Age: Sources—Sangam Cheras: Genealogy of Padirruppattu, I Mayavaramban Neduncheralathan, Palyanaiselkelu Kuttuvan, Kalankaikanni Narmudicheral, Kadalpirakkottiya Senguttuvan, Irumporai --Sangam Cholas: Karikala: Accession, Venni & Vagaipparantalai, Uttirapatha expedition—Successors of Karikala—Sangam Pandyas: Peruvaludi , Nedunchelian I, Nedunchelian II.

Rule of Kalabhras.

UNIT- II: Political History

Age of the Pallavas :Pallavas origin, Early Pallavas: Kanchipuram &Tondaimandalam-Later Pallavas:Mahendravarman I ,Narasimhavarman I, Paramesvaravarman I, Narasimhavarman II, Nandivarman II & III—Administration & Society- Taxation & measurements, Justice, Army & Navy, Society – Religious conditions:–Cultural developments: Literature, Art & Architecture and Education.

UNIT- III : Post Sangam age

Age of Cholas: Cholas of Vijayalaya Line: ParakesariVijayalaya, Aditya I-Pandyan Empire I:Early Pandyas, Kadungon, ArikesariMaravarman,KoccadayanRanadhira, Maravarman Rajasimha I, ParantakaNedunjadayan, SrimaraSrivallabha, Varaguna II, ParantakaViranarayana--Social Institutions-Customs and practices,Religion, Philosophy, Literature, Art and Architecture.

UNIT –IV: Imperial Cholas

The Imperial Cholas –Vijayalaya- Rajaraja I - Rajendra I - Chalukya Cholas - Kulottunga I and successors - Administration – Over seas conquests- boundary- Economic Condition - Trade and Commerce - Chola Art and architecture- Religion - Temple Economy - Temple Society - Merchant Guilds in the Indian Ocean- Education and learning.

UNIT- V : Later Pandya Age

Second Pandyan Empire -Consolidation of Power- Economic Condition - Social Condition -Art and Architecture - Language and Education - Account of Marco-polo - The Muslim Conquest - Invasion of Malikkafur - Madurai Sultanate - Impact of Muslim Rule- Establishment of Vijayanagar empire

Text Book:

1. M. Rajamanickam, CholarVaralaru (Tamil), Poovam Publisher, Chennai, 1999.
2. A. Krishnaswami, Topics in South Indian History: From Early Times upto 1565 A.D., The University of Michigan, 1975.

Reference Books

1. K.ANilakantaSastri, Champakalakshmi, P.M. RajanGurukkal, The Illustrated History of South India, Oxford University Press, USA, 2009.
2. K.K. Pillai - TamilagaVaralarumPanpadum (Tamil), International Institute of Tamil Studies, Chennai, 2002.
3. Manoranjithanmoni, History of Tamil Nadu (Kindle Edition), Dave-Beryl Publications, 2015.
4. ChithraMadhavan, History and Culture of Tamil Nadu, Vol. 1, D.K. Print World (P) Ltd., New Delhi, 2005.
5. Noboru Karashima, A Concise History of South India: Issues and Interpretations, Oxford University Press, Chennai, 2014

Course Outcomes

On successful completion of the course, the students will be able to

K1, K2	CO1	better focus on the Tamil Nadu history
K1,K2	CO2	understand the Tamil culture and literature.
K5	CO3	appreciate art and architecture
K4, K5	CO4	examine the social structure
K6	CO5	demonstrate skills to learn more about Tamil Nadu history that helps to understand how the society we live in came existence.

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	M	S	S	S	M	M	S
CO2	S	M	M	S	M	M	S	M	S	M	M	S
CO3	S	M	M	S	M	M	S	S	M	W	M	M
CO4	S	M	S	S	S	S	S	S	M	M	S	M
CO5	S	S	M	S	S	M	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIA11	MODERN GOVERNMENTS – I	L	T	P	C
ALLIED – I			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the salient features of the constitutions of various countries. ➢ understand the role of Judiciary. ➢ analyze and interpret the political thoughts and their rights. ➢ know the state level political party system. ➢ apply techniques and strategies in the field of election

UNIT- I: Basic concepts

State and its elements – Constitution, Classification of Constitutions - Forms of government: Unitary, Federal, Quasi Federal – Theory of separation of powers.

UNIT -II: Organs of Government

Legislature - Bicameral and Unicameral - Executive–Judicial Review - Rule of Law-Administrative Law - Party Systems - Single Party - Bi Party – Multi Party Systems– Pressure Groups. Executives; Presidential, Parliamentary – Quasi Presidential – Legislature;

UNIT- III: Constitution of United Kingdom

Salient Features–Distinction betweenWritten and Unwritten Constitutions – Conventions – Importance of the English Constitution – salient features – the Queen, the Prime Minister, Cabinet -Parliament; House of Common and House of Lords- law making – Committee system – Rule of law- Party system – Judiciary – Structure – Powers.

UNIT- IV: Constitution of America

Salient Features–Separation of Powers–Distinction betweenUnitary and Federal States – American Federation and Distribution of Powers – Rigid and Flexible Constitution – Mode of Constitutional Amendments – Fundamental Rights and Safeguards.

UNIT –V: Three Organs of the Constitution of U.S.A

Executive - Nature of PresidentialExecutive – President – Election, Tenure and Removal – Powers and Position – His Cabinet –Vice President- Legislature ; Composition – Powers and Functions – Speaker – Relation between the Two Houses – Process of Law-making - the Committee System – Judiciary; Structure and Powers of the Supreme Court – Role of the

Supreme Court – Organization of the Judiciary – Party System – Civil Service – Pressure Groups.

Text Book

1. Pon. Thangamani, History of Indian Constitution (A.D. 1773 - 1950), PonnaiahPathipagam, Chennai, 2001.
2. N. Jayapalan, Modern Governments, Atlantic Publishers and Distributors, New Delhi, 1999.

Reference Books

1. Alan R. Ball, Modern Politics and Government, Macmillan, New Delhi, 1983.
2. K.C, Wheare, Modern Constitutions, Oxford University Press, II Edition, Madras, 1966.
3. C.F. Strong, A History of Modern Political Constitutions, G.P. Puthilam's Sons, New York, 1963.
4. J.C. Johari, New Comparative Governments, Lotus Press, New Delhi, 2000.
5. N. Jayapalan, Modern Governments and Constitutions, Vol. I & II, Atlantic Publishers and Distributors, New Delhi, 2002.

Course Outcomes

On successful completion of the course, the students will be able to

K1, K2	CO1	understand the basic concepts of constitutions, politics and party system
K1, K2, K3	CO2	apply the concepts in understanding politics and making of governments
K4,K5	CO3	analyze the merits and demerits of the constitutions of various countries and its applications
K5	CO4	evaluate a time series for activities in forming governments
K6	CO5	assess the salient features of different constitutions and make recommendations

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	M	S	M	M	M
CO2	S	S	S	S	S	M	S	M	M	M	S	S
CO3	S	S	S	S	M	S	S	M	S	M	S	M
CO4	S	M	S	S	S	M	M	S	M	M	M	S
CO5	S	S	S	S	M	S	S	M	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER - II

COURSE CODE	U21HIT21	HISTORY OF INDIA 1206 - 1707	L	T	P	C
CORE III			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the history of Rajputs and their culture ➢ understand the diplomatic history of Delhi Sultanate, Mughals and the Vijayanagar Empire ➢ help the students to analyze and interpret the administration of Decc kings ➢ know the impact of Mughal invasion of India ➢ assess the Art and Architecture

UNIT -I : Origin of the Delhi Sultanate
Foundation of the Delhi Sultanate – The Slave dynasty – Qutbuddin Aibak-- Iltutmish - Razia – Balban- Causes of downfall of slave dynasty -Khilji dynasty Jalaluddin Firoz Shah Khilji – Alauddin Khilji -Southern Conquest - Mongol Invasion and its effects - an assessment.

UNIT II: Tughlaq Dynasty
Tughlaq Dynasty: Ghiasuddin Tughlaq - Muhammad bin Tughluq – Firoz Shah Tughluq – Causes of the downfall of Tughlaq dynasty –Sayyid Dynasty - Khizr Khan- Mubarak Shah - Alam Shah- Lodi Dynasty -Bahlol Lodi- Sikander Lodi - Ibrahim Lodi - Causes for the downfall

UNIT- III: Rajputs Origin
Rajputs -Origin and their Achievements – Yadavas of Devagiri – Kakatiyas of Warangal – Hosysalas of Dwarsamudra – Rise of Jagirdari system –Art and Architecture- Bhakthi movement

UNIT-IV: Art and Architecture of Bahmini Kingdom
The Bahmini Kingdom: Mohammad Gawan – The Empire of Vijayanagar – Expansion-Administraion- Krishnadeva Raya – Art, Architecture and Literature
Establishment of the Portuguese Empire in India and its consequences.

UNIT –V: Establishment of Mughal Empire
Establishment of Mughal empire in India – Condition of India on the eve of Babar's invasion – Mughal empire from Babur to Aurangazeb – Conquests and annexations- Downfall of the

Mughals- Social and economic condition under Mughals – Akbar's religious policy – MughalArt - Architecture – Literature– Status of Women - Impact of Mughal rule on Hindu society.

Maps

1. India under Muhammad Bin Thuglag
2. Babur's Empire
3. Akbar's Empire
4. India under Aurungzeb
5. Vijayanagar Empire.

Text Book

1. History of India From 1206 To 1707 Third Semester Guide Bhabani Publishing Concern (Paperback, PROF. SARAKR & MITRA, BIDYUT GHOSH), BHABANI PUBLISHING CONCERN, 12 th edition, 2021.
2. Political History of Medieval India (1206 - 1707), Revised Edition (2020) Paperback – 1 January 2018, SBPD Publishing House (1 January 2018); SBPD Publishing House, Agra

References Books

1. History of Medievel India (1206-1707), Dr. S. R. Verma, SBPD Publishing House, 1st edition, 2021
2. R.C. Majumdar, H.C. Roychaudri & K. Datta : An Advanced History of India, Mac Millan India Ltd., 2004, New Delhi.
3. S.R. Sharma : The Crescent in India Lakshmi Narain Agarwal, 1983, New Delhi.
4. L.P. Sharma : History of Medieval India, Konark Publishers Pvt. Ltd, 1997, New Delhi.
5. J.L. Mehta : Advanced Study in the History of Medieval India Sterling Publishers Pvt. Ltd., 1983, New Delhi

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	better focus on the history of India
K2	CO2	understand the Indian culture and literature.
K4, K5	CO3	assess the art and architecture of different dynasties
K4, K5	CO4	examine the administrative system
K56	CO5	prepare report on the impact of foreign conquests of India

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	S	M	S	M	S	S	M	S	M	S	S
CO3	S	S	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><th>COURSE CODE</th><th>U21HIT22</th><th rowspan="2">HISTORY OF TAMILNADU 1336 – 1800</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><td colspan="2">CORE IV</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Knowledge
K2: Understand
K3: Apply
K4 Analyze
K5 Evaluate
K6 Create</td></tr>
<tr><td>Course Objectives</td><td colspan="6">The Course aims to
➢ learn the administration and achievements of the Tamil rulers
➢ understand the significance of Tamil country under Nayak rulers
➢ help the students to analyze and interpret the South Indian rebellion
➢ know the Palayakkarars system
➢ gain knowledge in different styles of Art and Architecture</td></tr>
</table>

UNIT- I: Tamilnadu Under Nayakkars

Vijayanagar Rule in Tamilnadu - Founding of Vijayanagar Empire - The Expedition of Kumara Kampana - The Administration -Education and Literature- Literacy Development - Growth of Art. Establishment of Maratha Rule–Marathas of Tanjore –Rulers- Venkoji - Shahji - Serfoji I - Tukoji - Pratap Singh - Tuljaji – Serfoji II – Sivaji III –Wars and Administration – Society- Saraswathimahal library- Art and Literature

UNIT- II: Nayakkars rule in Tamilnadu

Raise and Fall of Nayakkars rule in Tamilnadu –Nayaks of Madurai– Viswanatha Nayak - Thirumalai Nayak- Chokkanatha Nayak - Rani Mangammal - Reign of Meenakshi

Nayaks of Tanjore - Sevappa Nayak – Ragunatha Nayak – Vijayaraghava Nayak - Administration Nayaks of Senji- Vaiyappa - Tubaki Krishnappa, Krishnappa I, Krishnappa Nayak II Administration – Socio-Economic conditions under the Nayaks – Language and Literature – Art and Architecture.

UNIT- III: Sethupathis and Nawabs

Sethupathis of Ramnad and Sivaganga – Setupathis of Ramnad – RagunathaSetupati I – KilavanSetupati - Zamindars- Court of Wards - Administration –VeluNachiyar- Socio-economic condition .The ArcotNawabs – The Carnatic Wars and Effects – Mysore Wars–- Administration and Society

UNIT- IV: Advent of Europeans and Early Resistance

Advent of the Europeans–Tamilnadu on the eve of the advent of Europeans- The Portuguese – The Dutch –The French – The English – East India Company- The Anglo-French conflict – Trade and Commerce- Economy and industry.

UNIT- V: South Indian Rebellion

Early Resistances –Velu Nachiyar- South Indian Rebellion- First and second Palayakkararswars-The rebellion of Palayakkarars - Khan Saheb- Puli Thevar- Veerapandia Kattabomman Marudu brothers- Umathurai and Shevathiah-Dheeran Chinnamalai

Maps

1. Nayak Kingdom
2. Maratha Empire
3. Sethupathis
4. Tamilagam in 1800

Text Book

1. Gowri, K., Maduraiunder East India Company 1801-1857, Raj Publishers Madurai, 1987.
2. Venkatesan, G, History of Modern Tamil Nadu From 1600 – 2011 A.D., Narmatha Publications, Rajapalayam , 2017.

Reference Books

1. MangalaMurugesan, K., Self Respect Movement, ThendralPathipakam, Chennai, 1982.
2. Rajayyan, K., Tamil Nadu – A Real History, Ratna Publications, Trivandrum, 2005.
3. SathyanathaAiyar, R., History of Nayaks of Madurai, Oxford University, 1924.
4. Subramanian, N., History of Tamil Nadu 1565 – 1982, Ennes Publication, Madurai, 1987.
5. Varghese Jeyaraj, S., Socio-Economic History of Tamil Nadu, 1565-1967, Anns Publications, Uthamapalayam, 2017.

Course Outcomes

On successful completion of the course, the students will be able to

K1,K2	CO1	get better focus on the history of tamilnadu
K1, K2	CO2	understand the tamil culture and literature.
K3	CO3	learn lessons from history and apply it
K4, K5	CO4	analyze the causes for the advent of europeans
K6	CO5	interpret south indian rebellion

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	M	S	M
CO5	S	S	M	S	S	M	M	S	S	M	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIA22	MODERN GOVERNMENTS – II	L	T	P	C
ALLIED - II			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the unique features of the constitution of various countries ➢ understand the basic concepts of democratic rights and powers ➢ help the students to analyze and interpret the cabinet system and function ➢ understand the functions of judiciary ➢ apply party system

UNIT- I: Constitution of Switzerland
Constitution: Salient Features- mode of Amendment – Federal Council – Federal Assembly – Instruments and working of Direct Democracy – Judiciary- Powers – POLITICAL PARTY SYSTEM - Direct Democracy – An Evaluation - Mode of Amendment.

UNIT- II: Constitution of France
Constitutional Development upto 1985– French revolution- Declaration of the rights of man and citizens 1789 - Fifth Republic- Main features of the Constitution of Fifth Republic- – Executive – President – Powers and Position – Cabinet – Powers and Position – Legislature – Composition and Powers – Judiciary – Administrative Law – Structure of the Judiciary – Party System – Multi-party System – Local Government – Mode of Amendment.

UNIT- III: Constitution of India
Constitution: Salient features–Federation and Distribution of Powers - Fundamental Rights – Nature and Safeguards - Fundamental Duties - Directive Principles of State Policy– Fundamental Rights- Fundamental Duties- Equality -Directive Principles of State policy – Emergency provisions- Constitutional Amendments.

UNIT –IV: The Parliament of India
Legislature : Composition and Powers of Rajya Sabha and Lok Sabha – Presiding officers – relation between the two houses – process of law making – committee system - President – Election and Impeachment – Powers and Position – President- Vice President - Council of Ministers – Formation – Powers and Position – Prime Minister - Powers and Position - Executive – Election, Functions, Cabinet- Government – Dictatorship, Coalition government and political stability.

UNIT –V: Judiciary
Structure and Powers of the Supreme Court – Organization of the Judiciary – Government of the State – Union-State Relations – Administrative, Legislative and Financial – Emergency Provisions – Mode of Amendment – Civil Service – Party System

Text Book

1. N. Jayapalan, Modern Governments and Constitutions, Vol. I & II, Atlantic Publishers and Distributors, New Delhi, 2002.
2. Pon. Thangamani, History of Indian Constitution (A.D. 1773 - 1950), PonnaiahPathipagam, Chennai, 2001

Reference Books

1. Alan R. Ball, Modern Politics and Government, Macmillan, New Delhi, 1983.
2. Maurer School of Law: Indiana University, 1926. 7. K.C, Wheare, Modern Constitutions, Oxford University Press, II Edition, Madras, 1966.
3. J.C. Johari, New Comparative Governments, Lotus Press, New Delhi, 2000.
4. Hoveyda Abbas, Ranjay Kumar and Mohammed AftabAlam, Indian Government and Politics, Pearson, Chennai, 2011.

Course Outcomes

On successful completion of the course, the students will be able to

K1,K2	CO1	learn the constitutions of various countries
K2	CO2	understand the structure of various governments
K2	CO3	recognize new concepts in politics
K3	CO4	develop interest to learn more about administration
K4, K5,K6	CO5	assess the parliament system of India and create a model parliament

Mapping of COs with POs& PSOs

CO/ P	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	M	S	S	S	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	S	S	M	M	S	M	M
CO4	S	M	S	S	M	S	S	M	M	S	S	M
CO5	S	M	M	S	M	S	M	M	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER-III

COURSE CODE	U21HIT31	HISTORY OF INDIA 1707 – 1947	L	T	P	C
CORE -V			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the historical background of the conquest of India by the Europe powers ➢ understand the socio-religious reform movements ➢ apply the nationalist feeling for the growth of theNation ➢ analyse the nature of nationalism ➢ evaluate the result of freedom movement

UNIT -I: East India Company

East India Company- Decline of the Mughals – Invasion of Nadirshah: Causes and effects; Anglo- French rivalry; the Establishment of East India Company- Battle of Plassey –Nawab of Bengal – Third Battle of Panipat- Battle of Buxar - result - British ascendancy .
Portuguese- Dutch –French – English.The Anglo– French rivalry in the Carnatic– Ascendency of the British – Administrative System under the British Company –The establishment of the English power in the Bengal – Robert Clive administration.

UNIT- II: Maratha Culture and religion

Rise of Marathas-Life of Shivaji –His administration and army –Achievements -Maratha Culture and religion – Maratha war with neighboring Kingdoms –Third Battle of Panipat-Administration -Art and Architecture

UNIT -III : Lord Cornwallis Reforms

Warren Hastings – Reforms- Lord Cornwallis – Reforms- Permanent Land Revenue Settlement-Lord Wellesley – The Subsidiary system – William Bentinck reforms, Lord Dalhousie- Reforms – Policy of Annexations- Revolt of 1857 – Cause- course and result-. Mangal Pande, Nana Sahib, Tantia Tope, Jhansi Rani Laxmi Bai –Result of the war- Queen's Proclamation-Administration under British Queen

UNIT-IV: Genesis and Growth of the Indian National Congress

Partition of Bengal- Moderates – Extremists Surat Split – Swadesi and Boycott Movement — Ghokale – Tilak – Lajpat Rai- V.O. Chidambaram Home Rule Movement -Jallianwalabagh Tragedy - Non Co-operation Movement – Civil Disobedience Movement - Second World War

and the Congress –Cripps Mission - Quit India Movement –INA- Role of Women- Cabinet Mission Plan - Partition and Independence – Some Personalities – Motilal Nehru – Mohamad Ali Jinnah, Mahatma Gandhi, Jawaharlal Nehru, Rajaji – The British Legacy.

UNIT- V: Social Reforms

Socio - Religious Reform Movements - Brahmo Samaj - Prarthana Samaj - Arya Samaj - The Ramakrishna Movement- The Theosophical Movement - Narayana Guru - Jyothirao Phule and Satya Shodhak Samaj - G.Subramania Iyer - Abolition of Devadasi System – Abolition of Sati – Abolition of Female Infanticide – Widow Remarriage Act – Economic Condition – Religious and Social Development – Growth of Local Self Government – Development of Education.

Text Book

1. Sharma, L.P, History of Modern India, Konark Publishers Pvt Ltd, Delhi, 2000
2. Majumdar, R. C, An Advanced History of India, Macmillan, New Delhi, 2002.

Reference Books

1. Grover, B.L and Grove.S, A New Look on Modern Indian History, S. Chand &Co, New Delhi, 2006.
2. Krishna Reddy, Indian History, Tata McGraw-Hill, New Delhi, 2003.
3. Nanda,S.P, Landmarks in Indian History (part–II From the Advent of Islam to Indian Independence), Dominant Publishers and Distributors, New Delhi, 2004
4. Sharma, L.P, History of Modern India, Konark Publishers Pvt Ltd, Delhi, 2000.
5. SumitSarkar, Modern India 1885 - 1947, Macmillan, New Delhi, 2004.

Course Outcomes

On successful completion of the course, the students will be able to

K1,K2	CO1	gain knowledge on the history of India
K1,K2	CO2	understand the causes for the British ascendancy
K4, K5	CO3	examine the impact of social reform movement in Indian society
K4, K5	CO4	analyze the trends in freedom movement
K6	CO5	create document on the role of women in freedom movement

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S)	-	3 marks
Moderately Correlating (M)	-	2 marks
Weakly Correlating (W)	-	1 mark
No Correlation (N)	-	0 mark

COURSE CODE	U21HIE31	EPIGRAPHY	L	T	P	C
ELLECTIVE – I			4	-	-	3

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyse** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the survey of inscriptions and epigraphy ➢ understand the importance of antiquities ➢ help the students to analyze and interpret the various types of scripts ➢ get exposure in archaeological excavations ➢ evaluate the scripts and writing materials

UNIT- I: Scope and Purpose of Epigraphy

Epigraphy – meaning and scope – purpose – Paleography-Definition and importance of Palaeography-Origin and antiquity of writing in India.-Forms of writing- Indian Scripts – Brahmi, Karoshthi, Nagari, Grantha – Tamil Brahmi – Vatteluttu -Ancient Numerals- Logography

UNIT- II: Inscription of Asoka

Writing materials – Metals and Stones - Palm leaf–Engraving-Forged records-Seals-Coinage Dating and Eras- Saka Era- Vikrama Era- Inscriptions of Asoka -Besnagar Garuda Pillar Inscription-Hatigumpha Inscription of Kharavela-Samudragupta's Allahabad Pillar Inscription.-Mathura Pillar Inscription of Chandragupta-II-Saranath Buddhist Inscription of the time of Kanishka-I

UNIT- III: Copper Plates

Editing and Preservation – Inscriptions – Palm Leaves – Estampages – Fascimile – Eye Copy – Photocopy – Comparison – Editing and Publications – Methods of Conservation and Preservation – Using Paper Mess – Chemical Treatment

UNIT- IV : Evaluation of Coinage

Epigraphists – Hultzech – James Princep – George Buhler – V.Venkayya – T.V.Mahalingam – K.V.SubrahmanyaIyer – D.C.Sircar – R.Nagaswamy – Y.Subbarayalu .H. Krishnasastri– Iravatham Mahadevan

UNIT –V: Origin and growth of Vatteluttu

Importance of the Tamil Brahmi inscriptions - Origin and growth of Vatteluttu.

Sample study of select inscriptions

1. Kuram Copper plates
2. Velvikkudi coper Plates
3. Uttiramerur Inscription
4. Kannanur Inscription
5. The Manur inscription

Maps

1. Mark the archaeological sites in Tamilnadu
2. Mark the archaeological sites of Indus Civilization

Text Book

1. Sudha Prasad, Ancient Indian Epigraphy, MotilalBanarasidas Publications, New Delhi , 2013
2. Dinesh Chandra Sircar, Indian Epigraphy, 2nd edition, Motilal Banarasidas Publications New Delhi , 2017.

Reference Books

1. Brown, C.J., The Coins of India, The Heritage of India Series, Calcutta, 1922.
2. Chattopadhyaya, B.D., Coins and Currency System in South India (A.D. 1225-1300), Delhi, 1977.
3. Dani, A.h., Indian Paleography, Oxford University Press, 1963.
4. Kosambi, D.D., Indian Numismatics, New Delhi, 1981.
5. Mahadevan, Iravatham, Corpus of the Tamil Brahmi Inscriptions, Tamilnadu State Department of Archaeology, Madras, 1968.

Course Outcomes

On successful completion of the course, the students will be able to

K1, K2	CO1	focus on epigraphy
K2	CO2	understand the writings in copper plates
K4, k5	CO3	assess the history through inscriptions.
K5	CO4	analyse the writings in coinage
K6	CO5	prepare a report on the methods of conservation

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	M	S	S	M	M	M	M
CO2	S	M	M	S	M	M	S	M	M	M	S	M
CO3	M	M	M	S	S	M	S	M	M	M	M	M
CO4	S	M	S	M	M	S	S	M	M	M	M	M
CO5	S	S	M	S	M	S	S	M	S	M	M	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21HIA33</td><td rowspan="2">HISTORY OF INDIAN WOMEN UPTO 1985</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED -III</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Knowledge
K2: Understand
K4 Analyze
K5 Evaluate
K6 Create</td></tr>
<tr><td>Course Objectives</td><td colspan="6">The Course aims to
➢ learn the Universality of issues and factors pertaining to women.
➢ understand the diversity and regional perspective of women.
➢ help the students to analyze and interpret self-esteem and initi discussion on current issues.
➢ equip the students to understand the status of women in society
➢ apply rights and responsibilities</td></tr>
</table>

UNIT- I: Gender and Women

Definition of Women Studies – Terminologies- Gender, Sex, Patriarchy Matriarchy-Scope and importance of Women Studies-Subject matter of women's Studies- Importance of Women studies – purpose of Women Studies.

UNIT –II: Women in India

Women in Vedic, Epic, Sangam and Medieval period, Women in Freedom Movement – Velu Nachiyar –Jansi Rani Lakshmi Bai –Sister Subbulakshmi- Annie Besant - Sarojini Naidu - Anuna Asaf Ali -Kasthurba Gandhi - Captain Lakshmi - Susila Nayar –Usha Mehtha - Sucheta Kripalani -Muthulakshmi Reddy-Rukmini Lakshmipathi -Indira Gandhi.

UNIT- III: Contemporary Issues and Challenges for women

Issues and Challenges for Women - Gender Discrimination – Child Labour – Child Marriage – Dowry – Divorce – Female Infanticide – Female Foeticide – Immoral Traffic – Eve teasing- – Sexual Exploitation – Works Spot Harassment – Domestic Harassment – Honour Killing - Denial of property

UNIT –IV:Women's Movements and Organizations

Social Reform Movements –Campaign Against social evils- Women Organizations and women's movement– NGO's for Women-Women's Health Movement –Eco Feminism- Chipko Movement Anti price rise movement

UNIT- V: Protective Measures for Women

Factors of Change - Education – Health – Economic and Employment Opportunities – Women Franchise – Personal Laws - Social Legislations –Reservation of seats for women in Local Self government-Social Welfare Schemes and Programmes for Women at Centre, State and District level –Self help groups-Education and Empowerment- Women and politics.

Text Book

1. Chandrababu, S, Thilagavathi, L, Women: Her History and Her Struggle Emancipation, Bharathi Puthakalayam, Chennai, 2009.
2. Krishnammal, S, Women Studies, Sujiranoje Publications, Chennai, 2012.

Reference Books

1. Bakshi Kriran Bala, S.R, Welfare and Development of Women, Criterion, New Delhi, 2000.
2. Neera Desai and Vibhuti Patel, Indian Women: Change and Challenge in the International Decade 1975-85, Popular Prakasham,Bombay, 1990.
3. Premalatha,P.N. Nationalism and Women's Movement in South India, 1917-1947 , Delhi,2003
4. SushilaNayer and Kamala Mantekar (ed.), Women Pioneers in India's Renaissance, National Book Trust Publication, New Delhi, 2009.
5. Mishra, S, Women and Social Change in India, Pearl Books Publications, New Delhi, 2013.

Course Outcomes

On successful completion of the course, the students will be able to

K1,K2	CO1	get knowledge on the theory of feminism
K2	CO2	understand the contributions of women in various fields.
K4, K5	CO3	evaluate the protective measures for women.
K4, K5	CO4	analyze the role of women in different movements
K6	CO5	identify the contemporary issues and challenges and create report.

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	M	S	S	S	M	S	S
CO2	S	M	M	S	S	S	S	M	S	M	S	S
CO3	M	M	M	S	M	S	S	S	M	M	M	M
CO4	S	M	S	S	S	S	S	S	M	S	S	M
CO5	M	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER –IV

COURSE CODE	U21HIT11	HISTORY OF TAMILNADU 1800- 1947	L	T	P	C
CORE -VI			4	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the medieval History of Tamil Nadu ➢ understand the Tamil peoples' resistance against Europeans ➢ help the students to analyze and interpret the contributions of Nayak rulers to the Art and Architecture ➢ train the students to know the British Revenue system in Tamil Nadu ➢ apply techniques and strategies in the field of politics

UNIT - I: Advent of the Europeans and Early resistance
The advent of the Europeans –Wars and resistances-– Palayakkars-Kattabomman – Palayakkars revolts-South Indian Rebellion – Causes, course and results –Maruthu Brothers-Theeran Chinnamalai-Fall of Palayakkars- Vellore Mutiny of 1806 A.D- Causes- Course – Consequences-Judiciary

UNIT – II: British rule and Social Reform movement in Tamilnadu
Economic condition – British Revenue Policy – Permanent and Ryotwari System - Indigenous Education-Introduction of Western Education – Christian Missionary Activities - Conversion to Christianity – Socio –Religious Reform Movement- Vallalar – Samarasa Sanmarga Sangam – Vaikundaswamy-G.Subramania Iyer-Movement for the Eradication of untouchability- Temple Entry Movement

UNIT- III: Freedom Movement- First phase
The Early Phase- Swadesi and Boycott movement- V.O Chidambaram Pillai- A. Subramanya Bharathi – Vanchinathan –Neelakanta Brahmachari- Subramanya Siva – Home Rule Movement-Annie Besant –Non Cooperation Movement and after –Justice party government- Padmasani Ammal- Thiru-Vi-Ka- Satyamurthy- Srinivasa Iyengar

UNIT –IV: Freedom Movement- Later phase
Rise of Swaraj Party- Neill Statue Satyagraha- Simon Commission boycott- Civil Disobedience movement-Rukmini Lakshmipathhi- Rajaji- Tamil Nadu under Congress Rule, 1937-39 – Achievements – Temple entry- Prohibition- Individual Satyagraha – Quit India movement – Kamaraj- Indian National Army- Captain Lakshmi- India's independence

UNIT – V: Non –Brahmin Movement and other developments

Rise of Justice Party – E.V.R. and Self-Respect Movement- Women's Movement-Women's India Association-Dr.Muthulakshmi Reddy-Sister Subbulakshmi- Widows education- Progress of Girls education- Medical education- Dr.Ida Sophia Scudder and CMC Vellore- The Economic Development of Tamil Nadu till 1947

Text book

1. Devanesan, History of Tamil Nadu, Benu Publications, Madurai, 1990.
2. Rajayyan. K , History of Tamil Nadu, Ratna Publications, Trivandrum, 1989.

Reference Books:

1. Chellam, V.T. History of Tamil Nadu, Kudal Publications, Madras, 1995.
2. Champakalakshmi,R. rade,IdeoloogyandUrbanization:SouthIndia,BC300– AD 1300
3. Karashima,Noboru, South Indian History and Society: Studies fromInscription AD 850 – 1800
4. Varghese Jeyaraj.S., Socio-Economic History of Tamil Nadu (1565 – 1967 A.D.), Anns Publication, Uthamapalayam, 2017.
5. NilakantaSastri, History of South India, Oxford University Press, Madras,1971.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	study on the history of Tamil Nadu
K2	CO2	understand the economic and social structure of Tamil Nadu
K6	CO3	analyze the causes for the advent of Europeans and create a feeling of unity.
K4	CO4	develop the feeling of unity in diversity
K5, K6	CO5	examine the role of women in freedom movement and write a report based authentic sources

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	S	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT42	HISTORY OF WORLD CIVILIZATION UPTO 476 A.D	L	T	P	C
CORE -VII			4	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the civilizations of various countries ➢ understand the value of civilizations ➢ help the students to analyze and interpret the evolution features a legacy of World civilizations ➢ train the students in the civilized life of people of various countries. ➢ apply culture, religion , economy, customs and tradition wherev possible.

UNIT- I: Egyptian Civilization

Civilization - Meaning and Definition–Causes for the growth of Civilization – Difference between Civilization and Culture. Egyptian Civilization – Features-The Government – Socio-Economic condition – Art – Religion and Literature

UNIT- II: Sumerian Civilization

Sumerian Civilization Features–Legacy–Mesopotamian–Babylonian Civilization – Hanging Garden- People – Government – The Code Hammurabi – Socio-Economic condition – Art – Religion - Literature.

UNIT -III: Greek Civilization

City States–Athenian Democracy–Legacy in the field of Art – Architecture – Philosophy – Education and Science. Roman Civilization - Political Legacy – Roman Law – Legacy in the field of Art – Architecture – Religion – Philosophy – Education and Science.

UNIT- IV: Byzantine Civilization

The Government **-** Emperor Justinian–Government–Socioand Economic Conditions – Contribution to Art – Religion and Philosophy.Feudalism – Features – Merits and Demerits – Manorial System.

UNIT –V: World Religions

Christianity - Life and Teachings of Jesus Christ - Life andTeachings of Prophet Mohammad – Hinduism – Saivism – Vaishnavism – Zorastrianism– Judaism -Confucianism.

Text Book

1. Manoj Sharma, History of World Civilizations, Anmol Publications Pvt. Limited, New Delhi, 2005
2. Davies, H.A, An Outline History of the World, Oxford University Press, New Delhi, 1968

Reference Books

1. Philip Lee Ralph & Others, World Civilizations, W.W. Norton, New York, 1997.
2. Dharmaraj, J, History of World Civilizations, (Tamil), Tensy Publications Sivakasi, 2015.
3. Arnold Pacey, Technology in World Civilization: A Thousand-Year History, The MIT Press Cambridge, Massachusetts, 1991.
4. Philip J. Adler, Randall L. Pouwels, World Civilizations, Wadsworth, Boston, 2008.
5. Arnold Toynbee, A Study of History, Oxford University Press, New York, 1974.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	gain knowledge about world civilizations
K4,	CO2	explain the growth and impact of civilization
K2	CO3	understand the civilization&its special features
K4, K5	CO4	examine how the civilizations are different in each country? it opens the gate to perceive various cultures around us.
K6	CO6	knowledge of different civilizations is helpful in preparing for competitive examinationscivilizations

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	M	M	S	S	M	S
CO3	S	M	S	S	M	M	S	S	S	S	M	M
CO4	S	S	M	S	S	S	S	M	M	S	M	S
CO5	S	S	M	S	S	M	S	S	M	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIA44	PRINCIPLES AND METHODS OF ARCHEAOLOGY	L	T	P	C
ALLIED- IV			4	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the importance of archaeology in the study of history. ➢ understand the different methods of archaeological excavation. ➢ help the students to analyze and interpret the various archaeologi sites in India. ➢ train the students in Archaeology ➢ apply ttechniques' and strategies in the field of the Archaeologi Excavations

UNIT -I: Archaeology Introduction

Nature-Scope Purpose and Value of Archaeology and History–Definition, of Archaeology, its aims and scope; Difference between History and Archaeology, Kinds of Archaeology -Ethno Archaeology & Linguistic Archaeology – Marine Archaeology-Value of Archaeology

UNIT- II: Development of Archaeology in India

Archaeology in India – Indus Valley Excavations and Explorations -Role of Archaeologists - Contributions by – James Princep.-Alexander Cunningham–Bruce Foote–Sir John Marshall - William Zones -Sir Mortimer Wheeler- H.D. Sankalia –V.N. Misra- Shikaripura Ranganatha Rao (S.R. Rao)– T.V. Mahalingam – K.V. Raman

UNIT- III: Science of Archaeology

Dating Methods–Radio Carbon dating –Pollen Tests–Dendro chronology-Thermo luminescence – Exploration – Ground Survey – Aerial Photography– Magnetic Prospecting (Magnetometer) - Surface Exploration

UNIT- IV: Principles of Exploration

Survey of pre-historic – proto - historic and historical sites --Resistivity Survey- Electro Magnetic Survey–Excavation – Trenching – Gridding – Open Stripping – Digging Procedures –

Recording - Photography – Digging Equipments – Personnel -Excavation of Burial Moulds – Graves – Pits – Trenches.

UNIT- V: Archaeological Sites of India

Indian Archaeological Sites–Harappa–Mohen-jo-daro – Nalanda – Dwaraka – Arikkamedu – Kaveripoompattinam – Adhichanallur – Keeladi – Azhakankulam – Preservation and Documentation- Organic and Inorganic Study – Analysis – Recording – Argon dating – pollen analysis and Conservation.

Text Book

1. Ramachandran,K.S,Archaeology of South India, Tamil Nadu, SundeepPrakasham, Delhi, 1980
2. Venkatraman, Ramaswamy, Indian Archaeology A Survey ,Ennes Publications, Madurai, 1985.

Reference Books

1. Basham, A.L, The Wonder That was India, Macmillan Publications, London, 1957.
2. Daniel, Glyn Edmund, A Hundred Years Archaeology ,Ann Arbori, Publications , 1973.
3. Egambaranathan, Arangam Ponnusamy, Thollial Agalaivu,
4. Gomathinayagam, P, An Introduction to Archaeology, Sri VinayagaPathipagam, Rajapalayam, 1997.
5. Raman, K.V, Principles and Methods of Archaeology, Parthajan Publications, Chennai, 1991.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	define archaeology and trace the evolution of archaeology
K2	CO2	understand the archaeology&its function
K3	CO3	apply the impact of archaeology in the field of history
K4, K5	CO4	examine the techniques of archaeology, appraisal and compensation
K6	CO5	write a report on any one archaeological center after field visit

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	M	M	S	S	M	S
CO3	S	M	S	S	M	M	S	S	S	S	M	M
CO4	S	S	M	S	S	S	S	M	M	S	M	S
CO5	S	S	M	S	S	M	S	S	M	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIE42	PRINCIPLES OF PUBLIC ADMINISTRATION	L	T	P	C
ELLECTIVE - II			3	-	-	3

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the concepts of public administration ➢ understand the various theories of organizations ➢ help the students to analyze and interpret the importance of field administration ➢ train the students to know the skill of administrative knowledge. ➢ equip the students to be good administrators

UNIT- I: Concepts of Public Administration

Public Administration – Meaning – Nature – Scope – Public and Private Administration – Human factor – Art of Science. Introduction - State and Government constitution- types of constitution – government and its types- Federal –Unitary- Parliamentary and Presidential.

UNIT- II: Organization Theories

Meaning – Various theories – a) Bureaucrat b) Classic c) Human relation d) Scientific Management: Principles – Hierarchy – Span of Control – Unity of Command. Theories of separation of powers- executive, legislature and judiciary- meaning- nature - scope and importance of public administration- politics administration dichotomy – public and private administration.

UNIT- III: Structure of Public administration

Chief Executive – Functions – Line and Staff agencies – Indian Prime Minister's Office – Secretariat – White house office (U.S.A) Department as Unit of administration – Bases of Organization - Departments of Home Foreign Affairs, and Defence. Evolution of public administration- politics – public administration -basic concept of public administration- principles of public administration- new public administration -new public management administration

UNIT- IV: Public Undertaking and Commissions

Finance Commission – UPSC – Backward Class, Official Language - Significance of Public undertakings – Various kinds and reasons for Government participation in India – Public Corporations – Their problems – Ministerial control and corporations accountability to Parliament Structure of public administration- staff and auxiliary agencies- human resources and field agencies

UNIT- V:Field Administration

Importance of Field Organization – Area Head quarters and Field Agencies relationship – Territorial and functional Dichotomy – Examples : Foreign Affairs ministry, police Dept. and Railway Board. Importance of Panchayat Raj in India as Field Administration Recent trends in corporate governance – Good governance- impact of LPG on public administration.

Text Book

1. Ramesh K Arora, RajniGoyal, Indian Public administration: Institutions and Issues, 2nd Edition, New age International Publishers Ltd, New Delhi, 1996.
2. RukmiBasu, Public Administration: Concepts and Theories, Sterling Publishers, New Delhi, 1995.

Reference Books

1. Herbert A Simon, Donald W.Smithburg and Victor A.Thomson, Public Administration, Alfred A. KnofInc, New York, 1950.
2. A. Avasthi and S. Maheswari, Public Administration, LaximiNarainAgarwal, Agra, 2013.
3. A. Avasti and K. Aroraramesh (eds.), Bureaucracy and Development: Indian Perspectives, Associated Publishing House, New Delhi, 1978.
4. VishnooBhagwan and VidyaBhushan, Public Administration 22nd Edition, s.cnand Publishing, New Delhi, 2009.
5. NoorjahanBava, People's Participation in Development Administration in India, Uppal Publishing House, New Delhi, 1984.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	know the concepts of public administration
K2	CO2	understand the organizational structure of public administration
K4	CO3	examine the administration &its function
K4, K5	CO4	analyze the performance of UPSC
K6	CO5	create dialogue with local Panchayatraj through field visit for further development

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	M	M	S	S	M	S
CO3	S	M	S	S	M	M	S	S	S	S	M	M
CO4	S	S	M	S	S	S	S	M	M	S	M	S
CO5	S	S	M	S	S	M	S	S	M	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER – V

COURSE CODE	U21HIT51	HISTORY OF EUROPE, 1453- 1789	L	T	P	C
CORE -VIII			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce students to the importance of Geographical Discoveries ➢ elaborate the fall of Papacy in Europe ➢ present new perspectives in enlightened despotism ➢ enable students to learn the Renaissance and Reformation movement Europe ➢ discuss the Industrial Revolution.

UNIT- I: Beginning of Modern Age

Fall of Constantinople - Geographical Discoveries–Causes – Results - End of Feudalism - Rise of Nation States-Europe at the end of Middle Ages –Causes and Results- Maritime Discoveries of the 15th and 16th centuries- Exploration – Colonization.

UNIT- II: Renaissance

Meaning–Causes–Renaissance in Italy and other Countries -Philosophy – Literature – Architecture - Art and Science – Results.

UNIT -III: Reformation

Meaning–Causes–Protestantism in Germany - Martin Luther -Protestantism in England – Calvinism - Zwingli - Counter Reformation – Society of Jesus - Results.

UNIT- IV: Rise of France

End of 100 years war – Peace and prosperity- Henry IV–Cardinal Richelieu–Cardinal Mazarin–Thirty YearsWar – Causes - Course and Results - Louis XIV – Achievements -Jean-Baptiste Colbertt –Louis V1- Europe on the eve of French Revolution.

UNIT- V: Benevolent Despotism

Peter the Great–Catherine II–Frederick the Great of Prussia – Maria Theresa of Austria – Joseph II of Austria.

Text Book

1. Dharmaraj, J, History of Europe1453 - 1789A.D, (Tamil), Tensy Publications, Sivakasi, 2015.
2. James Edward Gillespie, A History of Geographical Discovery, 1400 - 1800, H. Holt and Company Publishers, New York, 1933.

Reference Books

1. Cicely Veronica Wedgwood, The Thirty Years War, Review Books, New York, 1938.
2. Charles River Editors ,French Legends, The Life and Legacy of King Louis XIV Space Independent Publishing Platform, North Charleston South Carolina, 2013.
3. Andrew Graham Dixon, Renaissance, University of California Press, California, 1999.
4. ArunBattacharjee, History of Europe (1453 - 1789), Sterling Publishers Private Limited, New Delhi, 2001.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	focus on the history of Europe
K2	CO2	understand the European culture and literature.
K6	CO3	examine the causes for the renaissance
K4	CO4	develop interest in students to learn more about Europe
K6	CO5	create report on the impact of reformation and understand the positive a negative aspects of developments

Mapping of COs with POs& PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT52	CONSTITUTIONAL HISTORY OF INDIA 1858 to 1950	L	T	P	C
CORE -IX			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate**
Course Objectives	**The Course aims to** ➢ introduce students to the evolution of Indian Constitution ➢ elaborate on the unique features of the constitution of India. ➢ present the democratic principles of State policies ➢ enable students to understand the power of judiciary. ➢ learn the fundamental rights and duties and become responsible citize

UNIT- I: Development of the Constitution from 1773 - 1853
The Regulating Act, 1773–Provisions – Defects of the Act – Bengal Judicature Act, 1781 – Pitt's India Act, 1784 – Provisions and Significance– The Charter Acts of 1793 – 1813- 1833 and 1853 – Provisions – Significances.

UNIT -II: Constitutional Development from 1858 - 1919
Queen's Proclamation, 1858-Significance – Indian Councils Act 1861 and 1892 – Provisions – Importance – Minto - Morley Reforms, 1909– Provisions – Significance- Government of India Act, 1919 – Provisions – Nature and Working of Diarchy in the Provinces – Importance.- Simon Commission

UNIT -III: Development of Constitution from 1935 - 1947
The Government of India Act,1935 - Provisions – All India Federation – Provincial Autonomy - The Constitutional Development between 1935 and 1947 – The August Offer – Cripps Proposal – Wavell Plan – The Cabinet Mission Plan – Mountbatten Plan – The Indian Independence Act, 1947.

UNIT –IV: Features of Indian Constitution
Framing of Indian Constitution- Constituent Assembly- Salient Features – Sources- Fundamental Rights- Fundamental Duties- Directive Principles of State Policy – President – Vice – President- Prime Minister and Cabinet.-Powers and functions

UNIT- V: Parliament of India
Composition and Powers of Rajya Sabha –Electoral system- - Lok Sabha- powers and functions - Process of Law Making-Committee System –-- Judiciary-Powers and functions Judicial Review.

Text Book

1. Agarwal, R.C,Constitutional Development of India and National Movement, S.Chand & Company Ltd, New Delhi, 1999.
2. Mahajan,V.D, Constitutional History of India, Including the Nationalists Movement, S. Chand & Company Ltd, New Delhi,1969.

Reference Books

1. Gupta, D.C, Indian National Movement and Constitutional Development, Vikas Publishing House, New Delhi 1976.
2. Joshi, B.V, Constitutional History of India, S. Chand & Company Ltd , New Delhi 1985.
3. Kapur,A.C, Constitutional History of India 1765 to 1975, S. Chand & Company Ltd , New Delhi ,1985.
4. PremaArora, Constitutional Development and National Movement in India, Bookhive, New Delhi, 1985.
5. Vishnoo Bhagawan, Indian Constitutional Development: 1600 to 1947, Sterling Publishers Private Limited, New Delhi, 2001.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	know about the evolution of Indian constitution and importa concepts
K2	CO2	understand the fundamentals of Indian constitution
K3	CO3	apply the constitutional provisions in appropriate context
K5	CO4	examine the center- state powers
K4	CO5	create a model parliament for better exposure and practical knowledg

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	S	S	S	M	M	S	S	M
CO2	S	S	S	S	M	S	S	S	M	M	M	S
CO3	S	S	M	S	S	S	S	S	M	S	S	S
CO4	S	M	S	S	S	S	M	M	S	S	S	M
CO5	S	S	S	S	M	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT53	HISTORY OF TAMILNADU 1947-1989	L	T	P	C
CORE -X			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce students to the various sources for the History of Tamil Nadu ➢ elaborate on the impact of independence and the challenges to the new government ➢ present new perspectives on the growth of various Political Parties ➢ enable students to learn the Economic policies of the state government. ➢ enable students to face competitive examinations.

UNIT- I: Congress Rule in Tamil Nadu

Formation of new Government- O.P. RamasamyReddy–Administration - P.S.Kumaraswami Raja –Administration- Separation of Executive and Judiciary – Zamindari Abolition Act – Prohibition of Liquor – Rajaji – Administration – Linguistic Re-organization and Formation of Tamil Nadu- Anti-Hindi Agitations

UNIT- II: Kamaraj Administration

Kamaraj - Administration - Development ofEducation – Industry – Agriculture – Irrigation systems-Achievements – Kamaraj Plan – Baktavatsalam - Administration and achievements- The Fall of Congress. Rajaji – Swatantra party

UNIT- III: The Rise of Dravidian Parties in Tamil Nadu

Rise and Growth of DMK– Formation of DMK government- C.N.Annadurai –achievements- DMK's Manifesto – Administration of Karunanithi – Policies and Programs – Education- The Rise and Growth of ADMK - M.G. Ramachandran - his administration and Achievements.

UNIT -IV: Social Development

Social Welfare Measures from 1947 - Society – E.V.R. - Campaign against Caste and superstitious beliefs- Education and Empowerment –Empowerment of women –Right to property -Self Help Groups – Social Legislations – Legal Protection – Public Health-Reservation Policy

UNIT- V: Economic Development
Industries – Agriculture- Science and Technology – Media - Film and Politics - Cauvery RiverWater Disputes –MullaiPeriyar Dispute– Sri Lankan Tamil Refugees –- Problems of Fishermen.

Text Book

1. RamaswamySastry, K.S, The Tamils and their Culture, Annamalai Nagar, Chidambaram,1967.
2. Subramanian,N, Social and Cultural History of Tamil Nadu A.D 1336 – 1984, Ennes Publication,Udumalapet,2007.

Reference Books

1. Venkatraman,V, DesabimaniP.S.Kumarasamy Raja 1898-1957, (Tamil), Swadanthira Publications, Rajapalayam,1998.
2. Venkatraman,V, Role of Rajapalayam in Freedom Struggle (Tamil), Swadanthira Publications, Rajapalayam, 1997.
3. NilakantaSastri, History of South India, Oxford University Press, Madras,1971.
4. Rajayyan, K., History of Tamilnadu 1565-1982, Ratna Publications, Madurai,1982.
5. Varghese Jeyaraj.S., Socio-Economic History of Tamil Nadu 1565 – 1967 A.D, Enns Publication, Uthamapalayam, 2017.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	knowthe history of Tamil Nadu
K2	CO2	understand the reasons for the failure of the congress and the rise of dmk power
K4, K5	CO3	assess the policies which are beneficial to the people
K4	CO4	develop confident and leadership qualities
K6	CO5	students will get sufficient exposure to face various competitive examinations

Mapping of COs with POs& PSOs

CO/ P	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21HIT54</td><td rowspan="2" colspan="2">HISTORY OF AMERICA 1776 - 1945</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -XI</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1:Knowledge
K2: Understand
K3: Apply
K4 Analyze
K5 Evaluate
K6 Create</td></tr>
<tr><td>Course Objectives</td><td colspan="7">The Course aims to
➢ introduce students to the events contributing to the development of the United States.
➢ elaborate the interpretations of major historical events in American history from Reconstruction to the Second World War
➢ present new perspectives in foreign policies of America
➢ enable students to learn the diplomatic relations of India and America.
➢ discuss the knowledge of Information Technology of America to other countries of the world.</td></tr>
</table>

UNIT -I: Advent of the Europeans to British supremacy

Advent of the Europeans to British supremacy (1492-1606)- USA as a British Colony (1606-1783).-George Washington - Early life- Continental Army - War of independence- USA as an Independent Country - George Washington Presidency-Confederation period -1783-1789- Articles of Confederation-Constitutional Convention- USA Constitution - Salient Features

UNIT-II: National Expansion and Reform, 1815 - 1880

Evolution of Pan Americanism- The war of 1812- Causes and effects- Treaty of Ghent- James Monroe - Foreign policy - Monroe Doctrine- National Expansion and Reform,- The question of Slavery – Abraham Lincoln- Civil war-and Reconstruction - Reconstruction Plans– Lincolns' Ten Percent Plan – Johnson's Plan - Congressional Reconstruction - Black Reconstruction- Radicals – Ku Klux Klan - Rise of Big Business -Industrialization and its emergence as one of the world powers

UNIT-III: Spanish American War 1898

Causes-Spanish American War 1898 -Open Door Policy -– Internal Policy -– Foreign Policy -– William Taft –Dollar Diplomacy - Westward expansion—US and Great Britain -

Theodore Roosevelt - Big Stick Diplomacy -Square Deal- Fifteenth amendment to American Constitution.-Woodrow Wilson–New Diplomacy- USA in the First World War – Fourteen Points of Wilson- Treaty of Versailles

UNIT- IV: Economic Depression and Recovery

Herbert Hoover - Great Depression–Causes and its Impact –Foreign policy- Franklin D. Roosevelt – New Deal – Achievements-Domestic and Foreign policy – Economic recovery- Lend Lease Act

UNIT- V: America in the Second World War

Factors leading USA to join the Second World War– Atlantic Charter - Pearl Harbour Attack – US Attack on Hiroshima and Nagasaki - War time Conferences –- Establishment of UNO.

Maps

1, Main centers of 1World War

2, Main centers of 11 World War

Text Book

1. Subramanian, N, A History of USA, Ennes Publications, Udumalpet, 2006.
2. Majumdar R.K and Srivastva, A.N, The History of The United States of America (From Colonisation to 1865 A.D)S B D Publishers' Distributors, New Delhi, 1994.

Reference Books

1. Hill, C.P, A History of United States, Arnold Henimann Publishers, New Delhi, 1976.
2. Marshall Smelser, American History at a Glance, Barners and Nonle, New York,1966.
3. Rajayyan, K, A History of United States, Madurai Publishing House, Madurai, 1981.
4. Sharma Mahmood, The History of America from Pre-Colonial times to World War II, Pearson Publication, New Delhi,2012.
5. Henry BamfordParkes, The United States of America, A History, Scientific Book Agency, Calcutta, 1976.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	know about thefreedom struggles.
K2	CO2	understand the development tactics of America.
K3	CO3	applynew strategies in the field of freedom struggles.
K4	CO4	interpret the history of America
K5, K6	CO5	assess the development plans during depression and prepare documents of it.

Mapping of COs with POS & PSOs

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT55	HISTORY OF WORLD CIVILIZATIONS -II	L	T	P	C
CORE -XII			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate**
Course Objectives	**The Course aims to** ➢ introduce students to the origin of ancient world civilizations ➢ elaborate on the Socio, Political and cultural contributions of Ancient Greece ➢ present new perspectives in the Chinese Civilization. ➢ enable students to learn about Egyptian civilization and their Architecture and Pyramids. ➢ discuss the role of World religions in Indian civilization.

UNIT -I: Rise and growth of Civilizations

Civilization – Definition – Factors influencing the growth of Civilization- difference between Civilization and Culture.- Rise and growth of Civilizations - Comparison between Culture and Civilizations. Mesopotamian Civilization– Sumerian Civilization- Religion

UNIT- II: Egyptian Civilization

Egyptian Civilization - Pharaohs – Pyramids – Script – Intellectual Achievements. Egyptian Civilization: Geography – The people – Government –Growth in Social and Economic Conditions- The Arts- Religion – Literature and Learning- Estimate of the Egyptian Civilization.

UNIT -III: Greek Civilization

Ancient Greece - Legacy of the Greek –City States – Hellenistic Civilization, Ancient Rome – Roman life style - Socio, Political and cultural contributions- Civilization – Political legacy – Legacy in the fields of Art, Architecture, Religion, Philosophy, Literature, Education and Science.

UNIT- IV: Rome and Chinese Civilization

Legacy of Roman Civilization, Political legacy, Roman law- Legacy in the fields of Art, Architecture, Religion, Philosophy, Literature, Education and Science. Chinese Civilization-Confucianism-Script – Intellectual Achievements –Literature – An estimate

UNIT- V: Indian Civilizations

Indian Civilizations – Indus valley civilization- Vedic Civilization- Hinduism- Buddhism- Jainism- Zoroastrianism –Sangam Tamil civilization - Literature – Science – Art - Architecture – Women – Society

Map

1, Mark Egypt, Rome Greece and China

2, Mark the lands associated with Sangam Chera, Chola Pandyas

3, Mark the places associated with Indus Civilization

Text Book

1. Robert E. Lerner and Standish Meacham, Western Civilizations, WW Norton and Company. New York, 1986
2. Allan, O. Knownslar and Terry L. Smart, People and Our World: A Study of World History, Holt, Rinehart and Winston Publishers New York, 1981

Reference Books

1. Bruce G. Trigger, Understanding Early Civilizations: A Comparative Study, Cambridge University Press New York, 2003.
2. Douglas J. Brewer, Egypt and the Egyptians, Cambridge University Press New York, 2007
3. Felipe Fernandez- Armesto, Civilizations, Macmillan Publisher London,2000.
4. Joseph R. Strayer and Hans W. Gatzke,.The Mainstream of Civilization, Harcourt Brace Jo Vanovich, Inc. New York, 1979

Course Outcomes

On the successful completion of the course, students will be able to

K1, K2	CO1	understand and describe the significance of world civilizations
K4	CO2	write analytically about the various civilizations
K2	CO3	effectively communicate the causes for the success and failures of civilizati during class room discussions
K4, K5	CO4	critically examine the impact of civilization
K4, K5	CO5	evaluate and bring out the significant aspects of Indian civilization by referri to various sources

Mapping of COs with POs &PSOs:

CO/ P	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	S	M	M	S
CO2	S	S	M	S	S	M	M	M	S	S	S	M
CO3	S	M	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	M	S	M	S	S	S
CO5	S	S	M	M	S	M	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIE53	FUNDAMENTALS OF TOURISM IN INDIA	L	T	P	C
ELECTIVE -III			3	-	-	3

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply**
Course Objectives	**The Course aims to** ➢ introduce students to the basic concepts of tourism ➢ elaborate on the types of tourism ➢ present new perspectives in the components of tourism ➢ enable students to learn the concepts of management in tourism industry ➢ discuss the importance of tourism and job opportunities in the field.

UNIT- I: Introduction on History of Tourism

History of Tourism - Socio–economic and cultural importance of Tourism - John Sargent committee- Implementation of the recommendations – Jha Committee – Recommendations- Types of Tourism -Components of tourism- Attractions- Accommodation-Accessibility- World Heritages in India

UNIT- II: Development of Tourism in India

Pre-Independence and Post-Independence Periods – Role of Private sector and Public sector - Motivation for Travel – Factors responsible for Travel - Indian Tourism Development Corporation- Department of Tourism –Ministry of Tourism- Functions- Tourism information offices – India and Abroad –Functions – Advertisement – Publicity – Public Relations –Tourism Policies- 1982, 1992, 2002. Development of Tourism in Tamilnadu- TTDC- functions- E-Governance-Virtual tour- Department of tourism- functions – Annual Tourism policies- Travel agencies

UNIT-III: Tourism Planning

Nature, Scope, Types of Tourism Planning–Components and various steps in the Tourism Planning Process-Importance of Tourism Planning –Role of Central and State governments- Public private partnership (PPP)

Unit-IV: Staffing and Job Design in Tourism

Direct and indirect jobs in Tourism- Nature and purpose of staffing–Human Resource Planning in tourism – Recruitment – Selection and training of personnel –Performance appraisal – Methods of performance appraisal - Leadership –Conflict management – Team management – Decision making

Unit –V: Impact of Tourism

Impact of tourism – Environment, Socio - Economic and Cultural- Positive and negative– International Understanding – Trade Promotion – Employment Opportunities- Regional development- negative- degrading the environment and culture –Health hazards – Abuse of Women and Children- changes in traditional life style.

Map

1, Mark World Heritage Sites in India

2, Mark World Heritage Sites in Tamilnadu

3, Mark Natural World Heritages in India

Text Book

1. Kaul, R.L, Dynamics of Tourism: A Triology, New Delhi 1985
2. A.K., Bhatia, Tourism Development – Principles and Practices, New Delhi, 1982.

Reference Books

1. Bhatia A.K. Tourism Development; Principle and Practices New Delhi- 1994
2. Holloway Christopher. J, The Business of Tourism
3. PranathSeth P.- Successful Tourism Management , New Delhi, 1987.
4. K.M., Menon, Tourism Management in India, Jaipur, 1999

Course Outcomes

On the successful completion of the course, students will be able to

KI, K2	CO1	learn the fundamentals of tourism
K2	CO2	understand various components of tourism
K2	CO3	assess the significant aspects of various tourism policies.
K2	CO4	evaluate the impact of tourism on environment and find solutions for sustainal tourism development
K3	CO5	develop knowledge and skills needed to get jobs in tourism related fields.

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	M	M	M	S
CO2	M	M	M	S	S	M	M	M	S	S	S	M
CO3	S	M	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	M	S	M	S	S	S
CO5	S	S	M	M	S	M	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>U21HIS53</td><td rowspan="2">COMPUTER APPLICATION IN HISTORY- THEORY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SBE-III</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1:Knowledge
K2: Understand
K3: Apply</td></tr>
<tr><td colspan="2">Course Objectives</td><td colspan="5">The Course aims to
➢ introduce students to the Computer Operation and its Techniques.
➢ elaborate on the various operating windows system
➢ present new perspectives in Software package
➢ enable students learn the knowledge of Communication Technology using computer technology in the study of history.
➢ discuss the internet technology of recent computer communication trends.</td></tr>
</table>

UNIT- I: Introduction to Computer
Introduction to computer and its components - viewing information on Internet (the web), sending mails, using internet banking services - Operating System; Basics of Popular Operating Systems

UNIT- II: Window Basics
Personal Computers – Input, Output and Storage Devices - - Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing

UNIT- III: Operating System Basics
Various Operating System-Ms–Dos- Ms-Dos Environment - MS-DOS Memory Types - Directory Structure of Dos Windows - Advantage of Using Windows vs DOS- Customizing Windows Operating Systems, Unix - Main Features - Unix File System Linux - Technical Features of Linux- Components of a Linux System

UNIT- IV: Components of Computer System
Selection of Hardware & Software - Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU - Basics of presentation software - Preparation and Presentation of Slides presentation - handouts.

UNIT- V Word Processor
Word Processing - MS- Office - Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document

Text Book

1. V.K. Pandey, D.K. Dey, Understanding Computer Applications with Blue J Class- IX Paperback Arya publishing company,1 January 2021 .

Reference Books:

1. J.L. Ruff - Structuring the past the use of computer in History
2. Holgerson L.W. - CD Rom, Scholarly Research in Humanities
3. Hockey Susan - A Guide to Computer Applications in the Humanities.
4. Paul E. ,A History of Modern Computing Ceruzzi Published: Boulder,2004
5. Campbell-Kelly, Martin, A History of the Information Machine Published: Boulder, 2004

Course Outcomes
On the successful completion of the course, students will be able to

K1	CO1	gain knowledge on applications of computer
K2	CO2	know about the various use of computer
K2	CO3	know the significance of computers in history
K2	CO4	understand the impact of computers in modern world
K3	CO5	apply the skills and enable students to learn computers and get jobs

<u>Mapping of COs with POs &PSOs:</u>

CO/ P	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	S	S	M	M	S	S	S	M	S	M	S
CO2	S	M	M	S	S	M	M	S	S	S	S	M
CO3	S	S	M	M	M	S	S	M	S	S	M	M
CO4	M	M	S	S	S	M	S	S	M	S	S	S
CO5	S	S	M	S	M	S	M	M	S	M	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER – VI

COURSE CODE	U21HIT61	INTERNATIONAL RELATIONS SINCE 1945 A.D	L	T	P	C
CORE -XIII			5	-	-	4
Cognitive Level	K1:Knowledge K2: Understand K4 Analyze K5 Evaluate					
Course Objectives	The Course aims to ➢ introduce students to the definition and scope of the Internatio Politics. ➢ elaborate the various theories of International politics. ➢ present new perspectives in the post-world War II scenario International relations. ➢ enable students learn the impact of World War II in the Global Economics. ➢ discuss the role of world organizations in peace making process.					

UNIT- I: Theories of International Politics

Definition and scope - Theories of international Politics - The Realist Theory, Systems Theory, Decision Making-Game Theory. International relations: Meaning – Scope – approaches to the study – Significance of the study- Concepts of International relations- Neo – Colonialism – collective security - Balance of Power.

UNIT –II: Balance of Power

Concepts of International Politics: Power - National interest - Balance of Power - Collective Security- NATO, CENTO, Warsaw Pact, SEATO, ANZ US. Old and New Diplomacy-practice Important theories – Game theory – Realistic theory - Systems theory – Decision making

UNIT- III:Post-II World War

The Post-II World War foreign policies of the major powers: United States, Soviet Union - China. and India's foreign policy and relations; India and the Super Powers-Oil Diplomacy, Palestine-Israel conflicts, West Asian conflict - Arms race, disarmament and arms control: - The Partial Test-Ban Treaty - The Nuclear Non-Proliferation Treaty - Comprehensive Test Ban Treaty - India's-Nuclear Policy — Terrorism- its impact — Afghanistan, Iraq — US War – Cold War.

UNIT –IV: New International Economic order
New International Economic order- GATT and its implications. The North South: "Dialogue" in the United Nations and Outside — Impact of Globalization- International Issues- Korean Crisis - Vietnam – Palestine Israel Problem – Gulf Crisis and Oil Diplomacy.

UNIT- V: International Organizations
Origin and Development of International Organizations - The United Nations and its Specialized Agencies- OAS (Organization of American States)- OAU (Organization of African Unity)- the Arab League- ASEAN- EEC- SAARC their role in international relations- U.N.O-Functions-Achievements- Disarmament - SALT treaties -NPT-CTBT and Atomic race.

Map
1, Mark SEATO countries
2, Mark ASEAN countries
3, Mark SAARC countries

Text Book
1. Indumati, (ed) The United Nations (1945-1995), University of Mysore, Mysore, 1995.
2. ShrikantParanjpe, U S Nonproliferation Policy in Action: South Asia. Sterling, New Delhi, 1987.

Reference Books
1. V.P. Dutt, India's Foreign Policy, Vani Educational Books, New Delhi, 1984.
2. David S. McLellan, William C. Olson and Fred A. Sondermann, The Theory and Practice of International Relations. Printice - Hall of India, New Delhi,1977.
3. Palmer Priestly and Perkins, Intemational Relations. Calcutta , 1969.
4. Pushpesh Pant, International Relations in the 21st Century, McGraw Hill Education (India) Pvt. Ltd., New Delhi, 2014.

Course Outcomes
On successful completion of the course, the students will be able to

K1	CO1	learn the theories, definitions and concepts of international politics
K4, K5	CO2	critically examine the impact of world wars that caused heavy loss to t humanity
K2	CO3	understand the balance of power
K4,K5	CO4	assess the new international economic order after class room teachings a references
K5	CO5	effectively argue the role of international organizations for global peace.

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	S	S	M	S	S	S	M	S	S
CO2	S	M	M	S	S	M	S	S	M	M	S	S
CO3	S	M	M	S	M	M	S	S	S	M	S	M
CO4	S	S	M	S	M	M	M	S	S	M	M	S
CO5	S	S	M	S	M	M	M	S	S	M	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT62	HISTORY OF SCIENCE AND TECHNOLOGY, 1800 - 2000	L	T	P	C
CORE -XIV			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce an interest in the students to know more about Scientific and Technological innovations ➢ elaborate on the technological development. ➢ present new perspectives in the services of scientists in promoting India as a potential nation ➢ enable students learn the evolution of Science and Technology in World Nation. ➢ discuss the development of Indian Science.

UNIT -I: Science and Technology in Renaissance Period
Progress in Astronomy – Copernicus – Galileo - Leonardo da Vinci - John Gutenberg - Science and Technology in the 17th and 18th century - Royal Society in London - French Royal Academy of Science - Isaac Newton –Robert Boyle - William Harvey - Marcello Malpighi - Invention in Textile Industry - Steam Engine –John Hunter - Edward Jenner.

UNIT- II: Science and Technology in the 19th Century
Science and Technological Development in the 19th Century.- Charles Darwin – Faraday - James Clark Maxwell - John Dalton – James Simpson - Louis Pasteur - Telephone –Telegraph – Thomas Alva Edison - Alfred Nobel

UNIT- III: Science and Technology in the 20th Century
Impact of Two World Wars – Albert Einstein and Theory of Relativity – Roentgen – Marie Curie –Radio – Television – Radar – Computer. Atomic Science in the 20thcentury– Lord Ruther Ford – History of Atom Bomb – Hydrogen Bomb and Atomic Energy.

UNIT- IV: Development of Modern Science
Space Age –Achievements of Russia and USA – Penicillin - Alexander Fleming - History of Blood Transfusion –Blood Groups - Gene Technology - Laser Technology - Human Diseases - Communicable and Non-Communicable - Prevention and Remedies

UNIT- V: Science and Technology in Modern India
Progress of Science and Technology in Modern India –Space Research – Atomic Energy Commission – Green Revolution – Defense Research and Development Organisation - Pioneer

of Indian Science - J.C.Bose - P.C.Roy - C.V.Raman – Chanderasekhar - Swaminathan – Ramanujan - Abdul Kalam - Space Science- Information Technology-Bio- Tech – Medicine

Text Book

1. Vairavel, N, History of Science and Technology, AnanthamPublications , Madurai.1997.
2. KalpanaRajaram, Science and Technology in India, Spectrum India, New Delhi, 1993.

Reference Books

1. Anthony, H.D, Science and its Background, Macmillan &Co.Ltd., London, 1963.
2. Arthur Eddington, New Pathways in Science, University Press, Cambridge. 1947.
3. ChattopadhyayaDebiprasad, History of Science and Technology in India, Firma KLM, Calcutta.1991.
4. Subbarayappa, B.V, A Concise History of Science in India, Indian National Science Academy, NewDelhi,1989
5. Varghese Jeyaraj, S, History of Science and Technology, Anns Publications, Uthamapalayam. 1997.

Course Outcomes

On the successful completion of the course, students will be able to

K1	CO1	know more about scientific and technological innovations
K2	CO2	understand importance of science and technology
K4, K5	CO3	assess the contributions of indian scientists
K5	CO4	analyse the significance of science and technology
K6	CO5	forecast the global effects of science and technology

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	S	M	S	S
CO2	S	S	M	S	M	S	M	S	S	S	M	M
CO3	S	M	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	M	S	M	S	M	S
CO5	S	S	M	M	S	M	S	M	S	M	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT63	HISTORY OF EUROPE 1789 - 1945	L	T	P	C
CORE -XV			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate**
Course Objectives	**The Course aims to** ➢ introduce students to the age of revolutions ➢ elaborate on the unification of Italy and Germany ➢ present new perspectives in the liberal movements in Europe ➢ enable students learn the causes and nature of revolution in Modern Europe. ➢ discuss the impact of Great Depression in Europe.

UNIT I: The French Revolution

The French Revolution - Causes- course and results- Role of women- Declaration of the Rights of Man and Citizens 1789- National Assembly – Revolutionary Government. Napoleonic Era 1789- 1815 – Napoleon Bonaparte –Ruler-French Consulate – Emperor – Wars - Continental System – Causes for failure – Domestic Reforms-– Downfall

UNIT - II: Diplomacy and Revolution

Vienna Congress – Metternich - Holy Alliance – Concert of Europe – Revolutions of 1830 and 1848 –Causes and Results - Napoleon III –Foreign policy - His Wars – Failure -Industrial Revolution in Europe- Its Stages – Socialist and Labour Movements in Europe.- Capitalism - Karl Marx -Communism

UNIT - III: Emergence of Nationalism

Unification of Italy – Mazzini – Cavour – Garibaldi – Victor Immanuel II - Unification of Germany – Bismarck – Wars – Achievements - Mazzini-Garibaldi -The Unification of Italy - Otto Von Bismarck,- Unification of Germany – The European Powers - Ottoman Empire 1815-1914

UNIT IV: First World War

Europe on the eve of First World War – Treaty of Berlin – System of Secret Alliances – Balkan Crisis – Causes for World War – Entry of US into First World War – Results of War – Paris Peace Conference – Treaty of Versailles- The Russian Revolution of 1917 –Fall of Tzar - Rise of Lenin - Communism

UNIT - V: Second World War

League of Nations -An estimate of League of Nations - Great Depression of 1929-32 - Totalitarianism in Europe and Germany - Second World War- Causes - Course and Consequences-Advances in technology and warfare- U.N.O. Functions .

Map

1. Places associated with French revolution
2. Places associated with World war-1
3. Places associated with World war 11

Text Books

1. Rao, B.V, History of Europe, Sterling Publishers, New Delhi, 2002.
2. Dharmaraj, J, History of Europe1789 to Present Day, (Tamil), Tensy Publication, Sivakasi, 2015.

References Books

1. Daniel Ziblatt, StructuringtheState: The Formation of Italy and Germany and the Puzbzleof Federalism, Princeton University Press, New Jersey, 2006.
2. Fisher, H.A.L, History of Europe, Vol II Surjeeth Publications, Delhi, 1994.
3. Grant, A.J, Europe in the 19th and 20th century, Longman Publication, New Delhi, 1980.
4. Nandha,S.P, History of Modern Europe and the World, Anmol Publication , New Delhi, 2000.
5. Sreenivasa Murthy, History of Europe 1789 to 1916, Himalaya Publication, New Delhi, 1992

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	gain knowledge about the history of europe and different concepts
K2, K3	CO2	understand and apply the concepts of diplomacy and democracy
K4,K5	CO3	analyze the causes for the first and second world war
K4, K5	CO4	critically examine the key role played by the leaders in the history of europe
K5	CO5	discuss the impact of world wars.

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	S	M	M	S
CO2	S	S	M	S	S	M	M	M	S	S	S	M
CO3	S	M	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	M	S	M	S	S	S
CO5	S	S	M	M	S	M	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT64	HISTORY OF INDIA 1947 - 1985	L	T	P	C
CORE -XVI			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce students to the contemporary history of India so as to become responsible citizens. ➢ elaborate on the current problems in India so that they could find answer to them. ➢ present new perspectives in the development of independent India. ➢ enable students to learn about various legislations which are relevant to them. ➢ discuss the growth of Indian education with new perspectives.

UNIT I: Integration of India
India at the time of independence- Integration of Princely States – Role of Mountbatten – Role of Vallabhbhai Patel -Linguistic Re - Organization of States and Union Territories –Administration of Prime Ministers – Domestic policies

UNIT II: Social Welfare Programs
Constitutional Safeguards–Codification of Hindu Law –Women and Law-Legislations Related to Physically Challenged - Welfare of SC and ST – Welfare of the Minorities – Welfare of the Aged - Tribal Welfare - Women and Child Welfare- Transgender

UNIT III: Economic Reforms
Five Year Plans - Nationalisation of Banks –AgrarianPolicy–Irrigation and water sharing between states- - Green Revolution – White Revolution – Blue Revolution - Industrial Policy - Export and Import Policy - Labour Policy - Globalisation –Development of Transport and Communication.

UNIT IV: Educational Reforms
National Policy of Education–Dr. Radha Krishnan Commission -Mudaliar Commission - Kothari Commission - Elementary - Secondary – University and Higher Education - Growth of Universities and UGC – Vocational and Technical – Women Education – Rural Education – Medical and Engineering education.

UNIT V: Foreign Policy of India
Panchasheel- Role of India in Non-Aligned Movement - UNO -Commonwealth and SAARC – Relationship with USA - Soviet Union - U.K - China - Pakistan and Sri Lanka.

MAP
1. India at the time of independence
2. India in 1956
3. India in 1985

Text Book

1. Mahajan, V.D, History of Modern India 1919 - 1974, Vol. I & II, S. Chand and Company, New
2. Dharmaraj, J, Contemporary History of India, (Tamil),Tensy Publications, Sivakasi, 2015. Delhi, 1983.

Reference Books

1. Anup Chand Kapur and K.K.Misra, Select Constitutions, S.Chand& Company, New Delhi, 2002.
2. Bipan Chandra, India after Independence 1947 - 2000, Penguin Books India Ltd. New Delhi, 1999.
3. Anlet Sobithabai,W, Contemporary History of India, Sharon Publications, Marthandam, 2002.
4. Jawaharlal Nehru, India's Foreign Policy, Government of India Publication, New Delhi, 1983.
5. Motilal Bhargava, History of Modern India, The Upper India Publishing House, Lucknow, 1977.

Course Outcomes
On successful completion of the course, the students will be able to

K1	CO1	gain knowledge about the history of modern india.
K2	CO2	understand and interpret the the history of modern india,
K4	CO3	critically examine the welfare policies
K4, K5	CO4	assess the growth of education and industryandyou'll understand the mechanism driving change and its significance in the present time.
K6	CO5	demonstrate the knowledge and understanding of modern india that enable them to participate in competitive examinations

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	M	M	S	S	S	M	M
CO2	S	S	S	M	S	S	M	S	S	M	S	S
CO3	S	S	S	M	M	S	M	S	S	S	S	M
CO4	S	M	S	S	S	M	M	S	S	M	M	S
CO5	S	S	M	M	S	S	S	S	M	M	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIT65	HISTORY OF FAR EAST SINCE 1900	L	T	P	C
CORE -XVII			5	-	-	4

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze**
Course Objectives	**The Course aims to** ➢ introduce students to the historical background of the China and Japan. ➢ elaborate on the emergence of China and Japan as important countries in Asia ➢ present new perspectives in the history of China, Japan and other Asian Countries ➢ enable students learn the development of Asia in international level. ➢ discuss the Open door policy of Far Eastern countries with world countries

UNIT- I: History of China

China A Brief early history– The Manchu Dynasty – the opening of China – The First Opium War –Causes , course and result- The Taiping Rebellion – The Second Opium War – China 1860 - 1890 – Frontier relations between China and neighboring countries – Sino Japanese War 1894-1895.

UNIT- II: Open Door Policy

The Battle of Concessions – USA and the Open Door Policy – Hundred Days Reforms – The Boxer Rebellion – Manchu Reforms – Dr.SunYatSen and Revolution of 1911 – Yuan Shi Kai – China and First World War – Second World War.

UNIT- III: Growth of Communism in China

Birth and growth of Communism in China – Kuomingtang – Chiang Kai Shek _ - Manchurian Crisis - conflict between the CCP and KMT – Sino Japanese War 1937 –Civil War 1945-1949- The establishment of People"s Republic of China - Mao Tse Tung – The People"s Government at Peking – The Cultural Revolution —Reorganization of Communism – Domestic, Economic and Political Reforms-China's Relations with India, USA and USSR

UNIT- IV: Japan

Japan: The Opening of Japan – Perry and Harris Mission – Meiji Restoration- Meiji Reforms – Constitution of 1889 – Anglo Japanese Alliance 1902 – Russo-Japanese War 1904-1905 – Japan and First World War.

UNIT- V: Japan in Second World War

Japan and Second World War – defeat and surrender of Japan – Post War Japan – Reconstruction of Japan after Second World War – Disarmament and demilitarisation — New political system –Economic and Industrial Remodelling - Japan's relation with other countries – Growth of Science and Technology in Japan.

MAP

1. Far east
2. Mark important cities of Japan
3. Historical places in China
4. Places related to Second World war in Japan

Text Book

1. Thiagarajan J. – History of China from 1800- 1900 A.D Vikas Publication Madurai,2007.
2. Rajayyan, K, A History of the United States, Madurai Publishing House, Madurai, 1981.

Books for Reference

1. Subramanian. N, A History of USA, Ennes Publication, Udumalpet, 2006.
2. Sinha. P and Surya. P – China and Japan in Ancient power politics
3. Kenneth E. Hendrickson Jr, The Spanish-American War, Greenwood Press, London, 2003.
4. Richard Zuczek, Encyclopaedia of the Reconstruction Era Vol – II, Greenwood Press, London, 2006.

Course Outcomes

On the successful completion of the course, students will be able to

K1	**CO1**	know the overview of far-east countries
K2	**CO2**	understandabout how nations developed, about heroes of the past, and much more.
K2	**CO3**	analyse the cultural revolution and the factors responsible for the economic development of china
K4	**CO4**	review the growth of japan
K3	**CO5**	discuss about how nations developed, about heroes of the past and develop knowledge needed to face competitive examinations

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	S	S	S	M	M	S
CO2	S	M	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	M	M	S	S	M	S	S	S	S
CO4	S	S	M	S	S	S	S	S	M	M	S	S
CO5	S	S	M	M	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIE64	ELEMENTS OF HISTORIOGRAPHY	L	T	P	C
ELECTIVE- IV			3	-	-	3

Cognitive Level	K2: Understand K3: Apply K4 Analyze
Course Objectives	The course aims to ➢ understand the meaning, scope and purpose of History ➢ know about the Contributions of .various historians ➢ understand the methodology of historical writing. ➢ equip students with the various methods and principles historiography ➢ create research interest

UNIT- I: Introduction on Historiography
Definition of History and Historiography-History: Nature and Value –Scope and Purpose of History – History and its Allied subjects - Branches of History – Social - Political – Military - Cultural and Constitutional History– Geography- Economics – Literature-Women.

UNIT -II: Significance of History
The importance of the study of History – History is Science or Art - History as both Science and Art - History as a Social Science - Uses and Abuses of History – Lessons of History –Limitations of History.

UNIT III: Eminent Foreign Historians
Practitioners of History - Greco-Roman - Herodotus- St. Augustine - -- Leopold Von Ranke – G.M. Trevelyan - A.J. Toynbee- Herodotus – Thucydides – Gibbon – Ranke – Toynbee- IbnKhaldun- Karl Marx -Their Contributions to Historical Writing

UNIT -IV : Eminent Historians who wrote about India
Historiography and Historians: Puranas and History-Buddhist and Jain Historiography - Kalhana-Alberuni-Amir Khusru - Barani- IbnBatuta - AbulFazl -Modern Indian Historians – Jadunath Sarkar, - J.S. Mill - V.A.Smith - D.D.Kosambi - South Indian Historians : K.A.N. Sastri, K.K. Pillai. Kalhana - AbulFazal - Alberuni - J.N Sarkar - D.D. Kosambi - K.K.Pillai - K.A.N. Sastri - RomilaThapar., K.Rajayyan

UNIT –V: Research Methodology
Historian at Work - Historical Research -Requisites of a Research Scholar -Selection of the research topic-review of literature-collection of data- Primary and Secondary - Heuristics – Criticism – Synthesis – Exposition – Documentation –Subjectivity - Objectivity in Historical Writing –research format- chart, tables – appendices-Foot Notes- Bibliography

Text Book

1. Sreedharan, E, A Text Book of Historiography (500 BC – AD 2000), Orient Black Swan, Delhi, 2004.
2. Subramanian, N, Historiography and Historical Methods, Ennes Publications, Vadipatti, 1993

Reference Books

1. Arvind Sharma, Our Religions, Charles Scribner's Sons, New York, 1993.
2. Harper Collins Floud, Roderick. An Introduction to Quantitative Methods for Historians. London, 1983.
3. RanajitGuha, Subaltern Studies ,Vol. I, IV and VI, Delhi:, 1994.
4. E.J. Hobsbawm, "Karl Marx's Contribution to Historiography in Ideology and Social Science" Suffolk, 1972.
5. Rajayyan, K, History Its Theory and Method, Ratna Publications, Madurai, 1999.

Course Outcomes

On successful completion of the course, the students will be able to

K2	CO1	know the historical development of historiography
K2	CO2	understand the various definitions and types of historiography
K3	CO3	apply the knowledge in historiography
K4	CO4	critically assess the emerging trends in historiography
K2	CO5	understand the functions of historiography

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	S	S	S	M	M	S
CO2	S	M	M	M	S	M	S	S	S	M	S	S
CO3	S	S	S	M	S	S	S	S	M	M	S	S
CO4	S	S	M	S	S	S	S	S	M	M	S	S
CO5	S	S	M	M	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIS64	ARCHIVES KEEPING	L	T	P	C
SBE –IV			2	-	-	2

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce students to the origin of Archives in Ancient period. ➢ elaborate on the development of Archives. ➢ present new perspectives in the values of Archives Keeping ➢ enable students learn the Archival keeping method in Ancient and medieval period ➢ discuss the classification of Archives.

UNIT- I: The Origin of Archives
History of Archives - Archives Keeping in Ancient times - Creation of Archives Meaning – Origin and Growth of Archives –Ancient, Medieval and Modern – Archives Keeping - Europe and India – Importance of Archives.

UNIT –II: Establishment of Archives
Organization of Archives – Regulation – Administration of Archives. Creation of Archives – Classification – Recent Development – Registry Archives - Libraries – Racking – Shelves and other materials

UNIT – III: Protective Measures of Archives
Preservation of Archives – Scientific Methods – Functions of Archives- Preservation of Archival materials – Preventive measures – Methods of Preservation – Lamination – Microfilming – Book Bindings – Reprography - Records maintenance

UNIT – IV: Usage and Access to Archives
Uses of Archives – Rules Regulating the Access of Public Archives in India – Other Countries. Administration of Archives – Functions of Archives – Publication - Facilities to Researchers - Modern Methods in Archives Keeping – Uses of Archives – Rules and Regulations.

UNIT – V: Private and Government Archives
Role of Private Archives - Functions of Private Archives - National Archives in India – State Archives in Tamil Nadu - Archival organizations – National Archives of India – Tamil Nadu Archives- Private Archives – International Council of Archives – Indian Historical Records

Commission - The Historical Manuscripts Commission – Role of Archives in the present day World.

Text Book

1. Sushil Kumar, Archives Principles and Practices, Gyan Publishing House, New Delhi,2011
2. Mukerjee, B.B, Preservation of Library Materials, Archives and Documents, World Press Private Ltd, Calcutta, 1973.

Reference Books

1. Alan Ward, A manual of sound archive administration, Gower Publication & Co, Ashgate, 1990.
2. Back E.A, Book Worms, The Indian Archives, Vol.1, National Archives of India, New Delhi, 1947.
3. Baliga,B.S, Guide to the Records Preserved in the Madras Record Office, Foreign and Colonial Compiling and Publishing Company, London, 1915.
4. Hilary Jenkinson, A Manual of Archives Administration. Lund Humphries Publishers, London, 1965.
5. Laura Millar, Archives: Principles and Practices, Facet Publishing House, 2010.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	define the basic principles and practices of archives
K2	CO2	know the techniques of preservation of archival materials
K4, K5	CO3	critically comment on new perspectives in archives
K2	CO4	understand the value and uses of preservation of data
K6	CO5	create archives with private collections and also enable to get job in archive

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	M	M	S	M
CO2	S	M	M	M	S	M	S	M	M	M	S	M
CO3	S	S	M	S	M	S	M	S	S	M	M	S
CO4	S	M	S	S	M	M	S	M	S	M	S	S
CO5	S	S	S	M	S	M	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

NON MAJOR ELECTIVE

COURSE CODE	U21HIN31	EVENT MANAGEMENT	L	T	P	C
SEMESTER - III			2	-	-	2

Cognitive Level	**K1:Knowledge** **K2: Understand** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ learn the conceptual understanding of Management concepts. ➢ understand the contemporary issues in Management Studies. ➢ help the students to analyze and interpret the events successfully. ➢ train the students to join jobs in Management Sectors and Strategica development. ➢ apply event management skills and technological development future studies and Job.

UNIT- I: Principles of event Management

Principles of event Management Introduction to Event Management, Concept and Type of events- Code of ethics –Dress Code.

UNIT-II: Event Planning

Event Planning Aim of event- Develop a mission- Establish Objectives -Preparing event proposal- Use of planning tools –Lay out of the plan-Feasibility- Keys to success-SWOT Analysis.

UNIT-III: Team Management

Team Management Managing team- Leadership skills- Protocols, Staging, Staffing Group development- Communication -Managing meetings- Crowd management.

UNIT-IV: Safety and Security

Event Safety and Security-Security- Occupational safety- Major risks and emergency planning- Incident reporting- Emergency procedures - Event Accounting and Costing- Budget- break even point- cash flow analysis-Profit and loss statement - balance sheet- Panic payments –Financial control systems.

UNIT-V: Event Management System

Event Management System - Control Process – Methods, Tools and Techniques of Control – Design of techniques – Choices in Control, Comparative Management Styles and approaches Organizational Creativity and Innovation – Management– Entrepreneurial Management – Benchmarking –Select Cases of Domestic and International Corporations.

Text Book

1. Charles W.L. Hill, Gareth R.Jones. Strategic Management An integrated approach, Cengage Learning Publication , New Delhi
2. Stephen P. Robbins and David A, Fundamentals of Management, Pearson Education Publication, New Delhi, 3rd Edn. 2001.

Books for Reference

1. Anton Shone and Bryn Parry, Successful Event Management, Sage Publication , New Delhi, 2002.
2. Arthur A.Thomson, A.J. Strick land III, John E. Cambel , Crafting and Executing Strategy, Pearson Educational Publication , New Delhi , 2004.
3. Peter F. Drucker, The Practice of Management, Sage Publication New Delhi, 2006.
4. Tim Hannagan, Management Concepts and Practices, Mac Millan Indian Publication , New Delhi ,1997.
5. Peter Eichhorn and Lan Towers, Principles of Management: Efficiency and Effectiveness in the Private and Public Sector, Springer International Publishing House , New Delhi2018.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	define managerial skills
K2	CO2	explain the impact of event management in tourism industry
K2	CO3	understand the managerial skills needed for event management
K4, K5	CO4	examine the hard and soft skills
K6	CO5	describe the types of skills

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	M	M	S	S	M	S	S
CO2	M	S	S	M	S	S	S	S	M	S	S	M
CO3	S	S	S	S	S	S	M	M	S	S	M	S
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	M	S	S	S	M	M	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	U21HIN42	HISTORY FOR COMPETITIVE EXAMINATION	L	T	P	C
SEMESTER - IV			2	-	-	2

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate** **K6 Create**
Course Objectives	**The Course aims to** ➢ introduce students to the basic principles and practices of learning skills in various subjects ➢ provide elaborate information for competitive examinations ➢ motivate students to prepare thoroughly for facing examinations and interviews ➢ enable students to gain knowledge in different field, strategic thinking and hard work**.** ➢ discuss about various competitive examinations.

UNIT- I: Ancient India

The prehistoric period- Indus valley Civilization - Vedic period- Jainism and Buddhism-Magadha period -Persians andMacedonian Invasions - The Mauryan empire- Gupta dynasty-feudalism-The Vardhanas – The Rajputs –The Southern Dynasties -Nayaks of Madurai–VisvanathaNayak - MuthuVirappaNayak - Career and achievements of ThirumalaNayak –Rani Mangammal – Meenakshi - Nayaks of Tanjore - SevappaNayak – RagunathaNayak – VijayaraghavaNayak - Nayaks of Senji- Vaiyappa - TubakiKrishnappa, Krishnappa I, KrishnappaNayak II – Nayak Administration – Socio-Economic conditions under the Nayaks – Language and Literature – Art and Architecture.

UNIT- II: Establishment of Maratha Rule

Marathas Rule and Setupatis of Ramnad : Establishment of Maratha Rule–Marathas of Tanjore – Ekoji – Serfoji – Tukoji – Serfoji II – Sivaji III - Setupathis of Ramnad–RagunathaSetupati I – KilavanSetupati.The Coming of Islam-The Mughal Dynasty (1526-1540 and 1555 – 1857)-Regional powers during Mughal period- Art and Architecture - impact of Mughal rule

UNIT-III: English – The Anglo-French Conflict

Advent of the Europeans–ThePortuguese – The Dutch –The French – The English – The Anglo-French conflict – Tamil Nadu under the ArcotNawabs – The Carnatic Wars and Effects – Mysore Wars– Poligari System - South Indian Rebellion, 1801 – Vellore Mutiny, 1806.

UNIT- IV: Advent of Europeans

The British Land Revenue Administration–Zamindari – Ryotwari - Famine and Relief Measures - Education under the Company – Growthof Language and Literature in 19th and 20th Centuries – Organizations of Judiciary under the Company– Local Self Administration under the Company– Society, Commerce, Trade, Communication and Transportation.

UNIT- V: Indian National Movement

Political and Social Awakening of Tamil Nadu–Nationalism – The Madras MahajanaSabha – The Indian National Congress – Swadesi Movement -Home Rule Movement – Genesis, Growth and Decline of Justice Party – Working of Diarchy - Non Cooperation Movement – Swaraj Party - Civil Disobedience Movement and March to Vedaranyam– Achievements and Failures of Congress Ministry 1937 – 1939 – Towards Independence 1939-1947. Industrial revolution – Causes, Course and Results of World war 1 and II- rise of Dictatorship- Major Agencies of the United Nations-NAM

Text Book

1. Gowri, K., Maduraiunder East India Company 1801-1857, Raj Publishers Madurai, 1987.
2. Venkatesan, G, History of Modern Tamil Nadu From 1600 – 2011 A.D., Narmatha Publications, Rajapalayam, 2017.

References Books

1. Kalidos, R., History and Culture of Tamils (From Prehistoric times to Present rule), Vijay Publishers, Dindigul, 1976.
2. MangalaMurugesan, K., Self Respect Movement, ThendralPathipakam, Chennai, 1982.
3. Rajayyan, K, History of Tamil Nadu 1565 – 1982, Ratna Publications, Madurai, 1982.
4. Rajayyan, K., Tamil Nadu – A Real History, Ratna Publications, Trivandrum, 2005.
5. Varghese Jeyaraj, S, Socio-Economic History of Tamil Nadu, 1565-1967, Enns Publications, Uthamapalayam, 2017.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	better focus on the history of India
K2	CO2	understand the evolution of Indian history
K3	CO3	identify the questions for competitive examinations in each unit
K4, K5	CO4	examine the trend in freedom movement and the factors responsible for its success.
K6	CO5	create confident in them

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

VALUE ADDED COURSE

COURSE CODE	U21HIV51	HISTORY OF SCIENCE AND TECHNOLOGY, 1800 - 2000	L	T	P	C
SEMESTER - V				30		2

Cognitive Level	**K1:Knowledge** **K2: Understand** **K3: Apply** **K4 Analyze** **K5 Evaluate**
Course Objectives	**The Course aims to** ➢ introduce an interest in the students to know more about scientific and Technological innovations ➢ elaborate on the technological development. ➢ present new perspectives in the services of scientists in promoting India as a potential nation ➢ enable students learn the evolution of Science and Technology in World Nation. ➢ discuss the development of Indian Science.

UNIT – I: Science and Technology in Renaissance Period
Progress in Astronomy – Copernicus – Galileo - Leonardo da Vinci - John Gutenberg - Science and Technology in the 17th and 18th century - Royal Society in London - French Royal Academy of Science - Isaac Newton –Robert Boyle - William Harvey - Marcello Malpighi - Invention in Textile Industry - Steam Engine –John Hunter - Edward Jenner.

UNIT- II: Science and Technology in the 19th Century
Charles Darwin – Faraday - James Clark Maxwell - John Dalton – Mandeeleev - James Simpson - Louis Pasteur - Telephone –Telegraph –Thomas Alva Edison - Alfred Nobel - Science and Technological Development in the 19th Century.

UNIT- III: Science and Technology in the 20th Century
Impact of Two World Wars – Albert Einstein – Roentgen – Marie Curie – Rutherford – Radio – Television – Radar – Computer.Atomic Science in the 20th century - Albert Einstein and theory of Relativity – Lord Ruther Ford – History of Atom Bomb – Hydrogen Bomb and Atomic Energy.

UNIT- IV: Development of Modern Science
Space Age –Achievements of Russia and USA – Penicillin - Alexander Fleming - History of Blood Transfusion –Blood Groups - Gene Technology - Laser Technology - Human Diseases - Communicable and Non-Communicable - Prevention and Remedies - Psychology –Sigmund Freud

UNIT- V: Science and Technology in Modern India

Space Research – Atomic Energy Commission – Green Revolution – Defense Research and Development Organisation - Pioneer of Indian Science - J.C.Bose - P.C.Roy - C.V.Raman – Chanderasekhar - Swaminathan – Ramanujan - Abdul Kalam - Progress of Science and Technology in Modern India – Atomic Energy Commission- Space Science- Information Technology-Bio- Tech – Medicine

Reference Books

1. Chattopadhyaya Debiprasad, History of Science and Technology in India, Firma KLM Publication, Calcutta,1991.
2. Kalpana Rajaram, Science and Technology in India, Spectrum Publication, New Delhi, 1993.
3. Subbarayappa, B.V, A Concise History of Science in India, Indian National Science Academy, NewDelhi,1989
4. Vairavel, N, History of Science and Technology, Anantham Publications , Madurai,1997.
5. Varghese Jeyaraj, S, History of Science and Technology, Anns Publications, Uthamapalayam, 1997.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the importance of Science and Technology
K6	CO2	demonstrate the logic and growth of Science and Technology
K2	CO3	discuss the factors influences the developement of Science and Technology
K3	CO4	analyse the significance of Science and Technology
K5	CO5	forecast the global changes and effect of Science and Technology

Mapping of Cos with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	M	S	S	S	M	M	S
CO2	S	S	M	S	S	M	M	M	S	S	S	M
CO3	S	M	S	S	S	M	S	M	S	S	M	M
CO4	S	S	S	S	M	M	M	S	M	S	S	S
CO5	S	S	M	M	S	M	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

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MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL

DEPARTMENT OF HISTORICAL STUDIES AND TOURISM MANAGEMENT

M.A HISTORY

SYLLABUS TO BE IMPLEMENTED FROM THE

ACADEMIC YEAR

2021-2022

(CHOICE BASED CREDIT SYSTEM)

Mother Teresa Women's University, Kodaikanal
Department of Historical Studies and Tourism Management
Choice Based Credit System (CBCS)
(2021-2022 onwards)
M.A. History

1. About the Programme

Considering the need for revising and updating the Syllabi from time to time, and as per the UGC/TANSCHE guidelines, the M.A. History Programme offers updated and broad-based curriculum keeping the up-gradation of the students' knowledge and skills.The Programme is offered through semester pattern with credit system. The Programme contains 10 core papers with 4 credits each, 03 elective papers with options and 4 credits each, 03 supportive courses with 02 credits each, co curricular and extracurricular activities in the first three semesters for 12 credits and one projectin the last semester for 8 credits. The project in the final semester enhances student's research attitude and prepares them for Doctoral Research. The Programme focuses on recent trends in travel and tourism and updates the students with thorough knowledge in the two fields for their better career opportunities.

2. Programme Educational Objectives (PEOs)

The Programme has been designed to enable the students to

PEO1	understand the different concepts of history, travel, and tourism.
PEO2	gain profound knowledge of historical events, recent trends in tourism and travel.
PEO3	differentiate the features of good governance and civic responsibilities and wrong policies and gain administrative skills
PEO4	write well in a variety of formats including essays, research papers and projects opportunity to pursue research, get jobs in schools, colleges, museums, archives and libraries and prepare for various competitive examinations.
PEO5	train the students with communicative and employability skills for better placements in the government and public sectors.

3. Eligibility: B.A. History

4. General Guidelines for PG Programme

i. **Duration:** The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

Evaluation Pattern	**Theory**		**Practical**	
	Min	**Max**	**Min**	**Max**
Internal	**13**	**25**	**13**	**25**
External	**38**	**75**	**38**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**
  Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 90**

- **Project Report**
  A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**
  There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
00-49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

9. Programme Outcomes (POs)

On successful completion of M.A. History Programme, the students will be able to

PO1	be familiar with the main currents in Indian and world History.
PO2	understand the strategies for the success of kings and leaders, social reforms, constitutional rights and legislations ,Human Rights and thereby become responsible citizens with independent thinking and decision-making ability.
PO3	analyze the present social, political, religious and economic conditions with the help of lessons learnt from history .
PO4	develop their ethical and social values, could gather knowledge about the heritage and traditions of our country and the others, and demonstrate a sense of societal and ethical responsibility.
PO5	gain new ideas and experiences from classroom and outside learning and develop independent and critical thinking.
PO6	secure sufficient knowledge and skills to face various competitive examinations, acquire communication and soft skills, and the ability to function effectively in both private and public sector and display distinct leadership traits.
PO7	apply the knowledge and skills to succeed in their career/ professional development or pursue research programmes.

10 . Programme Specific Outcomes (PSOs)

At the end of the program, the student will be able to

PSO1	understand different concepts in history.
PSO2	gain profound knowledge of historical events.
PSO3	differentiate the features of good governance and civic responsibilities and wrong policies and gain administrative skills.
PSO4	write well in a variety of formats including essays, research papers and projects
PSO5	opportunity to pursue research, get jobs in schools, colleges, museums, archives and libraries and prepare for various competitive examinations.

M.A HISTORY-CURRICULUM

S.No	Course Code	Course Title	Credits	Hours		CIA	ESE	Total
				L	P			
Semester I								
1	P21HIT11	**Core – I** History of Tamil Nadu upto 1565 A.D	4	6	-	25	75	100
2	P21HIT12	**Core – II** History of India upto 1526A.D	4	6	-	25	75	100
3	P21HIT13	**Core – III** History of Ancient World Civilizations	4	6	-	25	75	100
4	P21HIT14	**Core IV** Archaeology	4	5	-	25	75	100
5	P21HIT15	**Core V** History of America from 1900 - 2000 AD	4	5	-	25	75	100
6	P21HIS11	**Supportive Course I** General Studies	2	2	-	25	75	100
		Total	**22**	**30**		**-**	**-**	**600**
Semester II								
7	P21HIT21	**Core VI** History of India, 1526-1950	4	5	-	25	75	100
8	P21HIT22	**Core VII** History of Tamil nadu 1565 to 1947	4	4	-	25	75	100
9	P21HIT23	**Core VIII** History of Feminism and Women's Movement, 1800-2000	4	4	-	25	75	100
10	P21HIT24	**Core IX** Historiography and Historical Methods	4	4	-	25	75	100
11	P21HIT25	**Core X** Archives Keeping	4	5	-	25	75	100
12	P21HIN21	**NME- I** Tourism Packaging	4	4	-	25	75	100
13	P21CSS22	**Supportive Course II** Computer Skill for Web Designing and Video Editing	2	4	-	25	75	100
		Total	**26**	**30**		**-**	**-**	**700**
Semester III								
14	P21HIT31	**Core XI** Constitutional History of India, 1773-1950	4	6	-	25	75	100
15	P21HIT32	**Core XII** Freedom Movement in Tamil nadu	4	5	-	25	75	100
16	P21HIT33	**Core XIII** History of Contemporary World	4	5	-	25	75	100
17	P21HIT34	**Core XIV** Foreign Policy of India	4	4	-	25	75	100
18	P21HIT35	**Core XV** Human Rights	4	4	-	25	75	100
19	P21HIT36	**Core XVI** History of Contemporary India	4	4	-	25	75	100
20	P21WSS33	**Supportive Course III** Women Empowerment	2	2	-	25	75	100
		Total	**26**	**30**				**700**
Semester IV								
21	P21HIE411/ P21HIE412	**Elective –I** Economic History of India 1857-1947 / International	4	4	-	25	75	100

		Relations Since 1945 A.D / Any MOOC Course$						
22	P21HIE421/ P21HIE422	**Elective –II** Museology / History of Far East Since 1900 / Any MOOC Course$	4	4	-	25	75	100
23	P21HIR41	Project	8	22	-	25	75	100
		Total	**16**	**30**				**300**
Total			**90**	**120**				**2300**

Non Major Elective (NME Offered by Department of Tourism Management and Historical Studies

NME -P21HIN21 Tourism Packaging

Additional Credit Courses

1. **P21HIV11** - Value Added Program I-Two Credits (First Semester)
2. **P21HII21 -** Internship/Industrial Training – Two Credits- (Second Semester)
3. **P21HIO31 -** Online Courses-Two Credits- (Third Semester)
4. **P21HIV42 -** Value Added Program II-Two Credits (Fourth Semester)

*Those who have CGPA 9 and want to do the Project in Industry /Institution during 4th semester, these two elective papers in IV semester can be opted in third semester itself

$For Elective – I/Elective –II the students can also take either one 4 –credit course or two -credit courses in MOOC, with the approval of Department Committee.

Outside class hours (Attendance compulsory)

- Health, Yoga and Physical fitness.
- Library information access and Utilisation
- Employability Training.
- Students Social Responsibility.

SEMESTER – I

COURSE CODE	P21HIT11	HISTORY OF TAMILNADU UPTO 1565 A.D	L	T	P	C
CORE I			6	-	-	4
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate				
Learning Objectives		The Course aims to 1. understand the Geographical features and various sources of Tamil Nadu 2. learn the Political, Social and Economic conditions of ancient Tamil Nadu 3. understand the antiquity of Tamil Nadu 4. interpret the administrative history of ancient Tamilnadu 5. examine the socio - political- cultural life of Ancient Tamil People				

Unit I: Pre-Historic Period to the Kalabhras

Sources –Archaeological remains –Numismatic evidences – Epigraphic records –Sangam Literature- Tolkappiyam – Purananuru –Tirukkural, Silapathikaram and Manimekalai – Foreign Accounts- The Periplus of the Erythraean Sea Geographical Features - Classification of Land –the Pre and the Proto-Historic Periods – People – Race – Language – Religion – Sangam Age – Cheras, Cholas, Pandyas and the Feudatories – Political Social and Economic Organizations – Fine Arts Age of the Kalabhras – Identity –.legacy of Kalabharas

Unit II: The Pallavas and the Early Pandyas

Origin – Early Pallavas and Later Pallavas –Political history- Political Social and Economic Conditions – Religion –Growth of Literature and Education – Architecture – Sculpture – Paintings – Mamallapuram- The First Pandyan Empire – Sources – Triangular conflict between Pallavas,Pandyas and Western Chalukyas – Administration – Architecture—Status of Jainism and Buddhism - Bhakti Movement - Alwars and Nayanmars- Emergence of Saivism – Sankara'sAdvaida Philosophy –Language and literature

Unit-III : Imperial Cholas

Sources - Age of the Imperial Cholas –Extent of the Chola kingdom- Political History – Vijayalaya Line – Chalukya Line – Administration – Local Self Government- Kudavolai system- Social and Economic Life – Status of women- Trade and Commerce – Indian Feudalism – Slavery – Religion – Literature – Education – Architecture – Sculpture – Paintings – Cultural Expansion -Ramanuja- Vishishtadvaita -Sri Vaishnavism- Patronage of Temples – Monasteries- Decline of Jainism and Buddhism.

Unit-IV: The Second Pandyan Empire

Sources - Inscriptions and Copper plates – Archaeological remains – Coins –Literature- Foreign evidences - Chola to Pandya transition- Triangular Contest between Cholas,

Pandyas and Hoysalas – The Ascendency of the Pandyas – Decline – Social and Economic Life – Religion – Literature – Architecture – Sculpture – Paintings- Temple Centered Culture – Craftsmen – Internal and External Trade- Trade Guilds.

Unit V: The Nayaks and other Kingdoms

Muslim Invasions – The Madurai Sultanate – Impact – Kumara Kampana's Invasion – Tamilagam under Vijayanagar rule – Women – Gangadevi- "Maduravijayam"- Battle of Talikotai -The Nayaks of Madurai, Tanjore and Senji – The Marava Kingdoms of Ramnad and Sivaganga – The Tondaimans of Pudukottai – The Marathas of Tanjore. – Political, Social, Economic and Cultural contributions –Landing of Portuguese.

Text Books

1. NilakantaSastri. K.A, A History of South India from Pre - Historic times to the Fall of Vijayanagar Empire , Allied Publishes, Madras 1971
2. Devanesan, History of Tamil Nadu, Benu Publication, Marthandam, 2004.
3. Subramanian, N. Social and Cultural History of Tamil Nadu. Ennes Publication, Udumalpet, 1985

Reference Books

1. Champakalakshmi, R. Trade, Ideology and Urbanization: South India BC 300 – AD 1300, OUP, Delhi, 1996.
2. Karashima, Noboru, South Indian History and Society: Studies from Inscriptions AD 850 – 1800, OUP, Delhi, 1984.
3. A. Krishnaswami, Topics in South Indian History , From Early Times upto 1565 A.D, The University of Michigan, 1975
4. Chandrasekaran,P, History of Tamil Nadu Up to 1565, ManjuPathippakam, Rajapalayam,2001.
5. Subramanian, N, Original Sources for the History of Tamil Nadu, Ennes Publications, Udumalaipet, 1994

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	better focus on the ancient Tamil history
K2	CO2	understand the contributions of sangam poets to the literature , culture and the status of women
K3	CO3	learn the ethics and values ancient people had and adopts the suitable ones
K4	CO4	assess the art and architecture and understand the skills of the architects
K5	CO5	demonstrate skills to learn more about Tamilnadu history which is useful for preparation of competitive exams and jobs.

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S	S	S	S	S	M	M	S
CO2	S	S	M	S	M	S	S	M	S	M	M	S
CO3	S	S	M	S	M	M	S	M	S	S	M	M
CO4	S	W	M	S	S	M	S	M	S	M	M	M
CO5	S	M	M	S	S	M	S	S	S	M	M	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 Mark

<table>
<tr><td>COURSE CODE</td><td>P21HIT12</td><td rowspan="2">HISTORY OF INDIA UPTO A.D 1526</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE II</td><td>6</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall
K2: Understand
K3: Apply
K4: Analyse
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
1. learn the history of Rajputs and their culture
2. understand the diplomatic history of Delhi Sultanate, Mughals and the Vijayanagar Empire
3. help the students to analyze and interpret the administration of Deccan kings
4. assess the impact of the Mughal invasion
5. evaluate the evolution of Indian Architecture</td></tr>
</table>

Unit- I: Ancient India

Geographical features- Land- Sources and People –Types of sources – Literature – Vedic literature-Epics- Buddhist and Jain literature- Inscriptions- Archaeological remains- Copper Plates- Coins- Art and Architecture - Sculptures and paintings-Travelogues of Foreign travellers

Pre- history : Paleolithic Period (Old Stone Age, Mesolithic Period (Late Stone Age): Neolithic Period (New Stone Age, Chalcolithic Period (Stone Copper Age): Iron Age -– Indus Valley Civilization – Vedic Civilization and Culture – Social and Political Institutions, Economic conditions, Religious and Philosophical Ideas.

Unit –II: The Rise of Jainism, Buddhism and Mauryas

Teachings of Jainism and Buddhism – The Hindu Religious Movements – Bhagavatism or Vaishnavism and Saivism- Mahajanapadas – The Rise of the Magadha Empire – The Invasions of the Persians and the Greeks – The Foundation of the Mauryan Empire – Political Condition – Administration – Economic Condition – Religion and Culture – Architecture. The Sungas and the Kanvas of Magadha – The kingdoms of the South – the Satavahanas – Chedi dynasty of Kalinga – The kingdom of the North West – Sakas, Parthians, Kushanas – Political Condition – Administration – Economic Condition – Religion and Culture.

Unit- III: Important Ruling Dynasties

Emergence of the Gupta Empire – Extension of the Empire – Political condition – Administration – Economic Condition – Religion and Culture – Hun Invasions – Causes for the Downfall – Deccan in the Gupta Age – Vakatakas – Northern India after the Guptas – Vardhana Empire – Political condition – Administration – Economic Condition – Religion and Culture- The Rajputs – The Empire of Kanauj – The Pratiharas – The Gahadvalas – The Palas and The Senas of Bengal – The Chauhanas of Delhi and Ajmer – The Kingdom of Kashmir – The Chandelas of Bundelkhand – The Paramaras of Malwa – The Kalachuris of Chedi – The Guhilas of Mewar – The Toramanas of Delhi – Important Ruling Dynasties in Central India – The Chalukyas of Vengi, Badami, Kalyani – The Rashtrakudas – Political

condition – Administration – Economic Condition – Religion and Culture -Art and Architecture

Unit-IV: Coming of the Arabs, Turks and Sultanat
The Arab invasion – The Arabs in Sindh - Muhammud-bin-Qasim – Turkish invasions – Rise and fall of the Ghaznavides – Establishment of Turkish rule in India – India's contacts with the outside world – Political History of Indian States in the East and the South – East – Hindu Kingdoms of Suvaranadvipa, Champa, Kambuja, Burma – Indian Culture in the East and the South East Asia. Rise of Delhi Sultanate – Slave dynasty – Khalji Dynasty – Mongol invasions and their effects – Tughlaq Dynasty – Timur Invasion and its Effects – Sayyid and Lodi dynasty – Causes for the Downfall of the Delhi Sultanate. Administrative Measures – Economic Reforms – Revenue and Financial Administration – Education and Literature – Art and Architecture – Religion – Bhakthi Movement and Sufism.

Unit-V: **Condition of India**
Condition of India on the Eve of Babur's Invasion - Transformation of Indian society Social stratification and Caste system – the Muslim aristocracy – Status of women – Social Customs and manners- Economy - Agriculture –**I**ndustries – Economic policies of the Sultanate – Zagirdari system- Market regulations of Alauddin Khalji- Revenue and Taxation- Impact on Hindu society. Society in the Vijayanagar Empire – Political history- Caste system – Status of women – Social customs and manners – Feudal economy – Industries – Guilds – Internal and External trade – Art, Architecture and Literature- Status of women

Text Books

1. Lunia, B.N. Evolution of Indian Culture, Lakshmi Narayan Agarwal12th Edition, 2008,
2. Sharma R.S., Perspectives in the Social and Economic History of Early India, Sage Publication, 1970

Reference Books

1. Basham A.L. : Cultural History of India, Rupa&Co., New Delhi, 2003.
2. Basham A.L. : The Wonder that was India – Vol. I, Rupa&Co., New Delhi, 2003.
3. Chattopadhyaya. B.D., The Making of Early Medieval India, Vikas Publication, 2007
4. Sunil Kumar :The Emergence of Delhi Sultanate, Permanent Black, Ranikhet, 2007
5. Thangamani, Pon .A Political and Cultural History of Ancient India upto 1206, PonniahPathipagam, Chennai, 1992

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	better focus on the history of india
K2	CO2	understand the administration, indian culture ,literature and architecture
K5	CO3	demonstrate skills to critically assess the relationship between the ruling dynasties and the sultanates
K4	CO4	evaluate the status of the ancient society
K3	CO5	gain sufficient skills to face various competitive examinations and job

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 Mark

COURSE CODE	P21HIT13	HISTORY OF ANCIENT WORLD CIVILIZATIONS	L	T	P	C
CORE III			6	-	-	4
Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate					
Learning Objectives	The Course aims to 1. learn the civilizations of various countries 2. understand the value of civilizations 3. help the students to analyze and interpret the evolution features and legacy of World civilizations 4. assess the evolution of civilizations in various countries 5. evaluate the culture, religion , economy, customs and traditions.					

Unit- I : Rise and Growth of Civilizations

Civilization - Meaning and Definition – Causes for the growth of Civilization – Difference between Civilization and Culture - The world before Man - Concepts and terms Defined- Evolution – Worship, Architecture, Heritage, Death pits, Epics and Epigrams - Empire – Immortals, Writing - Cuneiform – Hieroglyphics – Alphabets – Phoenicians – Hebrews – Jews – Christians – Hittites- The Illiad – Odyssey – Marathon Run – Democracy.

Unit –II : Sumerian Civilization

Sumerian Civilization- Features – Legacy – Babylonian - Hanging Garden- People – Government– Socio-Economic condition – Art –Religion – Literature - Tigris and Euphrates Civilizations 500-539 B.C.E – Separate city Kingdoms – The First war for Water – Important cities –Royal cemetery- Social – Political and Economic life-Sumarian Law – The Code Hammurabi - Religion and Morality - Gender – Class – Knowledge – Technique - Egyptian Civilization – The first king or Pharaoh – The Government – Socio-Economic condition – Art – Religion and Literature.

Unit –III: Greek Civilization

Greek Civilization – City States – Athenian Democracy – Legacy in the field of Art – Architecture – Philosophy – Education and Science - Great Alexander Invasion - Roman Civilization - Domination of Rome on Ancient World for 500 years –Political Legacy – Roman Law – Legacy in the field of Art – Architecture – Religion – Philosophy – Education and Science - Persia –Cyrus II Darius - Parthians – **Sasanian** King **Khosrow II** - Arab conquest – Socio – Political, Religious and Economic life - Place of Assembly - Gardens – Royal Road – Worship of the Sun God -Mediterranean coast Civilizations - Hebrews - Shem – Migrations – Canaan – Promised Land Jews – Jehovah - Relations of Hebrews with Hittites - King David – King Solomon – Jerusalem – Psalms – Prophet – Messiah - Jesus of Nazareth – Christians – Phoenicians

Unit IV: Byzantine Civilization

Byzantine Civilization - Emperor Constantine I -Emperor Justinian – Theodosius I Government – Socio and Economic Conditions – Contribution to Art – Religion and

Philosophy- Feudalism – Features – Merits and Demerits – Manorial System – Fall of Constantinople- – Minoan Civilization - Trojan warChinese Civilization – Shang Dynasty - Chou Dynasty -- Han Dynasty - The Great wall of China – Socio – Economic, Political aspects - Silk weaving . Inscriptions – Confucius – Taoism

Unit-V: Middle Ages

Middle Ages – Rise and Spread of Christianity –Rise and Spread of Islam – Feudalism – Origin, Merits and Demerits – Crusades Transition to Modern Age – Renaissances in Italy – Causes and Results – Geographical Discoveries of 15th and 16th Centuries – Impacts – Reformation and Counter Reformation

Text Books

1. Shara, S.K. Five Great Civilizations of Ancient World, Education Publication, New Delhi 2017
2. Edward D'Cruz : A Survey of World civilization, Lalvani Publishing House, Bombay, 1970

Reference Books

1. Hawkes, J., The First Great Civilization: Life in Mesopotamia, the Indus and Egypt, Sage Publication, New Delhi, 2004.
2. J.E. Swain, A History of World Civilization, Eurasia Publishing House(Pvt.) Ltd., New Delhi, 1997.
3. Dharmaraj, J, History of World Civilizations, (Tamil), Tensy Publications Sivakasi, 2015.
4. Manoj Sharma, History of World Civilizations, Anmol Publications Pvt. Limited, New Delhi, 2005.
5. Philip J. Adler, Randall L. Pouwels, World Civilizations, Wadsworth, Boston, 2008.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	world civilizations and culture
K2	CO2	understand the evolution of civilization
K4	CO3	evaluate the impact of renaissances and reformation
K3	CO4	discuss the tyes of civilization
K5	CO5	develop knowledge to face competitive examinations

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	S	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	M	M	S	S	M	S
CO3	S	M	S	S	M	M	S	S	S	S	M	M
CO4	S	S	M	S	S	S	S	M	M	S	M	S
CO5	S	S	M	S	S	M	S	S	M	M	S	S

Strongly Correlating (S)	-	3 marks
Moderately Correlating (M)	-	2 marks
Weakly Correlating (W)	-	1 mark
No Correlation (N)	-	0 mark

COURSE CODE	P21HIT14	ARCHAEOLOGY	L	T	P	C
CORE IV			5	-	-	4
Cognitive Level		**K1: Recall** **K2: Understand** **K3: Apply** **K4: Analyse** **K5: Evaluate**				
Learning Objectives		**The Course aims to** 1. learn the importance of archaeology in the study of history. 2. understand the different methods of archaeological excavation. 3. analyse and interpret the various archaeological sources. 4. trace the Importance of Epigraphy and Numismatics 5. gain skills to get jobs in that field and apply the techniques and strategies in the field of the Archaeological Excavations				

Unit –I : History and Archaeology

Archaeology as a source of history – Kinds of Archaeology – Purpose of Archaeology – Definition and scope -Archaeology and other Subjects — Archaeology and History – Archaeology and Culture ,Environment and Natural Sciences – Kinds of Archaeology – Economic Archaeology – Ethno Archaeology – Underwater Archaeology – Arial Archaeology – Salvage Archaeology – Functions of an Archaeologist – Value of Archaeology – Methods and Principles of Archaeology.Epigraphy and its importance – Brahmi Scripts – Asokan Script – Tamil Brahmi Script – Types of inscriptions with special reference to Tamil Nadu- Copper Plate Grants -its nature and importance

Unit- II: Evolution of Archaeology

Exploration – Methods of site survey – Excavation – Kinds of Excavation – Prehistory - Palaeolithic culture in India – Mesolithic Age – Neolithic Culture - History of Archaeology – Geological evolution – Antiquarian evolution and the theory of evolution - 20th century developments - Archaeology in India – British Archaeologists -Sir William Jones - Alexander Cunningham – Fleet and Taylor – Robert Bruce Foote – James Burgess – Lord Curzon – Sir John Marshall – Sir Mortimer Wheeler – Development since Independence.

UNIT –III: Principles of Exploration and Excavations

Methods of Excavation and Dating –Excavations of Indus sites – Harappa, MohenjoDaro – Surface Exploration – Methods - Equipment and Record – Survey of Prehistoric sites- Methods of site survey - Topographical feature – State of preservation – Excavation - Pre-Historic Sites: Proto-historic Sites:-Historic Sites- Laying of the Trenches – Photography and Surveying – Interpretation - Publication

Unit- IV: Archaeological Survey of India (A.S.I)

Excavations– Staff and Equipment –their functions – Director - Assistant Director – Excavation Assistant – Site Supervisors - Trench Recorders – Pottery Assistant – Antiquity Assistant – cum – Curator – Photographer surveyor – Draftsman – Foreman – Field Chemist

– Laborers - Tools and Equipment –Tent equipment – water facilities –Transport –Surveyors equipment – photo equipment – Excavation equipment – Important sites - Study of Antiquities – Stone – Bone – Metals - Pottery and others

Unit- V: Dating methods

Source for history – Numismatics –Numismatics as a source of history – Coins of the Mauryas, Kushanas, Guptas, Pallavas, Pandyas, Cholas and Vijayanagar rulers - Foreign Coins found in India - Archaeology and other sciences –Archaeology- Geology – Dating methods – Radio Carbon Dating – Thermo Aluminiscence dating – Archaeo – magnetism – Potassium – Argon dating – Archaeology and Chemistry – Flourino dating – Pollen analysis – Dendro – chronology –Anthropology - Statistical methods – computer science - Preservation: Antiquities – Wood – Bone – Ivory – Metal – Stone - Other objects – Monuments - Principles of Conservation

Text Book

1. K.Rajan, Archaeology, Principles and Methods, Mano Pathippakam, Thnajavur, 2002

Reference books

1. Rajan. K, Understanding Archaeology, Field Methods: Theories and Practices, Mano Pathippakam, Thanjavur,2016.
2. Venkatraman. R, Indian Archaeology: A Survey, Ennes Publication, Udumalpet, 1985.
3. Childe, V. Gordon, A Short Introduction to Archaeology, Collier, New York, 1960.
4. Daniel, E. Glyn, A Hundred and Fifty Years of Archaeology, Pelican Books, London,1975.
5. A.L. Basham, The Wonder that Was India, Fontana Books in association with Rupa& Co., Delhi, London, 1967.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	define archaeology and trace the evolution of archaeology
K2	CO2	explain the impact of archaeology in the field of history
K2	CO3	understand the archaeology&its functions
K4	CO4	examine the techniques of archaeology, appraisal and compensation
K5	CO5	become eligible to get jobs in the field of archaeology

<u>Mapping of COs with POs & PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	M	M	S	S	M	S
CO3	S	M	S	S	M	M	S	S	S	S	M	M
CO4	S	S	M	S	S	S	S	M	M	S	M	S
CO5	S	S	M	S	S	M	S	S	M	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	P21HIT15	HISTORY OF AMERICA FROM A.D. 1900 To 2000 A.D.	L	T	P	C
CORE V			5	-	-	4
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate				
Learning Objectives		The Course aims to 1. introduce students to the events contributing to the development of the United States. 2. elaborate the interpretations of major historical events in American history from Reconstruction to the Second World War 3. present new perspectives in foreign policies of America 4. enable students to learn the diplomatic relations of India and America. 5. discuss the transfer of knowledge of Information Technology of America to other countries of the world.				

Unit –I : Reconstruction and Reformation of America-
Problems of Reconstruction - Presidential Reconstruction – The Lincoln Plan– Lincoln's Services to the Nation – The Johnson Plan - Congressional Reconstruction - Congressional Plan -Impeachment of Johnson – Reconstructed Governments – Southern Reaction – Results of the Reconstruction – Industrial Revolution– Big Business and Trusts – Captains of Consolidation- Results of Consolidation – Agrarian Unrest and Populist Movement – The Populist Party - Anti –Trust Legislation – Demand for Trust Legislation – The Sherman Anti – Trust Act 1890 – Apartheid and Imperialism – Segregation of Indian Tribes – Ordeal of Indian Tribes – The Indian Wars – Reservations – Purchase of Alaska – President McKinley and Spanish War – The Cuban Question - Attitude of European powers – Treaty of Paris 1898

Unit II: America and Word Wars
Theodore Roosevelt(1900- 1908) - Domestic Policy - Square Deal and Progressive reform – First Administration – Second Administration - Foreign Policy - Big Stick Diplomacy – The Platt Amendment – The Venezuelan Crisis – Spoilation of Colombia – The Roosevelt Corollary – Relations with Japan – Relations with Europe - William Taft and Dollar Diplomacy– Woodrow Wilson and World War I– Progressive Reforms – Tariff and Trust Laws – Agricultural and Labour Reforms – Constitutional changes – The Federal Reserve Act – New Diplomacy and Foreign Policy – Relations with China and Japan –Caribbean Intervention – The Mexican Adventure - Wilson and Neutrality – Neutrality and Partiality – Issue of Neutral Right – Peace efforts – The USA at I World war - Diplomacy of peace – Retreat to Isolationism and Conservatism – Rejection of the League of Nations – Search for Collective security – The Washington Conference

Unit III: Foreign Policy of America
The Kellogg – Briand pact (1928) - Reaction against Progressivism – The Great Depression – Hoover and Depression(1928-1932) - Franklin D. Roosevelt – New Deal Legislation –

Relief Measures – Recovery Measures – Reform Measures - Good Neighbour Policy – Republican policy – Roosevelt's policy – Relations with Russia – United States at World War II - Issue of Neutrality - The Neutrality Acts – Roosevelt's policy – Major campaigns – War in Africa and Europe – Atlantic Charter – San Francisco Conference - Yalta Conference – Pan American movement – The Pan American conferences – The Pan American union.

Unit IV: America and Cold War

Dilemma of Entanglement – Harry s. Truman (1945- 1953)Truman and Korean war – Post war settlements – Rejection of Isolationism – The Korean war – Eisenhower (1953-1961) and policy of Containment – Internal Administration – Dulles and policy of Containment – Rebellion in Guatemala – SEATO – The Baghdad pact – The Kennedy Administration (1961-1963)– The Kennedy Programme - Forward policy – Johnson and Vietnam war – Rise and fall of Nixon(1969-1974) – The Ford Administration(1974-1977) - Judicial appointments – Domestic affairs - Rockefeller Commission - Cold war – SALT I – Helisinki accord - Vietnam issue - Middle Eastern Problem - Jimmi Carter (1977-1981) -Relations with congress - National Energy Act - Foreign affairs - Cold war – SALT II –Camp David accords – Iranian revolution and hostage crisis - Relation with Latin America – Panama canal treaties .

Unit V: Reagan Administration

Ronald Reagan– Domestic affairs – Reagan administration and taxation – social policies and civil rights –Foreign affairs- Escalation of the cold war - Reagan Doctrine – End of the cold war - Détente – George Bush– Domestic affairs – Great Recession - September Eleven attack -War on Terror - War in Afghanistan – Bush Doctrine - Invasion of Iraq - Email controversy - Bill Clinton - NAFTA – Impeachment and acquittal – Foreign affairs

Text Books

1. Jeyapalan, History of United States of America, Atlantic Publications, New Delhi, 2016.
2. Subramanian, N A History of the USA. Ennes Publications, Udumalpet, 2006

Books for Reference

1. G. Clark, M.S. Neely and A. Hamby, Outline of U.S. History, Nova Science Publishers, New York, 2005
2. Howard Zinn, A People's History of the United States, Harper Perennial Modern Classics publishers, New York, 1980.
3. K. Rajayyan, A History of the United States, Ratna Publications, Tirunelveli, 2000.
4. William Muller, A New History of the United States, Nebu Press, Charleston , USA, 2011.
5. R.C. Majumdar and A.N. Srivastava, History of United States of America, SBD Publications & Distributors, New Delhi, 2001

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	better focus on the evolution of american history
K2	CO2	critically examine the foreign policy and domestic policy of america
K4, K5	CO3	evaluate the role of usa in first and second world wars
K3	CO4	develop leadership traits and skills by taking lessons from us history
K5	CO5	gain knowledge needed to face competitive examinations .

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIS11	GENERAL STUDIES	L	T	P	C
SUPPORTIVE COURSE I			2	-	-	2
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate				
Learning Objectives		The Course aims to 1. acquire knowledge about various sources of India 2. identify pre-historic sites, tools, special features of Indus Valley Civilization, 3. review the freedom Movement in India 4. get exposure to different aspects of history and thereby enabling to prepare for various competitive examinations 5. become skilled to get job in private or public sector				

Unit- I : Ancient History

Sources – Archaeological - Literary sources and Foreign accounts on Indian history – Pre-historic and Proto-historic period – beginning of agriculture in Neolithic and Chalcolithic Periods – Indus Valley Civilization – origin – date – extent of civilization – characteristics – decline – Art and architecture – significance – Megalithic cultures in South India – Pastoral and farming – settlements – development of agriculture – specialization in arts and crafts – trade and commerce – barter system – industrial development.

Unit- II : British India and Freedom Movement

Early Resistance to the Colonial Rule – Political consolidation of the India - English East India Company – South Indian Rebellion, 1800-1801 –Emergence of Nationalism – Impact of Western Education –socio – religious reform movements of the 19th Century – role Pre – Congress Associations - Indian National Congress –Emergence of Extremist ideology – Prominent leaders – Lord Curzon - partition of Bengal - effects – Swadeshi Movement – Revolutionary movement – prominent leaders of the revolutionaries in abroad – The Gadder Party – Revolutionary movement in Pondicherry- Non cooperation movement- Civil Disobedience movement- Quit India movement.

Unit –III: Indian Constitutional Acts

Minto-Morley Reform Act 1909-Government of India Act 1919 –circumstances to introduce the Act -Provisions - Nature and working of Diarchy in the Provinces - importance - Government of India Act 1935 - Provincial Autonomy - The constitutional development between 1935 and 1947 - the August offer - Cripps Proposal - Wavell Plan - The Cabinet Mission Plan - Mountbatten Plan - The Indian Independence Act 1947.

Unit- IV: The physical features of India

Geological development-Political Geography-Physiographic regions: Cratons- Regions-The Himalayan Mountains.- The Northern Plains-Indian Desert-Peninsular Plateau-Indo Gangetic Plain- Coastal Plains and ghats- Islands- Natural resources – Ecological resources-Water bodies- Wetlands- Renewable Water bodies- Mineral Oil- Minerals and Ores- Climate-Geology

Unit -V : Economic Planning in India

Economic Planning in India – Features of planning – Objectives of planning – Achievements and failures of planning – Brief summary of the First plan – the Second plan – the Third plan – the Fourth plan – the Fifth plan – the Sixth plan – the Seventh plan-the Eighth plan- the Nineth plan-the Tenth plan - the Eleventh plan - Twelfth plan.Events of national and international importance - Indian Polity and Governance – Constitution - Political System - Panchayat Raj - Public Policy - Rights - Indian Federation - Fundamental Rights - Fundamental Duties - The Directive Principles of State Policy - the party system - Emergency Provisions – Amendments –Economy –Industries Business- Science and Technology-IT revolution

Text Book

1. Luniya, B.N., Life and Culture in Ancient India, Evolution of Indian Culture, Lakshmi Narain Publication, Agra, 2001.

Reference Book

1. Sharma, L. P., History of Ancient India, Konark Publishers Ltd, New Delhi, 1997.
2. Thangamani, Pon .A Political and Cultural History of Ancient India upto 1206, PonniahPathipagam, Chennai, 1995
3. Agarwal R.C Constitutional development and National Movement in India Vikas Publishing House, New Delhi, 1992.
4. Kosambi,D.D. The Culture and Civilisation of Ancient India in Historical Outline, Vikas Publishing House, New Delhi, 1977.
5. Sharma,R.S. Material culture and social formation in Ancient India, Mac millan1983.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the fundamentals of Indian history and geography
K1	CO2	acquire knowledge about various sources of India
K4	CO3	examine the role of Indians in freedom movement
K5	CO4	review the Government planning
K3	CO5	apply the knowledge to get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

SEMESTER -II

COURSE CODE	P21HIT21	HISTORY OF INDIA 1526 - 1950	L	T	P	C
CORE VI			5	-	-	4
Cognitive Level	K1: Recall K2: Understand K4: Analyse K5: Evaluate K6: Create					
Learning Objectives	The Course aims to 1. study the impact of the First Battle of Panipat 2. understand the diplomatic history of Delhi Sultanate, Mughals and the Vijayanagar Empire 3. examine and interpret the administration of Muslim kings 4. train the students to know social structures 5. apply the interest in Persian and Indian Architecture					

Unit –I: The Mughals

End of Delhi Sultanate - First Battle of Panipat-Babur -Humayun- ShershahSuri– Civil, Military and Revenue Administration -Akbar – Second battle of Panipat- Emperor Hemu- Relationship with the Rajputs -Jahangir – Shah Jahan –Aurangzeb –- Aurangazeb's Military Achievements – Causes for the downfall of Mughal Empire – Nadir Shah's Invasion and Ahmed Shah Abdali's Invasion and its Effects- Administration – Society – Economy and Revenue Administration – Art and Architecture –Rajput Policy – Religious Policy – Deccan Policy – Mansabdari System -Peasants – Women –Literature.

Unit- II: The Kingdoms of Deccan

The Kingdoms of Deccan - The Hoysalas –Vijayanagar Empire – Krishnadevaraya – Administration – Social life and arts under Bamini and Vijayanagar Empire - The rise of Marathas - Shivaji – Maratha administration – The coming of the Europeans - The Portuguese – Anglo – French rivalry – The Carnatic Wars – First three Peshwas – Third battle of Panipat - Social and Cultural Life of the Marathas- Ruling Class- Society- Customs- Status of Women.

Unit- III: The Rise of British

The rise of the British Power - The company's rule in India-Black Hole Tragedy-Battle of Plassey -Battle of Buxar- Robert Clive's second Governorship of Bengal-Dual Government of Bengal-Treaty of Allahabad -Warren Hasting's Reforms-The Rohila War- Trial of Nandakumar -Case of Chet Singh- First Maratha War-Treaty of Salbai-Rise of Hyder Ali- First Mysore War- Second Mysore War- Sir John Macpherson -Lord Cornwallis- Third Mysore War -Treaty of Seringapatanam-Reforms of Cornwallis-Permanent Settlement of Bengal-Sir John Shore- Lord Wellesley- Subsidiary System-Fourth Mysore War-Tipu Sultan- Second Maratha War-Treaty of Bassein -War with Holkar.-Lord Hastings-War with Nepal- Pindari War- Third Maratha War

Unit – IV: Lord Amhers

Lord Amhers-First Burmese War - William Bentinck-Reforms-Sir Charles Metcafe- Ranjit Singh-Lord Auckland- Lord Ellen borough-Lord Hardinge- First Sikh War- Treaty of Lahore- Second Sikh War. Lord Dalhousie-Doctrine of Lapse-Lord Canning- The Revolt of 1857-Causes-Course-Causes for the failure-Effects of the revolt -Queen Victoria's Proclamation(1858)- Lord Northbrook- -Lord Rippon-Local Self Government- Ilbert Bill Controversy

Social Reform Movement Bramho Samaj – Rajaram Mohan Roy- Abolition of sati- Arya Samaj Prarthana Samaj -Theosophical Society -The Indian National Association

Unit-V: Lord Dufferin

Lord Dufferin -Indian National Congress- Lord Curzon-Indian Universities Act(1904)- Partition of Bengal- Swadesi and Boycott Movement- Lord Minto II -Lord Chelmsford - Non- Cooperation Movement-Lord Irwin–Civil Disobedience Movement-First Round Table Conference (1930)-Lord Willingdon)-Second Round Table Conference(1931)-Third Round Table Conference (1932)-White Paper Lord Linlithgow-August Offer –individual Satyagraha- Sir Stafford Cripps Mission -Quit India Movement-Lord Wavell-Wavell Plan - Lord Mountbatten – Partition of India- India's Independence- Making of Indian Constitution.

Text Book

1. Mahajan.V.D.-Modern Indian History from 1707 to the Present Day, S.Chand and Company Limited, New Delhi,1990.

Reference Books

1. Francois Bernier, Travels in the Mughal Empire, Asian Educational Services, New Delhi, 2010
2. JadunathSarkar, The Fall of the Mughal Empire, 4 Vols , Orient Blackswan Publication, New Delhi, 2008
3. Mahajan, V.D, Modern Indian History, S.Chand&Company Ltd, New Delhi, 2012.
4. Noboru Karashima , A Concise History of South India : Issues and Interpretations, Oxford University press, Chennai, 2014
5. Srinivasa M.N, Social Change in Modern India, Orient Blackswan Publication, New Delhi, 2009

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	understand the resistance given by the Indian rulers to the Mughals and the Europeans.
K2	CO2	gain knowledge about the society and culture in India and the social reforms.
K6	CO3	assess the circumstances leading to the three battles of Panipat and its effect
K4	CO4	examine the evolution of Indian history, culture, art and architecture
K5	CO5	students would demonstrate skills to learn more about Indian history and in a better position to face competitive examinations and get jobs

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIT22	HISTORY OF TAMILNADU 1565 to 1947	L	T	P	C
CORE VII			4	-	-	4
Cognitive Level	K1: Recall K2: Understand K4: Analyse K5: Evaluate K6: Create					
Learning Objectives	The Course aims to 1. learn the Political, Social and Economic conditions of Tamil Nadu 2. understand the antiquity of Tamil Nadu 3. analyze and interpret the history of Palayakararsof Tamil Nadu, Marathas of Tamil Nadu 4. examine the historical evolution of Tamil Nadu 5. equipthe students with needed knowledge to prepare for competitive examinations					

Unit I: Nayaks and Marathas

Battle of Thalaikottai- decline of Vijayanagar Empire-Nayaks of Madurai ,Senji and Tanjore – Political history- Administration- Revenue system – Army –Palayakkar system – Kavalkarar system – revenue of the Palayakkarars- society under the Nayaks- caste system – status of women – economic condition of the people- the religious condition.-- Marathas of Tanjore- Politics-administration- revenue system – army - society under the Marathas- status of women – economic and religious condition

Unit II: Maravars of Ramnad and Sivaganga

Maravars of Ramnad and Sivaganga -Political history -administration –revenue system – society – caste system- economic and religious condition- Nawabs –Politics and administration- revenue administration – army-judiciary- village administration –society – famines and diseases- caste system – status of women- economic and religious life- impact of Islam – Advent of Europeans- social impact of Europeans.

Unit-III: East India Company Robert Clive

East India Company Robert Clive- Anglo-French rivalry -Nawabs of Carnatic- End of Maratha rule-Anglo-Mysore Wars- Company's Acquisition of Tamil Country - South Indian Rebellion -Pulithevan- VeluNachiyar -Kattaboman- GopalaNaickar-Maruthu Brothers-Srirangam Declaration- Theeran Chinnamalai- Battle of Panchalamkurichi- Vellore Mutiny (1806) – Causes for the revolt, Course, Suppression of the revolt – Causes for the failure-Charter Acts - The British Land Revenue Administration - Ryotwari System - Organization of Judiciary - Growth of Education

Unit 1V: Socio Religious Movement

Socio Religious Movement - Socio - Political Organizations – Formation of Madras Native Association – Madras Mahajana Sabha- Vaikunda swamigal -- Vallalar –Samarasa Chutha Sanmarka Sangam - G.Subramania Iyer- Widow marriages- Intellectual Movement-Muthulakshmi Reddy- Sister Subbulakshmi– Annie Besant -The Theosophical Society-Women's India Association- Rukmini Lakshmi pathi-TVS.SoundaramRamachandran-

Movement for women's voting Right- Miss Amy Carmichael - MoovalarRamamirdhamAmmaiyar- Ambujammal – Progress of Education

Unit-V: Political Developments

Political Developments - Rise and Growth of Justice Party: Diarchy - Justice Party in Power, Achievements –Self-Respect Movement: E.V. Ramasamy, DravidaKalagham – The Congress Constructive programs –Congress No-Changers vs Congress Pro –Changers- Swarajist party – Provincial Autonomy-Congress Ministry (1937 – 1939): C. Raja Gopalachari – Governor's Rule (1939 – 1946)– Congress Ministry (1946 – 1947) – T. Prakasam – Independence

Text Book

1. Rajayyan, K, History of Tamil Nadu 1565-1982, Vikas publishers, Madurai, 1982

Reference Books

1. R.SathiyanathaAiyyar, History of the Nayka of Madurai (Reprint), University of Madras, 1984
2. K.K.Pillay, History of Tamil Nadu: People and Culture , IITS, Chennai, 2000
3. Burton Stein, Peasant State and Society in Medieval South India, OUP, New Delhi, 1980
4. V.T. Chellam, TamilNadu: History and Culture, MeyyappanPadippakam, Chidamparam, 2005
5. Varghese Jeyaraj, S. Socio-Economic History of Tamilnadu, Anns Publication, Uthamapalayam, 2017.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	gain knowledge about the rise and fall of various kingdoms
K2	CO2	understand the evolution of Tamilnadu history and culture.
K6	CO3	examine the brave resistance given by of the palayakkars.
K4	CO4	assess the political developments like formation of provincial organisations, emergence of the congress, justice party , swarajist party and electoral politics
K5	CO5	equip the students with needed knowledge to prepare for competitive examinations

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	P21HIT23	HISTORY OF FEMINISM AND WOMEN'S MOVEMENT 1800-2000	L	T	P	C
CORE VIII			4	-	-	4
Cognitive Level		K1: Recall K2: Understand K4: Analyse K5: Evaluate				
Learning Objectives		The Course aims to 1. learn the Universality of issues and factors pertaining to women. 2. understand the diversity and regional perspective of women. 3. trace out the legislations regarding the protection of women 4. apply rights and responsibilities in their life 5. enable the students to analyze and interpret self-esteem and initiate discussion on current issues.				

Unit- I : Theories of Feminism
Concept and Need for Women‘s Studies - Scope of Women‘s studies –Gender Studies as an Academic Discipline-– Feminist Theories – Kinds of Feminism – Liberal Feminism – Socialist Feminism – Marxist Feminism – Radical Feminism – Post modern feminist thinkers

Unit II : First Wave of Feminism in USA, U.K and France since 18 century
First Wave of Feminism in USA, U.K and France since 18 century: Enlightenment – Republicanism and Evangelicalism – Role of Women in the American War of Independence –Women in French Revolution – The Declaration of the Rights of Woman and of the Female Citizen 1791--Anti – slavery Campaign –Seneca Falls Convention 1848- Suffragette Movement – Trade Union Movement -Campaign for equal Rights- Anti – Feminist Reaction.

Unit III: Second Wave of Feminism in USA, and UK in the 1960s.
Emergence – Background to the sixties –President's Commission on the Status of Women 1961in USA - Betty Fridan's Feminine Mystique- Equal Rights Movement- Equal Pay Act 1963- Equal Rights Act 1964-National Organisation for Women (NOW)Protective Legislations - Equal Rights Legislations – Women in the trade Union in UK- Strike in the Ford Company 1968- Night Cleaners Campaign, 1970-72- International Women's Decade

Unit IV: Feminism in the Socialist countries
Feminism in the Socialist countries: Position of Women in early China and Russia – Women in the Russian Revolution- Its impact on Women – May 4th Revolution in China and its impact- Women in the Cultural Revolution – Modernization trends- Women's Movement – Equal Rights Legislations.

Unit V: Women's Movements in India
Women's Movements in India- Position of Women in Ancient and Medieval India – I Phase, Social Reform Movement and Social legislations in the 19th century – II Phase, Women's Movement and National Movement – III Phase, Women's Movement in the Post Independent Era –Equal Rights Legislations

Text Book

1. Susan Bassnett: Feminist Experiences: The Women's Movement in four Cultures (London: Allen and Unwin, 1986)

Reference Book

1. Agnew Vijay: Elite Women in Indian Politics (Delhi, 1986).
2. Andros Phyllis: The unfinished Liberation of Chinese Women-1949-1980) Indian University Press, Bloomington, 1983.
3. Altekar A.S. The position of Women in Hindu civilization, from pre-historic times to the present day. (MothilalBarasida, New Delhi, 1983)
4. Susan Shaw and Janet Lee, Women's Voices, Feminist Visions: Classic and Contemporary Readings, McGraw-Hill Professional Publication, New Delhi, 2011.
5. KaurManmohan – Women in Indian's Freedom struggle (Sterling, New-Delhi, 1992)

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	focus on the history of feminist theories
K2	CO2	know origin, growth and development of women's movement in various countries.
K2	CO3	understand about the various concepts relating to gender studies
K4	CO4	develop interest about women's issues and rights and become self-motivated and empowered
K5	CO5	evaluate competitive examinations and gain jobs

<u>Mapping of COs with POs& PSOs</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	S	S	S	M	S	S
CO2	S	M	M	S	M	S	S	M	S	M	S	S
CO3	S	M	M	S	M	M	S	S	M	S	M	M
CO4	S	M	S	M	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIT24	HISTORIOGRAPHY AND HISTROICAL METHODS	L	T	P	C
CORE IX			4	-	-	4
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate				
Learning Objectives		The course aims to 1. acquaint the students with the methods of writing history 2. observe ,verify and interpret historical data 3. analyse the nature and scope of history. 4. know the contribution of Historians and their Historical writings through ages. 5. acquire detailed knowledge in Historical Research Methodology and persue research.				

Unit I: Meaning of History

Meaning of History – Definition – Scope - Purpose – Art or Science – Kinds of History – History and Allied Subjects - Uses and abuses of History – Lessons of History – Causation and Change- Role of Individuals – Role of Ideas – Concept of progress- Eminent Foreign Historians -Herodotus – Thucydides– Toynbee- Titus Livy, Ranke- Spengler -Tacitus -St. Augustine- Machiavelli - Gibbon –Kant, Hegel - James Mill - John Stuart Mill.

Unit II: Medievl Historians

Eminent Indian Historians and their contributions- Ancient Period - Medieval Period - Modern Period-Kalhana –AbulFazl –- JadunathSarkar-V.A.Smith. –NilakantaSastri.- K.Rajayyan-Recent trends- Marxist Historiography- Subaltern Studies – Women's history

Unit III: Historical Interpretation

Philosophy of History-Theological Interpretation-Secular Interpretation-Historical Determinism-Meaning-Free will Doctrine-Historicism and Relativism-Meaning-Merits and Defects-Dialectical Materialism-Dialectic of Marx-Fallacies of the Doctrine.

Unit IV: Historical Writing Methods

Historical Research –Selection of Topic –Identification-Requirements- Sources of History – Kinds of Sources- – Primary Sources – Secondary Sources – Conventional and Non conventional- Legends and Ballads-Archaeological Sources- Literary Sources - Sources of History of India – Sources of Ancient History – Sources of Medieval History – Sources of Modern History - Methodology of Research – Methods and Techniques - Research Problem – Hypothesis

Unit V: Methods of Data Collection

Requirements for Thesis –Pre-test-Pilot study-Research Design – Research Proposal – Collection of Data –Interview- Questionnaire method -Heuristics – Requisites for Investigation – Recording of Evidence – Card File - Analysis of Data - Authenticity of Facts – External Criticism – Meaning – Application of External Criticism – Internal Criticism – Negative Criticism – Positive Criticism - Objectivity and Subjectivity – Need for Objectivity

– Bias and Subjectivity – Essentials for Objectivity -Synthesis- interpretation- Exposition – Presentation of Thesis-–– Preparation of Tables - Foot Notes – Abbreviations – Italics – Dates and Figures - MLA-APA Guidelines – Bibliography – Abbreviation.

Text Books

1. Manickam, S, Theory of History and Method of Research, Padumam Publishers, Madurai, 2000.

Reference Books

1. Chakravarty, History,Historical Thought and Historiography.Pearson Education Indiap publishers, Delhi, 2012.
2. Ernst Breisach, Historiography, Chicago: The University of Chicago Press, New Delhi, 2007
3. Gorge,H. S. Research Methodology In History.Alpha Publishing Corporation, New Delhi, 2011
4. Sreedharan, E, A Text Book of Historiography (500 B.C. – A.D. 2000), Orient Black Swan publishers , Delhi, 2004.
5. Venkatesan, G. Historiography, Narmatha Publication, Chennai, 2017.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	know about the historical development of historiography
K2	CO2	understand the various definitions and types of historiography
K5	CO3	evaluate the functions of historiography
K4	CO4	analyse the emerging trends in historiography
K3	CO5	apply the knowledge in historical researches and can pursue research degrees

<u>Mapping of COs with POs &PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	S	S	S	M	M	S
CO2	S	M	M	M	S	M	S	S	S	M	S	S
CO3	S	S	S	M	S	S	S	S	M	M	S	S
CO4	S	S	M	S	S	S	S	S	M	M	S	S
CO5	S	S	M	M	S	S	S	S	M	S	S	S

Strongly Correlating (S)	-	3 marks
Moderately Correlating (M)	-	2 marks
Weakly Correlating (W)	-	1 mark
No Correlation (N)	-	0 mark

COURSE CODE	P21HIT25	ARCHIVES KEEPING	L	T	P	C
CORE X			5	-	-	4
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate				
Learning Objectives		The Course aims to 1. highlight the facts pertaining to the nature and importance of Archives keeping and changes in modern trends. 2. learn the preservation of records of Archives keeping and records Management. 3. understand the functions and administration of National Archives and Tamilnadu Archives. 4. study the activities of various types of Archives 5. open different .avenues for jobs				

Unit- I: History of Archives
Meaning – Origin and Growth of Archives - History of Archives – Archives keeping in Europe through the ages – Ancient, Medieval and Modern archives - International Archives – Archives in India – Archival Keeping in India - Importance of Archives.

Unit- II : Establishment of Archives
Creation of Archives - Establishment of registry – Racking – Shelves and other materials – Archives and Libraries - Organization of Archives in India - Court Archives – Public Department – Revenue Department – Secret Department – Central Government Archives – Organization of Archives in European Countries – France - England – Archives in America – Canada - Creation of Archives – Classification – Recent Development.

Unit- III : Methods of Preservation
Preservation of Archival sources – Methods of Preservation – Preliminary and precautionary measures – Preventive measures – Factors of deterioration – Atmospheric factors – Temperature – Humidity – Sunlight – Dust – Impurities - Micro-organisms and pest – Pests - Wood Warm, other insects – Methods of Preservation and repair of Archival material.

Unit- IV: Functions of Archives
Functions of Archives - National Archives – Tamil Nadu Archives - Uses of Archives - Preservation of Archives - Record Room and Equipment - control of Insects and Mildew - Dust removal - Thymol fumigation - control of Acidity - Tissue Repair - Shiffon Repair - Lamination - Repair of Maps and Charts - Palm leave Manuscripts.

Unit- V: Archives in India
National Archives - Its origin - growth and activities – Tamil Nadu Archives- Its origin - growth and activities - Private Archives: Definition – Difference between private and public archives – Categories of Private Archives – Nehru Memorial Museum – IUCIS - Hyderabad – Parry and Company - Chennai – Asiatic Society of Bengal – Bengal Club – VishvaBharathi – Sringeri Mutt – Indo-Portuguese Archive - Goa – Arch Diocese of Madras – Archives of

Shenbaganoor in Kodaikanal – Problem of private archives – National Registrar of Private Records.

Text book

1. M. Sampathkumar, ―Nature and Scope of Archieve – A Study‖ in Historical Research Letter, Vol.18, IISTE, 2015.

Reference Books

1. C.L. Prajapathi, Conservation of Documents: Problems and Solutions, A Mittal Publication, New Delhi, 2005.
2. B.B. Mukherjee, Preservation of Library Materials, Archives and Documents, World Press, Calcutta, 1973.
3. Nelly Balloffet, Preservation and Conservation of Libraries and Archives, American Library Association, Chicago, 2005.
4. T.R. Schellenberg, Modern Archives - Principle and Techniques, The Society of American Archivists, Chicago, 2003.
5. Vijayalakshmi and S.C. Jindal, Digital Libraries and Digital Library Principles and Practivces, Vol.I, S.C. Jindal Isha Books, New Delhi, 2004.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	know the basic principles and practices of archives
K5	CO2	evaluate the archives functions
K4	CO3	critically comment on new perspectives in archives
K2, K1	CO4	describe the core concepts of archives
K3	CO5	develop knowledge and skills to get jobs and perform successfully

Mapping of COs with POs& PSOs

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	M	S	M	M	M	M
CO2	S	M	M	M	S	M	S	M	M	M	S	M
CO3	S	S	M	S	M	S	M	S	S	M	M	S
CO4	S	M	S	S	M	M	S	M	M	M	S	S
CO5	S	S	S	M	S	M	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

SEMESTER – III

COURSE CODE	P21HIT31	CONSTITUTIONAL HISTORY OF INDIA, 1773 to 1950	L	T	P	C
CORE - XI			6	-	-	4
Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate					
Learning Objectives	The Course aims to 1. trace the constitutional development in India 2. understand the fundamental duties and rights of citizens 3. review the powers of states and the centre. 4. get exposure to different aspects of constitutional history and thereby enabling to prepare for various competitive examinations 5. get sufficient knowledge to get job in private or public sector					

Unit- I: The East India Company Rule and Significance
The East India Company - the Regulating Act 1773 - Provisions - Defects of the Act - Bengal Judicature Act 1781 – Pitt's India Act 1784 - Circumstances – Provisions – Significance Charter Act of 1813, Charter Act of 1833, and Charter Act of 1853- Provisions – significance

Unit –II: Constitutional Development in British India
Queen's Proclamation of 1858 - significance – Passing of administration from East india Company to British Queen- Indian Councils Act 1861 and 1892 - Provisions - importance - Minto-Morley Reforms Act 1909 –Circumstances – special features - Provisions – significance

Unit –III: Government of India Act of 1919, 1935
Government of India Act of 1919 –circumstances to introduce the Act -Provisions - Nature and working of Diarchy in the Provinces - importance –Voting rights- Simon Commission – Recommendations- Communal Award- Poona pact- Government of India Act of 1935 - circumstances to introduce the Act – Important Provisions- Provincial Autonomy – Reservation of Seats in the legislature

Unit- IV: The constitutional development
The constitutional development between 1935 and 1947 - the August offer - Cripps Proposal - Wavell Plan –Simla Conference 1945- The Cabinet Mission Plan - Mountbatten Plan – Towards transfer of power- Partition of India- The Indian Independence Act of 1947

Unit- V: Formation of Constituent Assembly
Formation of Constituent Assembly – its works – Indian constitution- The salient features of the Indian Constitution – Union of States- Fundamental Rights - Fundamental Duties - The Directive Principles of State Policy - the party system – Provision for Constitutional Amendments- Powers of the States

Text Book

1. R.C. Agarwal and Mahesh Bhatnagar, Constitutional Development and National Movement of India, S. Chand and Company Ltd., New Delhi, 2006.

Reference Books

1. M.V. Pylee, Constitutional Government in India, Asia Publishing house , Bombay, 1967.
2. Sumita Singh, Constitutional Development in British India,Vikas Publications, New Delhi, 2012.
3. SibaranjanChatterjee, The Governor in the Indian Constitution, Mittal Publication, Calcutta, 1973.
4. IllbertCourteman, The Government of India, The Clarendon Press, Oxford, 1977.
5. PonThangamani, Indian Constitutional History – A.D. 1773 to 1950, PonnaiahPathipakam, Chennai, 2001.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the evolution of indian constitution
K1	CO2	acquire knowledge about various fundamental duties and rights
K4	CO3	examine the role of central and state governments in the governance of the country
K5	CO4	review the independence act
K3	CO5	apply the knowledge to get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S)	-	3 marks
Moderately Correlating (M)	-	2 marks
Weakly Correlating (W)	-	1 mark
No Correlation (N)	-	0 mark

COURSE CODE	P21HIT32	FREEDOM MOVEMENT IN TAMILNADU	L	T	P	C
CORE XII			5	-	-	4
Cognitive Level		K2: Understand K3: Apply K4: Analyse K5: Evaluate				
Learning Objectives		The Course aims to 1. know the Causes and the effect of British Colonial Rule in Tamil Nadu. 2. understand the uprising of Palayakaras in the late eighteenth century in Tamil Nadu 3. bring out out the educational status in India 4. examine the role played by the freedom fighters of Tamil Nadu. 5. get exposure to different aspects of Tamilnadu history and thereby enabling to prepare for various competitive examinations and get jobs in private or public sector				

Unit I: Early Resistances

Socio Economic and political condition - Anti-colonial struggle – Early base – Early uprising – Causes – VeluNachiyar- Palayakkars –South Indian Rebellion – Vellore mutiny 1806 – Sepoy Mutiny – Spread of Western Education - Christian Missionaries - General awakening- Social reforms- Challenges to the British government.

Unit II: Indian National Congress

Emergence of nationalism –Formation of Nationalist Associations – Formation of the Hindu Literary Society of Madras- Madras Native Association 1852 – Madras MahajanaSahba in 1884 - Theosophical Society–Indian National Congress 1885 – Partition of Bengal - Moderate phase –Emergence of extremism - prominent leaders of both the School of Thought- Outbreak of Swadesi and Boycott Movement – Role of V.O. ChithambaramPillai – Subramania Siva and Subramania Bharati – Swadesi Steam Navigation Company- Tirunelvelli uprising –Revolutionary activities in Tamil Nadu – NilakandaBrahmachari - Ashe Murder – Vanchinathan of Sengottai

Unit III: Home Rule Movement

Annie Besant- Home Rule Movement – Home Internment of Annie Besant- Advent of Gandhi - Non – Co-operation Movement Picketing of Liquor and Foreign Cloth Shops- Congress Constructive program-Revival of Khadi-Padmasani Ammaiyar of Madurai–Neill statue Satyagraha - Boycott of Simon Commission- Madras Congress session

Unit-1V: Civil Disobedient Movement

Declaration of PurnaSwaraj- Civil Disobedient Movement –Vedaranyam Salt Satyagraha- Boycott of elections, College and schools-Boycott of Foreign cloths-C.Rajagopalachari- Ruckmini Lakshmipathi- Durgabai - Radhabai Subbarayan- Gandhi – Irwin pact - Round Table Conferences – Communal Award – Poona pact – White paper – 1933 – Government of India Act 1935 Revival of Civil Disobedience movement- Eradication of untouchability and Temple Entry movement

Unit-V: Satyagraha Movement

Circumstances leading to the Individual Satyagraha —Second world War – August Declaration of 1940 – Individual Satyagraha - Programs and action- Cripps proposal – "Do or Die" - Quit India Movement –Role of women in Quit India movement- Quit India movement – role of women – rise and growth of the leftist movement- Muslim League and demand for Pakistan –C.R. Formula- Role of Tamilnadu in Indian National Army- Captain Lakshmi- India wins independence

Text Book

1. Rajayyan, K, History of Tamil Nadu 1565-1982,Vikas publication, Madurai, 1982

Books for Reference

1. Chandra , Bipan, A History of Modern India, Orient Blackswan publishes, New Delhi, 2009
2. Baker,C.J The politics of South India 1920 – 37,Cambridge University press, London ,1976
3. Copley , ARH the Political Career C. Rajagoppalachari 1937 – 54 Macmillan Company of India Ltd,Madras, 1978
4. Ganeshen .A, The Press in Tamil Nadu and Struggle for Freedom 1917 -1937, Mittal publications, New Delhi, 1989
5. Kandasamy.P the Political Career of K.Kamaraj concept publishing company , New Delhi,2001

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand thecauses and the effect of British colonial rule in Tamilnadu.
K5	CO2	review the social status and social reforms
K4	CO3	examine the educational status in India
K2	CO4	understand therole played by the freedom fighters of Tamilnadu.
K3	CO5	apply the knowledge to get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

<table>
<tr><td>COURSE CODE</td><td>P21HIT33</td><td rowspan="2">HISTORY OF CONTEMPORARY WORLD</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE XIII</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall
K2: Understand
K3: Apply
K4: Analyze
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
1. study the contributions of UNO and specialized agencies towards establishing peace in the world
2. know the political and economic autonomy of the world countries.
3. understand the development of Nationalism in Contemporary world
4. understand the emergence of International organization
5. discuss about the various diplomatic issues and Political conflict of world countries</td></tr>
</table>

Unit-1: First World War

First World War- Causes- Course and result- League of Nations-Fall of Tsar of Russia-Russian communism: 1917-1939-Hitler and Nazism; Mussolini and Fascism, World Economic Depression: 1929-1933, the Commonwealth of Nations; the Statute of West-minister (1930), the world situation in 1939: -Outbreak of the Second World War, the role of the U.S.A. and Japan in the War - Colonization of Africa -the role of Africa in the Second World War – Formation of United Nations Organization.

Unit- II: Raise of Capitalism

Modern State and it evolution-Capitalism - Imperialism - Socialism and Nationalism - Elements of Modern Nation – State - Diplomacy - Balance of Power – UNO - Principal Organs – Achievements and Failures – India’s Role in UN Peace Keeping – Specialized Agencies of UNO - UNICEF - UNESCO –WHO- ILO -Disarmament - Meaning – NPT-CTBT – UN & Disarmament-The Arab League (1945)- Organization of American States (OAS) (1948)– European Common Market (1957)- European Energy Commission (1958)-Organization of the Petroleum Exporting Countries (OPEC) (1960)- the Organization of African Unity (OAU) (1963) IMF, Common Wealth of Nations -Regional Associations EU-NAM

Unit- III: Cold wars

Cold war Era : Emergence of two blocs - Integration of West Europe and US Strategy – The Berlin Blockade- Communist East Europe – Truman’s Doctrine – Marshall Plan – NATO – SETO – CENTO –Molotov Plan – Warsaw Pact - The Korean War –Vietnam war(1954- 1975): Causes- Course of the War- Battle of Dien Bien Phu (1954)- Geneva Conference (1954)- My Lai Massacre (1968)- Kent State Shooting (1970)- Cuban crisis (1962): Causes- Course of the Crisis- End of the Crisis- German problem (1971): Causes-Effects of cold war-Moscow’s Crisis (1991)- Baltic Republics (1991)- Fall of USSR- Twin Tower Attack (2011- Reunification of Germany – Africa: Apartheid to Democracy

Unit IV: Globalization and World Organization

Globalization -The Earth Summits (1972)- Objectives - Basic issues of the North and the South - Outcome of the Earth Summit -)- the Association of South East Asian Nations (ASEAN) (1967).South Asian Association for Regional Co-operation (SAARC) (1985)- Common Wealth of Independent States (CIS) (1991)- European Union (EU)(1993)- European Economic Community (1993)- World Trade Organization (WTO) (1995)- Foreign policy of USA after 1945- Foreign Policy of UK after 1945

Unit V: Middle East Problem

Middle East Problem- Kashmir problem (1947)- Arab- Israel conflict (1948): Background of the Conflict- National Movements- Palestine problem (1948): Background of the problem- Jerusalem- Palestine Refugees- Palestinian Army- Oil diplomacy: Gulf war (1990): Causes- Course – Invasion of Kuwait (1990)- Battle of Khafji (1991)- Kuwait's Liberation (1991)- Consequences- Causes- Afghan Civil War - Sri LankaWar -Emergence of Third World

Text Book

1. Kulshreshta, K.K: A Short History of International Relations

Reference Books

1. Palmer and Perkins : International Relations: The World Community in Transition, Vikas Publication, 1982.
2. Harbutt, Frazer .J: The Iron Curtain: Churchill, America & the Origin of the Cold War, Concept Publishing Company, New Delhi, 1978.
3. Asit Kumar Sen: International Relations since World War I, Cambridge University, 1974.
4. Vinay Kumar Malhotra: International RelationsSumitGanguly and Rahul Mukerji. (2012). India since 1980. New Delhi: Cambridge University Press.
5. KP Mishra, Non-Alignment in Contemporary International Relation, Sage publication.New Delhi, 1970.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand international relations
K1	CO2	know the causes , course and effects of various wars and cold war
K4	CO3	assess the functions of various international organisations
K5	CO4	develop administrative skills and leadership traits
K3	CO5	apply the knowledge to face competitive examinations and get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIT34	FOREIGN POLICY OF INDIA	L	T	P	C
CORE XIV			4	-	-	4
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate				
Learning Objectives		The Course aims to 1. know the evolution of India's Foreign Policy since Independence 2. understand the relationship of India with neighbouring countries 3. assess the economic significance of India's Foreign Policy 4. examine India's contributions to World peace. 5. enable students to face various competitive examinations				

Unit-I: Non-Alignment Movement and India

Evolution of Indian Foreign of Policy - Determinants of Indian Foreign of Policy -Continuity and change in Indian Foreign Policy- Ministry of external Affairs - India's Changing Relations with other Nations- Panchasheel, 1954- Non-Alignment and UNO- The role of India in the Non-Alignment Movement - Non Alignment Summit 1985 – Harare Summit 1986- Harare Summit 1986- Group of Fifteen Countries (G15) -Relevance of Non-Aligned Movement in the Contemporary World -– Common Wealth of Nations

Unit – II: India and Pakistan

India and Pakistan - Indo – Pakistan relations during the early years of independence – Kashmir issue – Indo – Pak war 1965 – Tashkent Declaration 1966 – Simla Agreement 1972 –Indo-Pakistan War 1971- Emergence of Bangladesh- Indo-Bangladesh relations - Issues and economic relations between India and Bangladesh-Partnership agreements

Unit-III: India and Sri Lanka

Problems of the Tamils in Sri Lanka –Kachtheevu to Sri lanka 1974 –Indo- Sri Lanka Accord 1987 (Rajiv-Jayewardene Accord) Role of IPKF – India – Sri Lanka relations - LTTE- Tamil – Singala War in 2009- Fishing disputes- Economic tie

Unit – IV: India – China Relations

India – China Relations- War- Pre Cold War Era- Post- Cold War Era- Afghanistan War– South East Asia and Burma- issues between India and Burma – Boundary with Nepal - issues between India and Nepal–Tibet- India and Maldives - Political, economic and cultural relations between India and Maldives - Japan

Unit –V: India and Cold Wars

India's Relation with USA and Russia - Pre- Cold War Era- Post- Cold War Era - Strategic Relationship - European Union - South Asian Association of Regional Co-operation (SAARC) - East and West Asia – African countries - Australia - India's Nuclear Policy-

Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and Comprehensive Nuclear-Test-Ban Treaty- The threat of terrorism- India 's contribution to World peace

Text Books:

1. David Scott (Ed), Handbook of India's International Relations, London, Routledge,2011

Reference Books:

1. Ganguly, S (Ed), India as an Emerging Power,Portland, Franck class, 2003.
2. Pant, H, Contemporary Debates in Indian Foreign and Security Policy, London, Palgrave Macmillian,2008.
3. Tellis, A and Mirski, S (Eds), Crux of Asia; China, India, and the Emerging global Order, Washington, Carnegie endowment for international peace,2013.
4. Alyssa Ayres and Raja Mohan, C (Eds), Power Realignment in Asia: China, India and the United States, New Delhi, Sage, 2002.
5. Dutt, V.P, India's Foreign Policy in a Changing World, New Delhi,NBT,2011

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the evolution of India's foreign policy since independence
K1	CO2	acquire knowledge about economic significance of India'sforeign policy
K4	CO3	examine the merits and demerits of India's foreign policy
K5	CO4	reviewIndia's contributions to world peace.
K3	CO5	apply the knowledge to face competitive examinations and get jobs in private or public sector

<u>Mapping of COs with POs &PSOs:</u>

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIT35	HUMAN RIGHTS	L	T	P	C
CORE XV			4	-	-	4
Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate					
Learning Objectives	The Course aims to • know the powers and functions of the various commissions and organizations of Human Rights. • gain knowledge about Human Rights and its importance • examine the current issues relating to Human Rights • assess violation of Human Rights • get jobs / start a consultancy					

Unit-I: Historical Background

Concept of Human Rights - Definition of Human Rights –Theories and Classification of Human Rights -The origin and development - Western Political Thought and other Civilizations - First historical experience - Natural – Moral - Legal Rights – Three Generation of Human Rights -Civil and Political Rights -Economic social - Cultural Rights and Collective Solidarity Rights –

Unit- II: Evolution of the Concept of Human Rights

Ideologies and Issues: Human Rights as a product of Western Ideologies - Human - Rights and Social Revolution - Human Rights and Development - Domestic and International wars - the Liberal Conservative and Socialist Marxist outlook - from Magna Carta to Universal Declaration of Human Rights - The US Declaration of Independence - The French Declaration of Rights - US Bill of Rights - Geneva Convention 1864 – International Covenant on Civil - Political -Economic - Social and Cultural Rights

Unit –III: International Organizations and Human Rights

United Nation Organization - International Human Rights Documents and Declarations - Its categorizations - Social - Economic, Civil and Political rights - Major International Human rights documents and declarations -UDHR -International - Covenants on Economic and Social Rights - International Covenants on Political and Civil - Rights and other Covenant- UN Charter –UNESCO - Declaration of the Responsibilities of the Present Generations towards future generation of 1997- UN Commission on Human Rights – U N High Commission for Refugees –UNICEF - European Convention on Human Rights – Mexico Declaration on Human Rights – Helsinki Charter – Role of N.G.O's in the Protection of Human Rights

Unit- IV: Human Right violations

Human Rights and Social Justice - Basic and fundamental principles of Social Justice and Human Rights - Improvement in the advancement of the Principles of Social Justice and Human Rights - Emerging Issues and Human Rights - Globalization Environment and Livelihood issues - Terrorism and Human Right - violation of Rights of women –bonded

laborers – rights of the children – Fundamental Rights - Constitutional safeguards - Contemporary Challenges - Child Laborer – Women's Right – Problem of Refugees – Capital Punishment.

Unit –V: Human Rights Activities in India

Human Rights in India - National Human Rights Organizations - the Government agencies - Judicial Activism and Protection of Human Rights in India - Evolution of commissions of Human Rights - National SC/ST Commission - National Commission for Minorities - National Commission for Women - Protection of Human Rights Act 1993- National and State Human Rights Commission -Right to information Act - Human Rights Organizations and Movements - Sectorial Rights - Issues and Legal Protections - Women, Children, Dalits - Tribals and Rights of Differently Abled

Text Book

1. Agattiya Lingam: Manidaurimaigal, (Tamil), Tamil Puthakalayam, Chennai, 2004

Reference Books

1. Brij Kishore Sharma Human Rights Covenants and Indian Law PHI Learning Pvt Ltd., New Delhi, 2010
2. Deshmukh, K.L Human Rights and International Law Swasthik Publications, Delhi, 2011
3. MadhusudanPandit , Human Rights and Social Justice Swastik, Publications, Delhi, 2011
4. Rajeev, N.Pradhan, Human Rights and Civil Liberties Navyug Books, International, Delhi, 2011
5. Nirmal, C. J. Human Rights in India: Historical, Social and Political Perspectives, Oxford University Press, New Delhi, 2000.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the evolution of the concept and meaning of human rights
K1	CO2	acquire knowledge about various commissions and their achievements
K4	CO3	find out human rights violations and gain legal assistance
K5	CO4	review the legal protections pertaining to the marginalized
K3	CO5	apply the knowledge to get jobs in private or public sector/ start consultancy service

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

COURSE CODE	P21HIT36	HISTORY OF CONTEMPORARY INDIA	L	T	P	C
CORE XVI			4	-	-	4

Cognitive Level	**K1: Recall** **K2: Understand** **K3: Apply** **K4: Analyze** **K5: Evaluate**
Learning Objectives	**The Course aims to** 1. help the students understand India's domestic policy after independence 2. assess the impact of the partition of India 3. know the administrative structure of India 4. examine the economic development of India 5. equip the students with knowledge neede to face competitive examinations

Unit –I: Formation of Indian Constitution.
Partition legacies; migration and resettlement. The making of the Constitution and establishment of the Republic- The integration of the Princely states- Reorganization of the states- national integration- unity in diversity- **Sardar Patel-** Political parties and major political developments - Provisional Parliament- First general elections and the formation of central and provincial governments-Secularism, structure of democratic institution- Political parties- the Congress, the Left- BJP- Regional parties

Unit II: Indian Governance:
Parliament - President -Central Government: Prime Minister - Council of Ministers - Department Boards - Centre State Relations -Planning and Financial Administration- All India Services- State Government: Legislative Assembly - Legislative Council - Chief Minister - Council of Ministers - Planning - State Public Services Commission- Union Territories: Lt. Governor - Chief Minister - Council of Ministers - Local Government: Rural Local Government - Urban Local Government .- Judiciary- Supreme court – Structure and powers- State High Courts – Union Public Service Commission- UGC

Unit –III: Agriculture and Economic Development
Nation building process-Zamindari abolition- Mixed economy- Industrialization and growth of capitalism-. Planned Economy of India - Planning Commission - Five Year Plans and Annual Plans - Nationalisation of Banks - Agrarian Policy - Land reforms and agrarian class structure-rural labour and migration -Bhoodan Movement -Green Revolution – River water Disputes – White Revolution – Blue Revolution - Industrial Policy - Export and Import Policy - Labour Policy - Globalisation –Development of Transport and Communication –

Unit- IV: Development of Education, Science and Technology
Education Policy - National Policy of Education – Dr. Radha Krishnan Commission - Mudaliar Commission - Kothari Commission - Elementary - Secondary – University and Higher Education - Growth of Universities and UGC – Vocational and Technical – Women Education – Rural Education - Progress of Science and Technology – MHRD- Atomic

Energy Commission (AEC) and its Programs - Indian Space Research Organization (ISRO) and its Programs.

Unit-V: Welfare Programmes of India

Electoral Government and Developmental Issues - Prime Ministers and Administrative Policies -Administration and Achievements - National Development Council and its Role Welfare Programme of the Government – The Integrated Rural Development Program (IRDP) – Jawahar Rozgar Yojana- People Movements and Welfare State - Central Social Welfare Board- Social Justice - Social Welfare Programmes- Mandal Commission and reservation policies- Women Welfare- Language policy- Steps towards eradication of Poverty and illiteracy; demographic trends- Ecology and environmentalism- Liberalization and globalization- Development of health and tourism infrastructure- Promotion of ICT and digitalization .

Test Book

1. Anand, V.K. Indian since Independence, Making Sense of Indian Politics, New Delhi: Longman, 2010.
2. Dharmaraj, J, Contemporary History of India, (Tamil),Tensy Publications, Sivakasi, 2015.

References

1. The Politics of Modern India since Independence , Edinburgh: Routledge,New Delhi , 2011.
2. Bipan Chandra, Aditya Mukherjee, Mridula Mukherjee, India since Independence, London, Penguin Books, 2008.
3. Christophe Jaffrelot, Religion, Caste and Politics in India, New Delhi: Primus, 2010.
4. AnletSobithabai,W, Contemporary History of India, Sharon Publications, Marthandam, 2002.
5. Parmila, N.K, India’s Foreign Policy, Diplomacy in 21st Century, Mangalam Publications, New Delhi, 2011.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the structure of the government
K1	CO2	assess the socio-economic and political developments
K4	CO3	examine the development of science and technology
K5	CO4	review the progress of education
K3	CO5	apply the knowledge to face competitive examinations / get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER - IV

<table>
<tr><td>COURSE CODE</td><td>P21HIE411</td><td rowspan="2">ECONOMIC HISTORY OF INDIA, 1857 – 1947</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE -I</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall
K2: Understand
K3: Apply
K4: Analyze
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
1. understand the Economic policy of the British Government
2. review the status of cottage industries in India
3. understand the process of De industrialisation , migration of labourers and the rise of modern industries
4. assess the agrarian trends in India during the Colonial period
5. equip the students with knowledge needed to face competitive examinations/ start women groups/ consultancy services</td></tr>
</table>

Unit- I: Development of Economy

Indian Economy on the eve of the British Rule – Commercial and trade policies of the East India company- The Economic Policies of the British - The Economic Drain and backwardness- Revenue Settlements under the British Rule –Population of India during the British Rule- Traditional industries- De- industrialization-Collapse of cottage industries-Export of raw materials and import of finished products- Industrialization

Unit –II: Agriculture in India

Agriculture -Land - Crop and Soil diversity- Agricultural Techniques and Methods used in British India-Agriculture production and productivity in the colonial rule- Land Revenue Settlement of India during the British Rule- Agrarian trends in India during the Colonial period -Plantations in India Famines in Colonial India- Irrigation and water management – Construction of Dams -Cattle Wealth – Taxes –Commercialization of Agriculture – Cultivation of Cotton for export-Famines- Famine Administration –Condition of peasants and laborers

Unit –III: The rise of the modern industrial sector

Characteristics of Indian Industries at the time of British ruleRise of large scale industries in Colonial India-Industrialization -State Policies on Trade - Chief Trading Centers in North and South India – Trading Communities - Trading Networks - Indigenous and Major Industries – Cotton Industries , Textile , Jute , Iron and Steel , Sugar and Chemical – Occupational Structure of Colonial India- Supply of industrial labor- Labour problems – Women Labour-Labour disputes – Child Labour - Labour Legislations - Urbanization in The Colonial Period- Migration of Laborers to overseas-Internal migration

Unit- IV: Transportation and communication

Transportation - Various Trade Routes - Important Trading Centers - Chief Ports - Important Markets – Store houses - Transport and Communication – Roadways –Introduction of Railways – Waterways – Communication network- Post and Telegraph- Parcel services - Modernization and Development – Internal and external trade- .Capital flows and the colonial economy – changes and continuities

Unit –V: Development of Education, Science and technology

Spread of education- Higher education- Starting of Universities- Health Policy-Development of medical infrastructure and medical education-Science and Technology - Foreign Capital-Government and fiscal policy - impact of British Economic Policy in India- economic nationalism- Indian economy at the eve of independence

Text Books

1. Dharma Kumar: The Cambridge Economic History of India 1757-1970, Orient Longman, New Delhi, 1982
2. Nanda S.P : Economic and Social History of Modern India, Anmol Publications Pvt. Ltd., New Delhi, 1999

Reference Book

1. Grover : A New Look at Modern Indian History, S. Chand & Co., Ltd., New Delhi, 1999
2. Mehta Balraj : Crisis of Indian Economy, Sterling Publishers Pvt. Ltd., New Delhi, 1973
3. UshaSingh , Economy: Thought of Indian Society, Deep& Deep Publications, New Delhi, 1985.
4. Chandra, Satish (ed.), The Indian Ocean: Explorations in History,Sage publication, New Delhi 1979.
5. T.M. Srinivasan, Irrigation and Water Supply, New Era Publications, 1991.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the process of economic exploitation and collapse of cottage industries
K5	CO2	assess the development of modern industrial sector
K1	CO3	review the impact of migration and entry of women into labour force
K4	CO4	examine the development of education and intellectual awakening
K3	CO5	apply the knowledge to get jobs in private or public sector

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	S	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	S	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIE412	INTERNATIONAL RELATIONS SINCE 1945 A.D	L	T	P	C
ELECTIVE -I			4	-	-	4
Cognitive Level	K1: Recall K2: Understand K4: Analyze K5: Evaluate					
Learning Objectives	The Course aims to ➢ introduce students to the definition and scope of the International Politics. ➢ elaborate the various theories of International politics. ➢ present new perspectives in the post world War II scenario in International relations. ➢ enable students learn the impact of World War II in the Global Economics. ➢ discuss the role of world organizations in peace making process.					

UNIT- I Theories of International Politics
Definition and Scope - Theories of international Politics - The Realist Theory - Systems Theory - Decision Making - Game Theory - International relations - Meaning – Scope – approaches to the study – Significance of the study- Concepts of International relations- Neo – Colonialism – collective security - Balance of Power.

UNIT -II Balance of Power
Concepts of International Politics: Power - National interest - Balance of Power - Collective Security- NATO, CENTO, Warsaw Pact, SEATO, ANZ US - Old and New Diplomacy- practice Important theories – Game theory – realistic theory - systems theory – Decision making

UNIT- III Post-II World War
The Post-II World War foreign policies of the major powers - United States - Soviet Union - China. and India's foreign policy and relations - India and the Super Powers - Oil Diplomacy - Palestine-Israel conflicts - West Asian conflict Palestine- Israel confides- Arms race - disarmament and arms control - The Partial Test-Ban Treaty - The Nuclear Non-Proliferation Treaty - Comprehensive Test Ban Treaty - India's-Nuclear Policy - Terrorism its impact - Afghanistan - Iraq — US War – Cold War.

UNIT -IV New International Economic Order
New International Economic order - GATT and its implications - The North South - "Dialogue" in the United Nations and Outside - Impact of Globalization. International Issues- Korean Crisis -Vietnam – Palestine Israel Problem – Gulf Crisis and Oil Diplomacy.

UNIT- V International Organizations
Origin and Development of International Organizations - The United Nations and its Specialized Agencies- OAS- OAU- Arab League- ASEAN- EEC- SAARC their role in

international relations- U.N.O - Functions- Achievements- Disarmament - SALT treaties - NPT- CTBT and Atomic race.

Reference Books

1. Dutt V.P. , India's Foreign Policy, Sage Publication, New Delhi, 1984.
2. Indumati, (ed) The United Nations (1945-1995), University of Mysore Publication, Mysore, 1995.
3. David S. McLellan, William C. Olson and Fred A. Sonderman, The Theory and Practice of International Relations, Printice Hall of India Publishers, New Delhi,1977.
4. Shrikant Paranjpe, U.S. Nonproliferation Policy in Action, South Asia, Sterling Publishers, New Delhi, 1987.
5. Palmer Priestly and Perkins, Intemational Relations, Vikas Publishers Calcutta , 1969.
6. Pushpesh Pant, International Relations in the 21st Century, McGraw Hill Education (India) Pvt. Ltd., New Delhi, 2014.

Course Outcomes

On successful completion of the course, the students will be able to

K2	CO1	understand International relations
K3	CO2	make relations with other nations
K5	CO3	explain the International relations

<u>Mapping of Cos with POS & PSOs</u>

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	S	S	M	S	S	S	M	S	S
CO2	S	M	M	S	S	M	S	S	M	M	S	S
CO3	S	M	S	S	M	M	S	S	S	M	S	M

Strongly Correlating (S)	-	3 marks
Moderately Correlating (M)	-	2 marks
Weakly Correlating (W)	-	1 mark
No Correlation (N)	-	0 mark

<table>
<tr><td>COURSE CODE</td><td>P21HIE421</td><td rowspan="2">MUSEOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE - II</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall
K2: Understand
K3: Apply
K4: Analyze
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">The Course aims to
1. understand purpose of Museums
2. know about the methods significance of collection of museum objects
3. study the techniques of preservation, conservation and restoration of the artefacts
4. understand documentation system
5. equip the students with knowledge needed to face competitive examinations/ start women groups/ consultancy services</td></tr>
</table>

Unit- I : National Museums

Definition - Museum Movement - Classification of Museums - National Museum - Provincial and Regional Museums - Local Authority Museum - University and College Museums - Private Museums, - Society Museums - Trustee Museums - Temple Museums - Palace Museums, - Museums of Business Organizations -Growth of Indian Museums - Antiquarian Laws in India

Unit- II : Museum and Materials Documentation

Museum Architecture - Collection of Museum Objects - Collection of Archaeological objects –Surface Collection – Excavation – Art and Purchase Committee Collections - Zoological and Botanical Materials - Ethnographic Materials– Documentation - Day Book – General - Accession Register - Section wise Accession Registers - Catalogues Card Indices- Museum Exhibition: Designing Showcases - Exhibits - Space - Lighting - Method of Presentation - Principles of Preservation - Labeling - Temporary Exhibition

Unit –III: Conservation and preservation

Conservation and care of Museum Objects- Nature of Materials - Causes of Deterioration - Climatic and Environmental Conditions - Humidity - Temperature - Pollution - Light - Chemical agencies of deterioration - Human neglect and ignorance - Vandalism - Biological agencies of deterioration - Care in handling the Museum objects - care in shifting and transportation - storing care of Individual Materials - Paintings - Textiles - Bone and Ivory - Leather Objects and Archival materials .

Unit –IV : Museum Administration

Museum Administration - Human Resources - National Museum - State Museums - Director or Commissioner - Curator - Staff - Technicians, Artists, Modelers, Technical Assistants – Electronics Experts - Computer Personnel - Gallery Guards - Masons – Carpenters - Sanitation workers – Duties and responsibilities.

Unit –V: Museum Research

Educational Programmes and Museum Research - Guided Tours - Museum School Services - Museum Loan or Extensions Service - Gallery Lectures - Training to College Students on reading epigraphy, Taxidermy and Conservation - Training on different types of painting - Summer camps - Museum Publication - News Bulletins, Research Journals - guide books - Catalogues, handbooks, brochures, pictures books

Text Book

1. Jeyaraj, V. Museology – Heritage Management, Government Museum, Chennai, 2005

Reference Books

1. Harinarayana&Jeyaraj : Care of Museum Objects, Government Museum, Chennai, 2002
2. Kannan R.: Present Trends in Museology, Government Museum, Chennai, 2004
3. Aiyappan, A &Satyamurthi, S.T Handbook of Museum Technique, Government Museum, Chennai, 1998
4. Jeyaraj, V Care of Archival Material (Tamil) Government Museum, Chennai, 1997
5. Aiyappan, A. and S.T. Satyamurthi, Handbook of Museum Technique, Government Museum, Chennai, rept., 1998.

Course Outcomes

On the successful completion of the course, students will be able to

K1	CO1	know the growth of museums and its functions
K4	CO2	assess museum techniques
K2	CO3	understand documentation system
K5	CO4	evaluate the present trends in museology
K3	CO5	apply the knowledge to get jobs in museums / pursue research

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	S	M	S	S	S	S	M	M	S
CO2	M	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	W	S	W	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

COURSE CODE	P21HIE422	HISTORY OF FAR EAST SINCE 1900	L	T	P	C
ELECTIVE - II			4	-	-	4
Cognitive Level		K1: Recall K2: Understand K4: Analyze K5: Evaluate				
Learning Objectives		The Course aims to ➢ introduce students to the historical background of the China and Japan. ➢ elaborate on the emergence of China and Japan as important countries in Asia ➢ present new perspectives in the history of China, Japan and other Asian Countries ➢ enable students learn the development of Asia in international level. ➢ discuss the Open door policy of far Eastern countries with world countries				

UNIT- I History of China

Early history of China – The Manchu Dynasty – Opening of China - Causes for the out break of the First Opium War – The Taiping Rebellion – The Second Opium War – China in 1860s and 1890s – Frontier relations between China and neighboring Countries – China Japanese War of 1894 and 1895.

UNIT- II Open Door Policy

The Battle of Concessions – USA and the Open Door Policy – Hundred Days Reforms – The Boxer Rebellion – Manchu Dynasty - Reforms – Dr.SunYat Sen and Revolution of 1911 – Yuan Shi Kai – China and First World War .

UNIT- III Manchurian Crisis

Birth and growth of Communism in China – Kuomintang – Chiang Kai Shek _ - Manchurian Crisis - conflict between the CCP and KMT – China Japanese War of 1937 – Civil War of 1945 and 1949 - The establishment of People's Republic of China - Mao Tse Tung – The People's Government at Peking – The Cultural Revolution – Economic Development .

UNIT- IV Meiji Restoration

The Opening of Japan – Perry and Harris Mission – Meiji Restoration- Meiji Reforms – Constitution of 1889 – Anglo Japanese Alliance 1902 – Russo-Japanese War 1904-1905 – Japan in First World War.

UNIT- V Japan in Second World War

Japan in Second World War – defeat and surrender of Japan – Post War period of Japan – Disarmament and demilitarization – Democratization – New political system – Economic and Industrial Remodeling up to 1950.

Books for Reference

1. Subramanian. N, A History of USA, Ennes Publication, Udumalpet, 2006.
2. Sinha. P and Surya. P, China and Japan in Ancient power politics , Sage Publication , Madurai, 2011.
3. Thiagarajan J, History of China from 1800- 1900 A.D , Vikas Publication, Madurai, 2007.
4. Kenneth E, Hendrickson J, The Spanish-American War, Greenwood Press Publication, London, 2003.
5. Rajayyan,K, A History of the United States, Vikas Publishing House, Madurai, 1981.
6. Richard Zuczek, Encyclopedia of the Reconstruction Era Vol – II, Greenwood Press publication, London, 2006.

Course Outcomes

On the successful completion of the course, students will be able to

K2	**CO1**	know the overview of far-east countries
K2	**CO2**	understand the Cultural heritages of far east countries
K2	**CO3**	analyze the role of far east countries
K4	**CO4**	assess the varied physical features of far east countries
K3	**CO5**	review the different adventurous sports and wild life of far east countries

<u>Mapping of Cos with POs &PSOs:</u>

CO/ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	S	S	S	S	S	S	M	M	S
CO2	S	M	S	M	S	M	S	S	S	S	S	S
CO3	S	S	S	M	M	S	S	M	S	S	S	S
CO4	S	S	M	S	S	S	S	S	M	M	S	S
CO5	S	S	M	M	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

NON MAJOR ELECTIVE

COURSE CODE	P21HIN21	TOURISM PACKAGING	L	T	P	C
SEMESTER -II			4	-	-	4
Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Analyse K5: Evaluate					
Learning Objectives	The Course aims to 1. acquire knowledge of Tourism 2. know about the services providers of Tourism industries 3. present new perspectives in tourism packages 4. discuss the importance of tourism and job opportunities in the field. 5. enable the student to get placement in Tourism sector.					

Unit- I: Fundamentals of Tourism

Meaning - Nature - Factors influencing the Tourism promotion and its development – Significance of Tourism Management sectors - Need for Tourism Organization and its Functions - Planning- Directing - Kinds of Tourism – Basic Components of Tourism –. Road Transport – Railways and Air Travel - Kinds of Tour and Tourists - Tourist Guides - Tourist Centers of Tamilnadu and North India -Motivation-Groups and Teams - Receptionists and Customer Relation-Interaction -

Unit- II: Travel Agencies ,Travel Formalities and Itinerary

Types of Travel Agencies- Organization Structure and Working of Travel Agency- Travel Functions of Travel Agency – Travel Agency with Service Providers – Handling Client - Booking and functioning of Travel agency –Travel Formalities – Passport - Visa and Immigration – Customs formalities - Itinerary and travel plan –Scope – Significant - Components and element of effective Tour itinerary preparation – Systematic approach of itinerary preparation- Creation of Tour packages- Pricing policies – Quoting and pricing of tour package – Marketing for Tour Packaging in different types of Tourism Industry-ICAO and WTO

Unit- III : Types of Accommodation

Emergence of Hotels-Types of Hotels – Accommodation - Registration and Gradation of Hotels- Changing Profile of Accommodation Sector –- Supplementary accommodations – Motels – Structure of a hotel- Font Office- Housekeeping - Functions and Importance of Accommodation in Tourism Development

Unit- IV : Tour Package in Indian Context

Basic Elements in Tour package and itinerary - Ready made and tailor made itineraries- Contracts with different service providers- Marketing of Tour packages -Needs, Wants and Demands-Types of Products- Kinds of Products Marketing Agencies - Market Segmentation – Marketing Process and Functions – Global itineraries and pricing

Unit- V: Travel Intermediaries and Tour Operators

Travel Trade and Commerce – Trade Centers- Currency Exchange – Employment – Livelihood - Travel Intermediaries - Tour Operators – International Air Transport Association – World Tourism Organization– Travel Agent Association of India– Indian Association of Tour Operators - Tourism Offices in India - Indian Tourism Development Corporation– Tamil Nadu Tourism Development Corporation

Text Book

1. PranNath Seth, Successful Tourism: Fundamentals of Tourism, Sterling Publishers Pvt. Ltd, New Delhi. 2008.

Reference Books

1. A.K. Bhatia, Tourism Development, Principles and Practice, Sterling Publishers Pvt. Ltd, New Delhi. 2002.
2. M.L. Singla, ―Tourism and Hospitality Industry in India: An Appraisal, Journal of Hospitality Applications and Research, BIT Publishers, Ranchi, 2007.
3. A.K. Raina and S.K. Agarwal, The Essence of Tourism Development: Dynamics, Philosophy and Strategies, First Edition, Sarup and Sons Publishers, New Delhi, 2004.
4. PragatiMohanty, Hotel Industry and Tourism in India, APH Publishing Corporation, New Delhi, 2008.
5. Dirk.Glasser, Crisis Management in the Tourism Industry, Elsevier Publications,New Delhi 2006 .

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	understand the fundamentals of tourism
K1	CO2	know about the various packages
K1	CO3	know the service providers in tourism
K5	CO4	assess the perspectives in tourism packages
K3	CO5	apply the skills and enable students to get jobs in tourism

Mapping of COs with POs &PSOs:

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M	S	S	S	S	M	M	S
CO2	S	S	M	S	S	S	M	M	S	S	S	M
CO3	S	M	S	S	S	S	S	M	S	S	M	M
CO4	S	S	S	S	M	S	M	S	M	S	S	S
CO5	S	S	M	M	S	S	S	M	S	M	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark

No Correlation (N) - 0 mark

VALUED ADDED COURSE

COURSE CODE	P21HIV11	YOGA AND MEDITATION	L	T	P	C
SEMESTER - I			30			2
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate				
Learning Objectives		The Course aims to 1. know about Yoga and Meditation 2. perform Patanjali's yoga darshanam 3. practice Bhakti Yoga and meditation. 4. Create a Healthy and fit Society				

Unit - I : Darshanas
Introduction to shat darshanas – definitions, meaning of the term "Yoga" – development of yoga – yoga in Bahagavad Gita – Rules and Regulations for Practice of yoga - Yoga –Yogin – Guru – Shishya – Diksha – Eight Limbs of Yoga

Unit- II: Bhakti yoga
School of yoga: Bhakti yoga – Karma yoga – Jnana yoga – Mantra yoga - Kundalini yoga – Panchakosha theory -Study of Patanjali's Yoga Sutra.

Unit- III: Patanjali's yoga
Patanjali's yoga darshanam: Samadhi pada: yoga definition – Goal – Chittavritties – Concept of Iswara – Chittavikshepas Samadhi; SadhanaPada: Kriya yoga – Kleshas – Astanga yoga; VdhutiPada; dharana – dhyana- Samadhi – Samyama.

Unit- IV: Hatha- yoga
Hatha- yoga; meaning, definition – literature – components of hatha yoga ; SapataSadhanas; Shat Karmas - Asanas – AstaKumbhakas – Bandhas and Mudras – Naadaanusantana – yoga and died.

Unit –V : Methods of Meditation
Meditation; meaning, nature, methods and benefits – yoga and physical Education – yoga and Ayurveda - Yoga and Naturopathy – yoga Therapy – Scientific Research on yoga.

Reference Books

1. Sachitra yoga pradipika: B.K.S. Iyyangar
2. Yoga chaitanyaPradipika; Yogacharya Dr. RaparthiRamarao
3. Journey to real self ; Dr. RaparthiRamarao
4. Asana Pranayama Mudras Bandhas: SwamySatyanandaSaraswati.
5. B.K.S. Aiyangar- Light of Yoga
6. George Feuerstein - The Yoga Sutra of Patanjali

COURSE CODE	P21HIV42	GUIDANCE AND COUNSELLING	L	T	P	C
SEMESTER - IV				30		2
Cognitive Level		K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate				
Learning Objectives		The Course aims to 1. understand our Own problem and getting best possible solutions. 2. develop to understand the concept of Guidance and Counseling. 3. know about different areas of counseling. 4. create awareness about working of Guidance organizations. 5. know about the basic needs of guidance services. 6. develop the knowledge about different fields of Guidance and Counseling.				

Unit-I : Nature and Functions of Guidance & Counseling

Definition, nature, functions, important, types and kinds of Guidance and counseling– getting appropriate information – Emotion – Self awareness- Self motivation- Self control- Capacity to communicate.

Unit–II: Communication Skill in Counseling

Difference between Guidance, counseling and psychotherapy – basic knowledge of psychology – ability to make rapport – communication skills – Observational power and empathy – Probing skill; through questioning and organizing facts.

Unit–III: Practicing ethical issues

Sensitivity and practicing ethical issues – Listening skills and patience – Honesty and confidentiality crisis management – facilitating self –disclosure – problem-solving – Ice breaking – monitoring and closure.

Unit–IV: Educational and occupational counseling

Educational and vocational and occupational counseling – Marital , family, group and Gerontological counseling. Current forms of e-counseling and Tele – counseling and their application in areas of rehabilitation.

Unit–V: Trauma counseling

Trauma counseling – Intra- Personal and Inter- Personal counseling – Crisis intervention – Counseling for different types people – Social work counseling – Special education counseling - Remedial service counseling child Guidance counseling – Human Rights and Child Rights counseling.

Text Book

1. Nathan Robert and Hill, Linda Career Counseling, SAGE Publications India Pvt, Ltd., 2012.

Reference Books

1. Nelson-Jones, Richard, Basic counseling skills, A Helper's Manual, SAGE Publications India Pvt, Ltd., 2008.
2. Nag,Dr.Suvir, Counseling and Guidance, Rita Publications, Kolkata, 2012.
3. McLeod, John, An introduction to Counseling, Rawat Publications, 2012.
4. Aggarwal, J.C. Career Information in Career Guidance : Theory and practice, Doaba publishing house, Delhi – 1998.
5. Kochhar, S.K. Educational Vocational Guidance in Counseling, Sterling Publishers, New Delhi – 2010.

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Department of Economics

MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL-624101

M.A. ECONOMICS (CHOICE BASED CREDIT SYSTEM)
(Full-time)

SYLLABUS, REGULATION AND SCHEME OF EVALUATION

(From 2021-2022 onwards)

MOTHER TERESA WOMENS UNIVERSITY
KODAIKANAL---624 102
DEPARTMENT OF ECONOMICS
CHOICE BASED CREDIT SYSTEM (CBCS)
(2021-2022)
M.A. (ECONOMICS)

1. About the Programme

M.A Economics is a Post Graduate Programme designed with focus on sustainable development of the students. Accordingly, the M.A. Programme includes fundamental theories of economics, recent economic issues, theories of development, Monetary economics, Fiscal Economics, Industrial Economics, Agricultural Economics, Environmental Economics and so on. The Programme prepares its students to be upright and productive citizens. The Programme helps the students to seize the employment opportunities in business, government institutions, and private institutions. This programme is based on Learning objectives and outcome based curriculum frame work consistent with the international standard.

2. Programme Educational Objectives (PEOs)

PEO1	To enhance the knowledge of the students in economic theories.
PEO2	To equip the students with the knowledge of statistical and mathematical tools necessary for economic and social researches.
PEO3	To make the students to be aware of the contemporary economic issues of national and international economies.
PEO4	To prepare the students for competitive examinations through intensive learning and make them face the competitive world with courage and confidence.
PEO5	To enable the students to understand the economic policies and its applications.
PEO6	To enhance the knowledge of the students on environmental issues.
PEO7	To make the students use their theoretical knowledge in practical life.

3. Eligibility

Pass in any UG Degree with 50% of Marks (10+2+3 Pattern)

4. General Guidelines for PG Programme

i. Duration

The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. Medium of Instruction: English

iii. Evaluation

Evaluation of the candidates shall be through Internal Assessment and External Examinations.

- **Evaluation Pattern**

	Theory		**Practical**	
	Min	**Max**	**Min**	**Max**
Internal	**13**	**25**	**13**	**25**
External	**38**	**75**	**38**	**75**

- Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz (5) = 25
- External Theory: 75

- **Question Paper Pattern for External Examination for Core and Elective Papers**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	**Part**	**Type**	**Marks**
1	**A**	**10*1 Marks=10** Multiple Choice Questions - 2 questions from each Unit	**10**
2	**B**	**5*4=20** (Internal Choice with 2 questions from each Unit (Either/or)	**20**
3	**C**	**3*15=45** Open Choice-Any three questions out of 5 - one Question from each Unit)	**45**
Total Marks			**75**

- **Project Report**

A student should select a topic for the Project Work at the end of third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks, Viva: 75 Marks)

Minimum credits required to pass - 90.

5. Conversion of Marks to Grade Points and Letter Grade

(Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination, Students with 71% to 74% of attendance must apply for condonation in the prescribed form with the prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the prescribed form with the prescribed fee along with the Medical Certificate. Students who with less than 65% of attendance are not eligible to appear for the examination and they shall re-do the semester(s) after completion of the course, with the prior permission of the Controller of the Examination, and The Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and The Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

M.A. (ECONOMICS) CURRICULUM

S. No	Course Code	Course Title	Credits	Hours		CIA	ESE	Total
				P	T			
Semester I								
1	P21ECT11	CORE-I Micro Economics – I	4	5	-	25	75	100
2	P21ECT12	CORE-II Macro Economics – I	4	6	-	25	75	100
3	P21ECT13	CORE-III Indian Economy	4	6	-	25	75	100
4	P21ECT14	CORE-IV Statistical Methods for Economics	4	6	-	25	75	100
5	P21ECT15	CORE-V Agricultural Economics	4	5	-	25	75	100
6	P21ECS11	Supportive Course I Communication Skills for Business	2	2	-	25	75	100
		Total	**22**	**30**				**600**
Semester II								
7	P21ECT21	CORE-VI Micro Economics – II	4	4	-	25	75	100
8	P21ECT22	CORE-VII Macro Economics - II	4	4	-	25	75	100
9	P21ECT23	CORE-VIII Mathematical Methods for Economics	4	4	-	25	75	100
10	P21ECT24	CORE-IX Entrepreneurship Development	4	5	-	25	75	100
11	P21ECT25	CORE-X Environmental Economics	4	5	-	25	75	100
12		NME-I	4	4	-	25	75	100
13	P21CSS22	Supportive Course II (Skill) Computer Skills for Web Designing and Video Editing	2	4	-	25	75	100
		Total	**26**	**30**				**700**
Semester III								
22	P21ECT31	CORE-XI Industrial Economics	4	5	-	25	75	100
23	P21ECT32	CORE-XII International Economics	4	5	-	25	75	100
24	P21ECT33	CORE-XIII Research Methodology	4	4	-	25	75	100
25	P21ECT34	CORE-XIV Monetary Economics	4	6	-	25	75	100
26	P21ECT35	CORE-XV Fiscal Economics	4	4	-	25	75	100
27	P21ECT36	CORE-XVI Development Economics	4	4	-	25	75	100
28	P21WSS33	Supportive Course III Women Empowerment)	2	2	-	25	75	100
		Total	**26**	**30**				**700**
Semester IV								

33	P21ECE411 / P21ECE412 P21ECE413	**ELECTIVE II** (1) Welfare Economics (2)Export Marketing and Procedure (3) MOOC Course$^{\$}$	4	4	-	25	75	100
34	P21ECE421 / P21ECE422 / P21ECE423	**ELECTIVE III** (1)Economics of Human Resource (2)Demography (3) MOOC Course$^{\$}$	4	4	-	25	75	100
35	P21ECR41	Project	22	8	-	25	75	100
		Total	**16**	**30**				**300**
Grand Total			**90**	**120**				**2300**

Non Major Elective

P21ECN21 Issues in Gender Economics – 4 Credit – Second Semester

Additional Credit Courses (Mandatory)

P21ECV11 – Value Added Program I - Two Credits (First Semester) – **Marketing Strategies**

P21ECI21 – Internship/Industrial Training – Two Credits - (Second Semester)

P21ECO31 – Online Courses - Two Credits - (Third Semester)

P21ECV42 – Value Added Program II - Two Credits (Fourth Semester) – **Data Analysis**

*Those who have CGPA 9 and want to do the project in industry/ institution during fourth semester ,these two papers can be opted in third semester

$^{\$}$Students can take on 4 credit course in MOOC as elective or 2 credit course in MOOC as elective with the approval of Departmental Committee.

Outside class hours

- Health, Yoga and Physical Fitness
- Library Information access and utilisation
- Employability Training

Programme Outcomes (POs)

On the successful completion of the programme, Students will be able to

PO1	get thorough knowledge in fundamental theories of economics.
PO2	understand the current economic problems and find ways to solve them.
PO3	get insights into the mathematical and statistical techniques.
PO4	do economic researches.
PO5	face competitive examinations with courage and confidence.
PO6	become rational consumers and enlightened citizens.
PO7	aware of the contemporary economic issues around the world.
PO8	understand the importance of environmental protection in the context of economic development.

Programme Specific Outcomes (PSOs)
On completion of this Programme,

PSO1	Students will be able to analyse economic problems and find solutions for them.
PSO2	Students will have thorough understanding of national and international economic issues and will acquire skills to face the competitive world.
PSO3	Students will be able to take wise decisions in their personal budgeting.
PSO4	Students will be equipped with entrepreneurial skills, innovation and optimism.
PSO5	Students will be enthusiastic to pursue economic researches,

SEMESTER – I

Course Code	P21ECT11	MICRO ECONOMICS - I	L	T	P	C
CORE I			5	-	-	4

Course Objectives:

1. To make the students to understand the basic concepts of micro economics.
2. To make the students to understand the applications of micro economics.
3. To enhance the knowledge of the students in the subject matter of economics.
4. To help the students in the preparation of competitive examinations.
5. To enable the students to understand the structure of markets.

UNIT I: Basic Concepts

Nature and scope of Micro Economics – Economic models – Uses and Limitations – The concept of Equilibrium – Meaning – Static and Dynamic Equilibrium – Stable Vs Unstable Equilibrium – Neutral Equilibrium – Partial Equilibrium – General Equilibrium – Methods – Deduction and Induction.

UNIT II: Theory of Consumer Behavior and Demand

Consumer preferences – Utility analysis – Cardinal and ordinal utility theories Indifference Curve analysis – Income, substitution and price effects – Revealed preference Theory – Meaning of Demand – Demand Function – Types of Demand – Law of Demand – Changes in Demand – Elasticity of Demand – Importance.

UNIT III: Theory of Production and Cost

The concept of Production – Laws of Production – Laws of Returns to Scale – The Law of Variable Proportions – Internal and external economies – Cobb Douglas production function Iso Quant – Equilibrium of the firm. – Cost curves – Cost output relationship in short run and long run .

UNIT IV: Market Structures

Definition of Market – Classification of Market – Perfect Competition – Features – Price and output determination under Perfect Competition – monopoly – Price Discrimination – Price determination under Discriminating Monopoly – Monopolistic competition – features – the concept of "industry" and "group" equilibrium of the firm – Oligopoly – features – Price determination – Kinked demand curve.

UNIT V: Theories of Pricing

Theories of Pricing – Full cost pricing principle – Mark – up pricing rule – Target pricing – Average cost pricing – Administer pricing – Dual Pricing – Differential pricing – Pricing over

life cycle of product – Multi product pricing – Product line pricing – Public sector pricing – Marginal cost pricing

Text Books:

1. H.L.Ahuja, Modern Micro Economics: Theory and Applications, S.Chand and company Ltd, New Delhi, 2020edition.
2. Dwivedi.N., Micro Economics, Pearson Education, New Delhi, 2012

References:

1. Jhingan.M.L, Micro Economic Theory, Vrinda Publications, New Delhi, 2016
2. Koutsoyannis, A Modern Microeconomics, Macmillan Press, London, 2014.
3. Cyril Kanmony. J., Advanced Micro Economics Himalaya Publishing House, New Delhi, 2013
4. Maria John Kennedy .M. Micro Economics, Himalaya Publishing House, New Delhi, 2013
5. P.L.Mehta, Managerial Economics Analysis Problems and Cases, Sultan Chand & Sons, New Delhi, 2011.
6. Kavery .R and Others, Micro Economic Theory , S,Chand and Company Ltd, New Delhi, 2012
7. Besanto and David.A, Micro Economics, Wiley, New Delhi, 2011

Course Outcomes:

On the successful completion of the course students will be able to

K1	CO1	Understand the basics of Micro Economics
K5	CO2	Analyze the economic relationship between the variables.
K3	CO3	Enhance their skills in the measurement of variables and relationship.
K2	CO4	Improve their attitude towards economic laws.
K4	CO5	Get an interest in the application of economics for business decision, planning and forecasting.

Mapping of COs with POs & PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	N	M	M	M	M	N	N	S	S
CO2	S	S	M	S	M	S	S	M	S	M	S	S	M
CO3	S	S	M	S	M	S	S	M	S	M	M	S	S
CO4	S	S	M	N	M	S	S	M	N	M	N	M	M
CO5	M	S	M	M	S	M	S	M	M	S	S	S	S

*S-Strong correlation , M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT12	MACRO ECONOMICS	L	T	P	C
CORE II			6	-	-	4

Course Objectives:

1. To provide an elaborate understanding in the subject matter of macro economics.
2. To make the students to aware of the recent developments in the subject of macro economics.
3. To make the students to know about the relevance of macroeconomic concepts to the economy.
4. To help the students in gaining knowledge about practical applicability of concepts of macro economics.
5. To provide understanding in the concepts of national income accounting.

UNIT I: Flow of funds **(12 hours)**

Flow of Funds in National Economy – National Products and Related Concepts – Sectoral Accounts – Measurements and Problems in National Income Accounting – Social Accounting – Use of Current and Constant Price Indices – Basic Concepts.

UNIT II: Equilibrium model **(12 hours)**

Basic equilibrium in classical model – basic Keynesian model – equilibrium in the product and money markets – Full employment – Theories of employment – Keynesian theory of employment – Aggregate supply, Aggregate demand and Effective demand.

UNIT III: Consumption function **(12 hours)**

Consumption function – Absolute income hypothesis – Relative income hypothesis – Permanent income hypothesis – Life cycle hypothesis.

UNIT IV: Investment function **(12 hours)**

Investment Function – Keynesian approach – Accelerator – Assumptions- importance Multiplier Theory – Assumptions – Leakages – Short Comings.

UNIT V: Keynesian system **(12 hours)**

Post – Keynesian approach – Neo – Keynesian approach - lags in investment demand – stability and slope of the IS curve and policy consequences.

Text Books:

1.Ahuja.H.L.Macro Economics, S.Chand and Company Ltd, New Delhi, 2020
2.Jhingan.M.L.,Macro Economic Theory, Vrinda Publications, New Delhi,2016

References:

1. Sankaran.S.Macro Economics, Margham Publications, Chennai, 2015.
2. Abel.A.B andBernake.B.S, Macro EconomicsPearson, New Delhi, 2013
3. Gordon Robert. J. Macro Economics, PHI Learnimg,New Delhi, 2012.
4. Vaish, M.C., Macro Economics, Wiley Eastern Limited, New Delhi, 2011
5. Dwivedhi.D.N, Macro Economics: Theory and Policy, McGraw Hill Education, New Delhi, 2010

Course Outcomes

On the successful completion of the course the students will be able to

K1	CO1	Understand the Fundamental knowledge of Macro Economics.
K2	CO2	Learn more about the importance of Macro Concepts.
K3	CO3	Identify the values and importance of basic equilibrium in Classical and Keynesian Model.
K4	CO4	Apply ideas in Consumption function and Investment function concepts.
K5	CO5	Evaluate importance of the subject of Macro Economics.

<u>Mapping of COs with POs & PSOs</u>

Course Outcomes	**Programme Outcomes**								**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO 1**	**PSO 2**	**PSO 3**	**PS O4**	**PSO 5**
CO1	S	M	M	M	M	M	M	M	M	M	M	M	M
CO2	S	W	M	S	W	S	M	W	W	M	S	W	S
CO3	S	S	W	M	M	S	S	S	M	M	M	M	S
CO4	S	S	S	M	M	M	M	W	W	S	M	M	M
CO5	S	W	M	M	M	S	S	W	W	W	M	M	S

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT13	INDIAN ECONOMY	L	T	P	C
CORE III			6	-	-	4

Course Objectives

1. To make the students to understand the problems of Indian economy.
2. To help the students to identify the national income estimations of Indian economy.
3. To help the students to identify the human progress of Indian economy.
4. To help the students to understand the problems and impact of Poverty in Indian economic development .
5. To make the students to understand the objectives and strategy of India's economic planning .

UNIT I: India as a Developing Economy (12 hours)

Basic characteristics of Indian Economy – Major Issues of Developing Economy – India as a Mixed Economy – Profile of Natural Resource in India.

UNIT II: National Income of India (12 hours)

National Income Estimation in India – CSO Revised National Income Series – Trends in National Income: Growth and Structure – Limitations of National Income Estimation in India.

UNIT III: Human Resources and Economic Development (12 hours)

The Theory of Demographic Transition – Size and Growth of Population in India – Sex and Age Composition – Density – Occupational Structure – Workforce Participation in India – Urbanization – Population Growth as retarding Factor to Economic Development.

UNIT IV: Poverty, Inequality and Unemployment in India (12 hours)

Poverty- Concepts – Studies in Poverty – Need for redefining Poverty Line – Poverty under Five Year Plans and Economic Reforms – Poverty Eradication Programmes: Achievements and Failures – Nature and Estimation of Unemployment in India – Causes and Consequences – Various Schemes to reduce Unemployment.

UNIT V: Economic Planning in India (12 hours)

Objectives of Economic Planning – Achievements and Failures of Economic Planning – Liberalization – Privatization – Globalization.

Text Books:

1. Misra and Puri, Indian Economy, Himalaya Publishing House, New Delhi, 2020
2. Deepa Shree, Indian Economy: Performance and Policies, Ane Books, New Delhi,2011

References:

1. Uma Kapila, Indian Economy: Performance and Policies, Academic Foundation, 2019
2. Agarwal.A.N and Agarwal.M.K, Indian Economy, New Age International Publications, 2019
3. Dutt and Gaurov, Dutt&Sundaram Indian Economy. Chand &Co, New Delhi, 2019.
4. Sankaran., Indian Economy, Margham Publication, Chennai, 2014
5. Agarwal H.S., Indian Economy, Laksmi Narain Agarwal Educational Publishers, Agra, 2011

Course Outcomes:

On the successful completion of the course the students will be able to

K1	CO1	Understand the nature of the Indian Economy, its basic characteristics and its natural resources.
K2	CO2	Describe the concepts of National income and estimation of national income and its limitations.
K4	CO3	Analyse the availability of human resources and take decisions to improve.
K3	CO4	Examine poverty and unemployment and the measures to solve unemployment and poverty.
K5	CO5	Evaluate the economic planning and its achievements.

<u>Mapping of COs with POs & PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	S	S	S	M	S	W	S	S	M	**S**
CO2	M	S	M	S	S	S	S	M	M	S	W	S	**M**
CO3	S	M	S	M	M	M	S	M	S	N	M	S	**M**
CO4	S	M	M	S	M	S	M	N	S	N	S	M	**S**
CO5	M	S	S	W	M	M	S	W	M	S	S	M	**W**

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT14	STATISTICAL METHODS FOR ECONOMICS	L	T	P	C
CORE IV			6	-	-	4

Course Objectives:

1. To equip the students with the knowledge of statistical tools needed for research and analysis.
2. To impart the knowledge of correlation and regression analysis.
3. To impart the knowledge of parametric and non parametric testing procedures.
4. To equip the students with the knowledge of probability and statistical distributions.
5. To train the students for NET and SET Exams.

UNIT-I : Statistical Investigation and presentation of Data (12 hours)

Data-Types of data variables-primary and secondary data-census and sampling method-sampling and sampling methods-classification of data-Tables-Graphic representation of data-Bar charts-Pie charts-Histogram- Line graph.

UNIT-II : Correlation and Regression (12 hours)

Components of correlation-Karl–Pearson's correlation co-efficient-Spearman's Rank correlation-Regression-Meaning and uses-Regression lines - Regression equations-fitting of simple linear equations.

UNIT-III : Time series and Index Numbers (12 hours)

Moving averages and Time series smoothing-Fitting trend-Fore casting- Index Numbers-Weighted and Un-weighted Index Numbers-Test of consistency-Time Reversal test-Factor reversal test-Base shifting.

UNIT-IV : Parametric-Non -Parametric Test of Hypothesis (12 hours)

Procedure of Testing Hypothesis-Type I and Type II Errors- one tailed-Two tailed-Test of Hypothesis: Parametric: t-test, z-test, f-test, ANOVA Non parametric: chi-square test, the sign test, a rank sum test-Limitations of Non-Parametric Test

UNIT-V : Probability and Theoretical Distributions (12 hours)

Probability Distribution – concept of probabilities- Probability theorems. Theoretical Distribution-Bays' theorem-Bionomical, Poisson and Normal Distribution -Fitting a Normal curve.

Text Books:

1. Manoharan M Palani Paramount Publications, Palani, 2012
2. Gupta S.P Statistical Methods, Sulthan Chand& sons, New Delhi, 2011

References

1. S.C.Gupta, Fundamentals of Statistics, Himalaya Publishing House, New Delhi, 2020.
2. Navdeep Kaur and Sarbjit Kaur, Statistical Methods for Economics, Vishal Publishing Company, Jalandhar, 2019.
3. Pillai R.S and Bagavathi, Statistics theory and Practice, S.Chand& Company Pvt Ltd, New Delhi, 2010.
4. Seema Sharma, Statistics for Business and Economics, Marcham Publications, Chennai, 2010.

Course Outcomes

On the successful completion of the course the students will be able to

K1	CO1	Obtain knowledge on the statistical concepts, methods & techniques to Economics.
K2	CO2	Understand the significance of statistical applications in Economic Analysis.
K4	CO3	Gain knowledge on Analysis and hypothesis.
K3	CO4	Identify the type of statistical situation to which different distributions can be applied.
K5	CO5	Do the project work with confidence.

Mapping of COs and POs and PSOs

Course Outcomes	**Programme Outcomes**								**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	M	**S**	**N**	**N**	**N**	**M**	**W**	**M**	**W**	**N**	**W**	**N**
CO2	N	M	**W**	**N**	**S**	**W**	**M**	**S**	**S**	**N**	**W**	**M**	**W**
CO3	M	**S**	**S**	**W**	**W**	**S**	**N**	**W**	**N**	**S**	**W**	**N**	**S**
CO4	W	**W**	**S**	**N**	**N**	**M**	**W**	**W**	**N**	**W**	**M**	**N**	**N**
CO5	N	**W**	**S**	**N**	**W**	**N**	**W**	**M**	**N**	**W**	**S**	**N**	**W**

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT15	AGRICULTURAL ECONOMICS	L	T	P	C
CORE V			5	-	-	4

Course Objectives:

1. To enable the students to understand the importance of agricultural sector in India.
2. To enable the students to understand the problems of Indian agriculture.
3. To help the students to know about the prospects of Indian agriculture.
4. To help the students to know about the recent developments in Indian agricultural sector.
5. To help the students to understand the pricing policy and marketing efficiency of agricultural sector.

UNIT I: Agriculture and Economic Development (12 hours)

Nature and Scope of Agricultural economics: Traditional agriculture and its modernization – Role of agriculture in economic development – Interdependence between agriculture and industry. Models of interaction between agriculture and the rest of the economy – Agricultural development – Green Revolution – Mechanization.

UNIT II: Land Reforms and Land Policy (12 hours)

Principles of land utilization : Land distribution – Structure and trends – Land values and rent – Land tenures and farming systems – Peasant, capitalist, collective and state farming Tenancy and crop sharing – Forms, incidence and effects – land reforms measures and performance.

UNIT III: Agricultural Production and Productivity (12 hours)

Resource use and efficiency: Production function analysis in agriculture – factor combination and resource substitution – Size of farm and laws of returns – Farm budgeting and Farm Planning – Corporate agriculture and contract farming.

UNIT IV: Agricultural Prices (12 hours)

Agricultural markets and marketing efficiency : Marketing functions and costs – Market structure and imperfections – Regulated markets – Marketed and marketable surplus – Behavior of agricultural prices – Cobweb model; Price and income stability; State policy with respect to agricultural marketing – Warehousing – Prices – Taxation, crop insurance and subsidies – Terms of trade between agricultural and non-agricultural prices – Need for state intervention – Objectives of Agricultural Price Policy – Instruments and evaluation.

UNIT V: Agricultural Finance (12 hours)

Role of capital and rural credit – Organized and unorganized capital market – Rural savings and capital formation – characteristics and sources of rural credit – Institutional and Non – Institutional – Reorganization or Rural credit – Co-operatives, Commercial Banks, Regional Rural Banks – Role of NABARD.

Text Book:

1. Agricultural Economics, S.Subba Reddy etal ,Himalaya Publishing House, New Delhi, 2019.

References:

1. Johinder Sing and R.K.Lekhi, Agricultural Economy of India, Kalyani Publications Ludhiana, 2020
2. Satbir Singh Nain and Vinay Memala, Introduction to Agricultural Economics,, Himalaya Publishing House, New Delhi, 2020.
3. Amarjit Singh etal, Fundamentals of Agricultural Economics, Himalaya Publishing House, New Delhi, 2019.
4. Uma Kapila, Indian Economy: Performance and Policies, Academic Foundation, 2019.
5. Nandania.A.V., Introduction to Indian Agriculture Economics, Cyber Tech Publications, New Delhi, 2014.

Course Outcomes

On the successful completion of the course the students will be able to

K1	CO1	Understand the role of Agriculture in economic development.
K2	CO2	Identify the sources and importance of rural credit.
K3	CO3	Examine the marketing of agricultural products and behaviour of agricultural prices.
K5	CO4	Evaluate the pricing policy of the agricultural sector
K6	CO5	Assess the land reforms measures and performance.

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PS4	PSO5
CO1	S	S	W	M	W	S	M	W	W	M	W	M	N
CO2	S	S	M	M	W	M	S	M	W	W	M	M	M
CO3	S	M	M	W	M	S	S	M	M	W	M	M	W
CO4	S	S	M	M	M	S	M	W	M	M	W	M	M
CO5	S	M	W	M	M	S	M	W	W	M	W	M	M

S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECS11	COMMUNICATION SKILLS FOR BUSINESS	L	T	P	C
SUPPORTIVE COURSE I			2	-	-	2

Course Objectives

1. To improve the listening skill of the students
2. To improve the writing skill of the students
3. To impart the knowledge of business communication
4. To impart the skill of personality development
5. To train the students in stress management

UNIT I: Introduction to Communication **(6 hours)**

Communication-meaning of communication- Objectives-types of communication-importance of effective communication- barriers -Business letter-sales letters-Dealing with non-payment problems-complaints-circular letters

UNIT II: Business Correspondence **(6 hours)**

Enquiries-Replies- Complaints-Preparing a Curriculum Vitae or a Resume-Application letter-Offer letter-Acceptance letter-Testimonial

UNIT III: Reports **(6 hours)**

Reports-structure- Formal Report- Informal Report-Check list for compiling reports- Preparing Minutes of meeting-Compiling a press release

UNIT IV: Communication Skills **(6 hours)**

Basic skills and techniques for talking to people in business situation-Telephonic conversation

UNIT V: Personality Development **(6 hours)**

Body language- Personality Development-Stress management-Role of technology in communication

Text Book:

1. Puspalatha and Sanjay Kumar, Communication Skills, Oxford University Press, New Delhi,2017

References

1. V.Saraswathi & Maya. K. Mudbhatkal: English for Competitive Examinations, Emerald Publishers, Chennai, 2000.
2. Chitra.C., Business Communication, Charulatha Publications, 2019.
3. Kumkum Bhardwaj, Fundamentals of Business Communication, Wiley, 2019.

Course Outcomes

On the successful completion of the course the students will be able to

K1	CO1	Understand the concept and structure of communication
K2	CO2	Develop writing skills
K6	CO3	Create and write business communication
K4	CO4	Apply personality development skills
K5	CO5	Trained to manage stress

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes					Programme Specific Outcomes							
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	S	S	M	M	S	M	S	S	N	W	W	M	M
CO2	S	S	M	M	S	N	S	S	M	M	N	S	M
CO3	S	M	M	W	M	W	S	W	N	M	N	S	M
CO4	S	W	M	M	S	S	M	M	S	W	W	W	M
CO5	S	M	M	N	M	M	S	S	W	S	N	S	M

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER – II

<table>
<tr><td>Course Code</td><td>P21ECT21</td><td rowspan="2">MICRO ECONOMICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE VI</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives

1. To enhance the knowledge of the students in the subject matter of economics .
2. To help the students in the preparation of competitive examinations.
3. To enable the students to understand the basic laws of economics.
4. To enable the students to understand the relevance of micro economic concepts to the economy.
5. To help the students to understand the theories of value

UNIT I: Distribution **(12 hours)**

Neo – Classical approach – Marginal Productivity Theory; Product Exhaustion Theorem; Elasticity of Technical Substitution – Theory of distribution in imperfect product and factor markets.

UNIT II : Factor Pricing : Theory of Rent and Wages **(12 hours)**

Classical theory – Ricardian theory of rent – Modern theory of rent – Demand and supply theory of rent – Quasi Rent – Subsistence theory of wages – Wage fund theory – Marginal productivity theory – Modern theory of wages.

UNIT III: Theory of Interest and Profit **(12 hours)**

Classical theory of interest – Fisher's theory of interest – Lonable funds theory – Liquidity preference theory – Modern theory of interest – Risk theory – Uncertainty bearing theory – Dynamic theory – Schumpeter's innovation theory – Marginal productivity theory of profit.

UNIT IV: Economics of Risk **(12 hours)**

Individual behavior towards risk – Expected utility and certainty equivalence approaches risk and risk aversion – cost and risk, risk pooling and risk spreading – mean – variance analysis and portfolio selection.

UNIT V: Theories of Value **(12 hours)**

Adam Smith – The measure of value – Determinants of value – The market price and the natural price – David Ricardo Labour theory value – The Ricardo effect – Karl Marx – Marxian Theory of value.

Text Books

1. Ahuja H.L. Micro Economic Theory, S.Chand and Company Ltd, Mumbai,2014
2. David Desanko and Ronald Braeutigam, Micro Economics,WilleyPublications, New Delhi, 2017

References

1. B,Bose and Marimuthu, An Introduction to Micro Economics, Himalaya Publishing House, New Delhi, 2020.
2. Jhingan.M.L., Micro Economic Theory, Himalaya Publishing House, New Delhi,2018.
3. Abha Mittal, Micro Economics, S.Chand & Company, New Delhi,2018.
4. Martin.J.Osbome and Ariel Rubinstien, Models in Microeconomic Theory, Open Book Publishers, 2017
5. Koutsoyannis, A Modern Macro Economics, Macmillan Press, London,2014.

Course Outcomes:

On the successful completion of the course, the students will be able to

K1	CO1	Understand the various forms of markets and competitions.
K2	CO2	Examine the business decision process
K3	CO3	Identify market equilibrium
K5	CO4	Evaluate the logic of factor pricing
K4	CO5	Apply the economic ideas in practical life

Mapping of COs and POs and PSOs

Course Outcomes	**Programme Outcomes**								**Programme Specific Outcomes**				
	PO1	**PO2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO1	S	M	W	M	M	S	M	M	W	M	W	M	M
CO2	M	M	S	M	M	M	S	M	S	M	M	N	M
CO3	S	S	M	M	M	S	S	S	M	M	M	S	S
CO4	M	M	W	W	W	M	M	M	W	W	M	S	M
CO5	S	S	S	M	M	S	M	S	S	M	S	S	M

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT22	MACRO ECONOMICS	L	T	P	C
CORE VII			4	-	-	4

Course Objectives

1. To provide an elaborate understanding in the subject matter of macro economics.
2. To make the students to aware of the recent developments in the subject of macro economics.
3. To make the students to know about the relevance of macroeconomic concepts to the economy.
4. To help the students in gaining knowledge about recent developments in theories of macro economics.
5. To help the students to understand the concepts of inflation and deflation

UNIT I: Neo-Classical and Keynesian Synthesis (12 hours)

Neo-Classical and Keynesian views on interest; the IS – LM model; Extension with government sector; Relative effectiveness of monetary and fiscal policies.

UNIT II: Post-Keynesian Demand for Money (12 hours)

Post-Keynesian approaches to demand for money – Patinkin and the Real Balance Effect, Approaches of Baumol; and Tobin: Friedman and Modern quantity theory; Crisis in Keynesian economics and the Revival of monetarism.

Unit III: Macro Economics in an Open Economy (12 hours)

Mundell – Fleming model – Asset markets, expectations and exchange rates – Monetary approach to Balance of Payments.

UNIT IV: Theory of Inflation (12 hours)

Inflation – Types – Deflation – Approaches to inflation – Classical and Keynesian approaches to inflation – Policies to control inflation.

UNIT V: Trade Cycle (12 hours)

Trade cycle – Features – Phases – Theories of Trade cycle: Kaldor – Hicks – Schumpeter.

Text Books:

1. Jhingan.M.L, Macro Economic Theory, Vrinda Publications, New Delhi,2016
2. Ghosh.C. and Gosh. A, Macro Economics, PHI. New Delhi, 2011

References:

1. Abha Mittal, Macro Economics, S,Chand and Company Ltd Mumbai, 2014 edition..
2. Seth.M.L, Macro Economics, S,Chand and Company Ltd Mumbai, 2014 edition.
3. Ahuja.H.L, Macroeconomic Theory, S.Chand and Company Ltd, Mumbai, 2013
4. Froyen.R.T., Macro Economics :Theories and Policies, Pearson, 2013

.Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the fundamentals of macro economics
K2	CO2	Identify the importance of macro concepts
K3	CO3	Examine the values and importance of Classical and Keynesian synthesis
K4	CO4	Apply the ideas and approaches of Patinkin, Baumol, Tobin and Friedman
K5	CO5	Evaluate the importance of macro economics

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme specific outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	M	M	S	S	M	M	M	M	W	W	M	M	M
CO3	M	W	M	S	S	M	S	S	M	M	S	M	S
CO4	W	S	W	W	M	M	W	W	W	M	M	M	W
CO5	W	S	S	S	W	M	M	M	S	S	W	M	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>Course Code</td><td>P21ECT23</td><td rowspan="2">MATHEMATICAL METHODS FOR ECONOMICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE VIII</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives:

1. To enable the students to understand the fundamentals of mathematical methods.
2. To impart various mathematical methods.
3. To improve the mathematical knowledge of the students.
4. To help the students in applying mathematical formula in practical life.
5. To equip the students to know the application of mathematical techniques.

UNIT I: Introduction **(12 hours)**

Definition and importance of Mathematical Methods - Linear equations - Quadratic equations – Logarithmic function.

UNIT II: Calculus and Differentiation **(12 hours)**

Differential Calculus Meaning Partial Differentiation – Total Differentiation - Total , Average and Marginal Cost – Average and Marginal Revenues – Marginal Utility - Maxima and Minima – Profit and Sales Maximization.

UNIT III: Set Theory **(12 hours)**

Set Theory Meaning - Definition - Notations of Set – Types of Sets – Forms of Sets - Specification of Sets – Law of Set Operation – Ordered Pairs - Cartesian Product - Application in Economics.

UNIT IV: Matrices **(12 hours)**

Matrices Meaning - Definition - Notations of Matrix - Types of Matrix - Algebra of Matrices – Transpose of a Matrix - Determinants - Rank of a Matrix - Adjoint – Inverse – Solving a System of Liner Equations – Testing Consistency Liner Equation.

UNIT V: Linear Programming **(12 hours)**

Linear Programming Meaning - Basic Concepts - Mathematical Formulation of LPP – Graphical Method – Simplex Method.

Text Books

1. Dr. D.Bose, An Introduction to Mathematical Economics, Himalaya Publishing House, Mumbai, 2014
2. S.C.Gupta and V.K.Kapoor, Fundamentals of Mathematics and Statistics, S.Chand and Company Ltd, New Delhi, 2020. .

References

1. Balwant Kandoi, Mathematics for Business and Economics with Applications, , Himalaya Publishing House, Mumbai, 2017
2. Joshi.R.C and Nancy, Mathematical Methods in Economics, Vishal Publishing Co, Jalandhar, 2019
3. Monga.G.S, Mathematics and Statistics for Economic, S.Chand and Company Ltd, New Delhi, 2014.
4. Madnani.G.M.K, and Mehta. B.C. Mathematics for Economists, S.Chand and Company Ltd. New Delhi, 2011.
5. Vedamanickam, Mathematical Methods, G.V. Book Publication, Madurai, 2011.

Course Outcomes

On the successful completion of the course, students will be able to

K2	CO1	Use mathematical knowledge for their future studies
K3	CO2	Capable to workout Maximum Profit and Utility, Minimum Cost and Price; if there are two commodities
K1	CO3	Understand the concepts of SET Theory
K4	CO4	Calculate marginal functions, Maximum profit and Minimum cost for a firm and maximum utility for consumer.
K5	CO5	Examine Total and Average Functions, Consumer's and Producer's Surplus.

Mapping of COs and POs and PSOs

Course Outcomes	**Programme Outcomes**								**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO1	S	S	S	M	S	S	S	S	S	S	M	S	M
CO2	S	M	S	S	M	S	M	S	M	S	S	S	S
CO3	M	M	S	S	W	M	S	S	S	M	S	W	S
CO4	S	S	S	M	M	S	W	M	S	M	M	M	M
CO5	S	S	S	S	W	M	S	S	W	M	W	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT24	ENTREPRENEURSHIP DEVELOPMENT	L	T	P	C
CORE IX			5	-	-	4

Course Objectives

1. To help the students in developing entrepreneurial skills.
2. To promote the knowledge of the students in project management and marketing techniques.
3. To enhance the knowledge of the students on getting finance for setting new enterprises.
4. To make the students to understand the problems faced by the women entrepreneurs and the solutions to the problems.
5. To make the students to understand the role of entrepreneurs in economic development.

UNIT I: Introduction **(12 hours)**

Entrepreneurship – Definition, importance and characteristics of Entrepreneurship – Functions, types, and motives of Entrepreneurship – Growth of Entrepreneurs in India.

UNIT II: Business idea and project preparation **(12 hours)**

Search for a business idea – sources – processing and selection – selection of types of organization – project classification and identification – project objectives – internal and external constraints – format for a report.

UNIT III: Women Entrepreneurs **(12 hours)**

Functions and role of women Entrepreneurs and rural Entrepreneurs – their problems – selection of industry by women Entrepreneurs – types of industries / business for women Entrepreneurs and rural Entrepreneurs.

UNIT IV: Training and Finance **(12 hours)**

Training and Finance : objectives of training – phase of EDP – special agencies for training – institutional finance with special emphasis of commercial banks, IDBI, IFCI, ICICI, IRBI, SFC, SIDFI, SIPCOT, Khadi and Village Industries Commission – Micro Finance.

UNIT V: Subsidies and Grants **(12 hours)**

Role of Central and State Government in promoting Entrepreneurship – Introduction of various incentives, subsidies and grants – Fiscal and Tax concessions available – Role of Entrepreneurships in export promotions and import substitutions.

Text Books

1. E.Gordan and K.Natarajan, Entrepreneurship Development, Himalaya Publishing House, New Delhi, 2020
2. K.K.Khanka, Entrepreneurial Development, S.Chand and Company Ltd, New Delhi, 2020

References

1. Vasant Desai, Entrepreneurship Development, Himalaya Publishing House, New Delhi, 2016.
2. Adelman,Philip.J, Entrepreneurial Finance, Pearson Education, Noida, 2011
3. Dipesh.D,Ulke,, Entrepreneurship Development, Himalaya Publishing House, New Delhi, 2012
4. Dhillon and Manvinder, Economic Empowerment of Women, Holiday Book House, Panchkula, 2010
5. Gupta,C.P and Srinivasan. N.P, S.Chand and Company Ltd, New Delhi, 2018.

Course Outcomes

On the successful completion of the course, students will be able to

K1	CO1	Acquire the knowledge regarding, Characteristics of an entrepreneurship.
K3	CO2	Develop an interest in entrepreneurial activity.
K2	CO3	Attain entrepreneurial skills for self employment.
K5	CO4	Assess the training and financial facility available for entrepreneurship.
K6	CO5	Create the business correspondence and communication.

Mapping of COs and POs and PSOs

Course Outcomes	**Programme Outcomes**								**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**W**	**W**	**N**	**N**	**N**	**W**	**M**	**S**	**W**	**N**	**W**	**M**	**M**
CO2	**M**	**S**	**W**	**N**	**N**	**S**	**S**	**S**	**W**	**M**	**N**	**N**	**W**
CO3	**M**	**M**	**N**	**N**	**N**	**S**	**M**	**M**	**M**	**N**	**N**	**N**	**W**
CO4	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
CO5	**M**	**W**	**N**	**N**	**N**	**M**	**W**	**S**	**N**	**W**	**N**	**N**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT25	ENVIRONMENTAL ECONOMICS	L	T	P	C
CORE X			5	-	-	4

Course Objectives

1. To improve knowledge of the students in Environmental Economics.
2. To equip the students would gain knowledge and skills in environmental resources.
3. To make the students aware of importance in environmental pollution.
4. To prepare the students are would be able to evaluation of environmental benefit.
5. To enable the student to understand the environmental regulation and policies.

UNIT I: Introduction to Environmental Economics (12 Hours)

Environmental Economics Definition – Nature Scope and Importance- Relationship between Environmental Economics – The basic Concepts of Environmental Economics – Basic theory of environmental economics –Efficiency in private economy – Imperfect market problems – Kaldar – Hicks – compensation principle – Tragedy of commons.

UNIT II: Environmental Resources and Problems (12 Hours)

Environmental Resources - Definition, Type, Characteristics and Functions – Causes and Consequences Natural Resource - Renewable and Non- Renewable Resource – Environmental Problems in India.

UNIT III: Environmental Pollution (12 Hours)

Air, Water, Noise, Soil, Land Pollution – Industrial Pollution – Causes and Effect – Waste disposal and recycling of water –Global Warming and climate change, Ozone layer - - acid Rain – Bio- Diversity loss causes and Impact – Environmental Pollution in India – Policies of Pollution control and Conservation – Protection of environment – Legal system.

UNIT IV: Cost – Benefit Analysis (12 Hours)

Optimum Pollution - efficient level of environmental quality – evaluation of environmental benefit – direct and indirect methods - Population, Economic growth and environmental quality – Urbanization and environmental Problems – Second Stage of Demographic Transaction Effect of over- population problems and its impact.

UNIT V: Environmental and Policies **(12 Hours)**
Environmental Regulation Instruments – CAC-Legal – Global Environmental Movement – Regulation and Prohibition taxes , Subsidies and effect charges, Government Protection of Environmental Services – Environmental Education – Awareness – Movement in India.

Text Books

1. N.Mani, Environmental Economics, Himalaya Publishing House, New Delhi, 2018
2. Sethi Purnima, Environmental Economics, Alfa Publications, New Delhi, 2011

References

1. Charles D.Kolstad, Intermediate Environmental Economics, Oxford University Press, New Delhi, 2019.
2. M.J.Raijada, Environmental Economics, Himalaya Publishing House, New Delhi, 2018
3. Jhingan.M.L., Environmental Economics, Virinda Publications, New Delhi, 2015
4. VermaG.P, Environmental Economics, Advance Learner Press, New Delhi, 2013.

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the theories of environmental economics.
K2	CO2	Examine the environmental problems and offer solution.
K4	CO3	Apply regulation and prohibition measures to protect the environmental pollution
K3	CO4	Identify India’s environmental policies
K5	CO5	Recognize their role in environmental protection

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	W	W	S	M	S	N	N	S	N	N	S	M
CO2	S	M	M	N	M	S	M	N	S	W	W	W	S
CO3	S	W	M	S	S	S	S	W	W	S	S	S	M
CO4	S	W	M	M	S	W	M	S	W	N	S	M	W
CO5	S	M	S	S	S	M	S	S	N	S	S	S	S

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECN21	ISSUES IN GENDER ECONOMICS	L	T	P	C
NON MAJOR ELECTIVE–I			4	-	-	4

Course Objectives

1. To know the objectives types, determinants of women Empowerment.
2. To learn the various national and international agencies for women empowerment.
3. To uplift women in socially, economically and politically as empowered.
4. To make aware of women rights and enhance their life
5. To know the women entrepreneurship development in India

UNIT I: Fundamentals of Women's Studies (12 Hours)

Meaning and Definition of the concept of Women's studies - Need and Scope - Women's studies as an academic discipline - Women's Studies – theories and Achievements- International Women's Year 1975 - International Women's Decade 1975 -1985; Towards Equal Status 1976 – Current trends-Importance of women's education – Efforts of various Committees –Life Skill Education to build capacity - Education as a tool of Women Empowerment - Obstacles to Women Education – Social, Economic, Cultural and other factors, limitations of Formal system of education-Role of educational institutions, Parents and Community.

UNIT II: Issues of Women (12 Hours)

Girl Children and Women in Society: Social Networking- Influencing factors of Social Networking-Types of Social Networking- impact and consequences of networking- Remedial measures and strategies for solution- NCW: Initiatives to overcome Women's issues - Ministry of Home Affairs and Networking with State Women Commissions: Cyber Crime Prevention against Women and Children (CCPWC)-challenges - efforts & effective measures to prevent crime against women and children - create awareness for social issues. Motherhood - Single Parent - Widows – Multiple Roles of Women - Role conflict, Role change - Social Responsibility and Gender Empowerment.

UNIT III: Achievement and Rights of Women (12 Hours)

Gender Equality: Achievement of Women - Educational, Political, Economic, Social - Panchayat Raj - Political role and participation - National and International Levels; Women's Rights - Property Rights - Redressal mechanism at different levels - Rights of Women with Disability: Case Studies on Women Achievers in the field of politics, education, arts science, law etc.

UNIT IV: Empowerment of Women (12 Hours)

Empowerment of Women: Alternative approaches - Women in Development (WID) - Women and Development (WAD) - Women's Development- Definition, Meaning and Scope, Gender and Development (GAD), Human Development Index (HDI) vs Gender Development Index (GDI). Types of Empowerment: Social, Educational, Political, Economical, Legal to Holistic levels-Role of Govt. and NGOs - Help line numbers in promoting women's empowerment - National and International Funding Agencies in promoting research on women.

UNIT V: Women Entrepreneurship (12 Hours)

Women Entrepreneurship:– Types of Entrepreneurs Opportunities and Risk – Push and Pull Factors –financial Assistance and credit facilities-Micro finance- Entrepreneurship Skill and Competencies - Women Entrepreneurship Development in India: TRYSEM – NABARD – NMEW - Support to STEP – TREAD – Rural Entrepreneurship Development Programme – Gramia Bank –Mahila bank and supportive measures- Industrial Development Bank of India (IDBI) – Small Industries Development Bank of India-SHG and Entrepreneurship opportunities.

References

1. Rani Sandhya, "Development of Women – Issues and Challenges", Discover Publishing House Pvt Ltd, New Delhi, 2012.
2. Anil Kumar Jha, "Gender Inequality and Women Empowerment", Axis Books, New Delhi, 2012.
3. Nandal Santosh , "Women and Development", A Mittal Publications, New Delhi, 2012
4. Rao Pulla, "Political Empowerment of Women in India – Challenges and Strategies", ABD Publishers, New Delhi, 2012.
5. Jenny Edwards, Andrea Cornwall, et al., "Feminisms, Empowerment and Development: Changing Women's Lives", Kindle Edition, 2014.
6. Elson Diane, et al. "Gender Equality and Inclusive Growth: Economic Policies to Achieve Sustainable Development", UN Women, 2019
7. Priyanka Sharma Gurnani, "Women Entrepreneurship – Emerging Dimension of Entrepreneurship in India" Educreation Publishing House, New Delhi, 2016.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	Gain knowledge about the concept, need and scope of women's studies.
K4	CO2	Acquaint and analyze issues of women in various contexts.
K3	CO3	Examine the changing role of women in society and issues related to it.
K5	CO4	Evaluate the importance of women's education
K2	CO5	Comprehend empowerment of women and their achievement

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	S	S	W	N	**M**	**S**	**S**	**M**	**N**	**S**	**S**	**W**
CO2	N	S	S	S	M	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**N**
CO3	W	S	M	S	N	**M**	**S**	**S**	**S**	**S**	**M**	**S**	**W**
CO4	N	M	M	S	N	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**M**
CO5	N	M	S	S	N	**S**	**M**	**M**	**S**	**S**	**S**	**S**	**W**

*S-Strongcorrelation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER – III

Course Code	P21ECT31	INDUSTRIAL ECONOMICS	L	T	P	C
CORE XI			5	-	-	4

Course Objectives

1. To help the students to know about the prospects of industrial sector of India.
2. To help the students to know about the recent development in industrial sector of India.
3. To enable the students to understand the importance of industrial sector in India.
4. To enable the students to understand the problems of Industrial sector.
5. To motivate the students to start business firms.

UNIT I: Introduction to Industrial Economics (12 Hours)

Industrial economics : Meaning, Nature and Scope – Industrial efficiency – the determinants of economic efficiency – measurement of efficiency levels – Types of organizational Form and alternative motives of the Firm – Business motives – Efficiency and the size of the firm.

UNIT II: Industrial Location (12 Hours)

Industrial location - The Geographical contribution - The Economic theories of location - Weber's theory of location - Split location - Sargant Florence theory - Losch theory - Industrial location: trends in India.

UNIT III: Industrial Productivity (12 Hours)

Industrial productivity - Measurement - Scope and significance - Tools of productivity - Factors influencing industrial productivity - Labour productivity - Determinants of labour productivity - Productivity movement in India.

UNIT IV: Industrial Policies (12 Hours)

Industrial policies - 1948 to till date -Concentration of Economic Power - Measurement of concentration - Consequences - MRTP - FERA - FEMA - LPG policies - Industrial combination - Types - Growth - Forms - Combination in India.

Unit V: Balanced Regional Development (12 Hours)

Balanced regional development - Indicators of regional imbalance – Distribution of industries – causes of economic backwardness – criteria for industrial - backwardness - Identification of Industrial backward areas - Policy measures to remove regional disparities.

Text Books

1. Singh, S.P, Industrial Economics and Management, AITBS Publication, India, 2010
2. Jotwani.K, Industrial Economics, Nirali Prakasan Publications, India, 2016

References

1. Birthwal, Industrial Economics, New Age International Publications,2018
2. Devine.P.J, Lee.N, Jones. R.Mand Tyson.W.J, An Introduction to Industrial Economics, Routiedge edition, New York, 2018.
3. Cherunilam F, Industrial Economics: Indian perspective, Himalaya Publishing House, New Delhi, 2017.
4. Ranjana Seth Industrial Economics, Ane Books Private Ltd, New Delhi, 2010.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	Understand the meaning of industry and measurement of industrial efficiency.
K3	CO2	Examine the factors affecting the location of an industry.
K4	CO3	Measure the industrial productivity.
K5	CO4	Evaluate the industrial policies.
K6	CO5	Assess the policy measures to remove regional disparities.

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	W	M	M	S	S	M	M	W	M	M	M
CO2	M	M	M	W	M	S	S	M	M	W	M	M	N
CO3	S	M	M	M	M	S	S	W	M	W	M	M	M
CO4	S	M	W	M	M	S	M	W	M	W	M	M	M
CO5	S	M	W	M	S	S	S	W	M	M	W	M	M

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT32	INTERNATIONAL ECONOMICS	L	T	P	C
CORE XII			5	-	-	4

Course Objectives

1. To enable the students to understand the theories governing international trade.
2. To enable the students to understand the significance of international economics.
3. To analyse the balance of payment and trade of the nation.
4. To enable the students to understand the consequences of exchange control and international trade.
5. To enable the students to understand the functions of international financial institutions.

UNIT I: Introduction to International Economics (12 Hours)

International Economics: Meaning, Nature and Scope - Importance of the study of International Economics: Inter - Regional and International Trade; Theories of Absolute Advantage, Comparative Advantage and Opportunity Cost; Hecksher - Ohlin Theory of Trade - Main Features, Assumptions and Limitations.

Unit II: Importance of trade (12 Hours)

Gains from Trade - Their Measurement and Distribution; Trade as an Engine of Economic Growth - Doctrine of Reciprocal Demand - Its Importance and Limitations - Factors determining the gain from trade.

UNIT III: Tariffs and Quota (12 Hours)

Types of Tariffs and Quota; Free Trade and Protection Tariffs; Concept of Optimum Tariff.

UNIT IV: Balance of Trade and Balance of Payments (12 Hours)

Concepts and Components of Balance of Trade and Balance of Payments; Equilibrium and Disequilibrium in Balance of Payments; Consequences of Disequilibrium in Balance of Payments; Various Measures to correct deficit in Balance of Payments; Relative merits, demerits and limitations of Devaluation; Concept and Implications of Foreign Trade Multiplier.

UNIT V: Foreign exchange and MNC'S (12 Hours)

Foreign exchange - Meaning - Foreign market functions - Objectives, Methods and Forms - Instruments of Export Promotion and Recent Export and Import Policies of India; Role of Multinational Corporations of India. Role of FDI & FII - Recent Reforms in International Trade with Regard to India.

Text Books

1. Mannur H G, International Economics, Vikas Publishing House, Ludhiana, 2021
2. Jhingan.M.L., International Economics, Virinda Publications, New Delhi, 2016

References

1. D.M.Mithani, International Economics, Himalaya Publishing House, New Delhi, 2020.
2. HL Bhatia, International Economics, S.Chand and Company Ltd, New Delhi, 2019.
3. Radha.V, International Trade, Prasanna Publications Chennai, 2012.
4. Francis Cherunilam, International Economics, S.Chand and Company Ltd, New Delhi, 2010.

Course Outcomes

On successful completion of the course, the students will be able to

K1	CO1	Understand the theories of international trade
K2	CO2	List out the factors determining the international trade
K4	CO3	Compare and contrast Balance of Payment and Balance of Trade
K5	CO4	Evaluate the functioning of Exchange Control and Exchange Rate Payments.
K6	CO5	Analyse the functions of International Financial Institutions

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	W	S	S	S	S	M	S	S	S
CO2	S	M	S	M	S	S	S	S	S	S	M	S	S
CO3	S	W	S	S	S	S	M	M	M	M	M	M	M
CO4	S	M	S	S	M	S	S	M	W	S	S	S	S
CO5	M	S	M	M	S	S	W	S	M	S	S	M	M

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT33	RESEARCH METHODOLOGY	L	T	P	C
CORE XIII			4	-	-	4

Course Objectives

1. To enable the students to understand the basic frame work of research process.
2. To enable the students to understand the research tools in social sciences.
3. To develop an understanding of various research design
4. To enable the students to understand the sampling design
5. To enable the students to understand the procedure in report writing and todo the research efficiently.

UNIT I: Research-meaning and scope **(12 Hours)**

Research – Meaning – Scope and Significance – Types of Research – Research process – Characteristics of good research – Scientific method – Problems in research – Identifying research problems.

UNIT II: Review of Literature and data collection **(12 Hours)**

Review of Literature – Purpose of Review of Literature – Tools of data collection – Primary & Secondary sources of data collection – Methods – Interview – Preparation, Questionnaire – Group discussion.

UNIT III: Hypothesis and Scaling Techniques **(12 Hours)**

Hypothesis – Meaning – Sources – Types formulation of Research design – Types, Case study – Features of good design – Measurement meaning – Scaling techniques – Meaning types of scales – Scale construction techniques – Pretest and pilot study establishing reliability and validity.

UNIT IV: Sampling **(12 Hours)**

Sampling design – Meaning – Concepts – Steps in sampling – Criteria for good sample design – Types of sample designs – Probability and Non Probability samples.

Unit V: Interpretation and report writing **(12 Hours)**

Interpretation – Meaning – Techniques of interpretation – Report writing – Steps in Report writing – Layout of Report – Types of Report – Norms for using Tables, Charts, Diagrams – Appendix, Norms for using Index and Bibliography.

Text Book

1. Ranjit Kumar, Research Methodology, Sage Publications, New Delhi, 2014

References

1. C.R.Kothari, Research Methodology, Methods and Techniques, Willey eastern Ltd., New Delhi, 2019
2. R.Meenakshi et.al, Research Methodology, S,Chand and Company Ltd, New Delhi, 2018.
3. W.J.Goode and P.K.Hatt, Methods in Social Research, Mc Graw Hill, International Edition, 2017.
4. A.N.Sadhu Research Methodology and Social Sciences – Himalaya Publishing House, 2015.

Course Outcomes

On the successful completion of the course, the students will be able to

K3	CO1	Apply scientific methods in research
K1	CO2	Understand the research gap
K3	CO3	Employ the methodological designs
K2	CO4	Identify the basics of probability and the uses of probability distribution
K6	CO5	Create Reports with proper interpretation

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	W	W	S	M	S	N	N	S	N	N	S	M
CO2	S	M	M	N	M	S	M	N	S	W	W	W	S
CO3	S	W	M	S	S	S	S	W	W	S	S	S	M
CO4	S	W	M	M	S	W	M	S	W	N	S	M	W
CO5	S	M	S	S	S	M	S	S	N	S	S	S	S

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation

Course Code	P21ECT34	MONETARY ECONOMICS	L	T	P	C
CORE XIV			6	-	-	4

Course Objectives

1. To enrich the knowledge of students on monetary theories.
2. To provide knowledge on money market and banking sector.
3. To enhance the knowledge of the students in recent developments in monetary economics.
4. To make the students to understand the concept of monetary economics.
5. To impart knowledge on banking system of India.

UNIT I: Monetary theories **(12 hours)**

Concept – Role of money in economy – Fisher's quantity theory – Cambridge Cash Balance Approach – Keynesian theory – Modern Quantity theory; Friedman's Approach – Don Patinkin's theory – Tobin's Portfolio analysis – Inventory theory of money (Baumol).

UNIT II: Theory of Money Supply **(12 hours)**

High powered money – Money multiplier process – Determinates of money multiplier – Factors affecting money supply – Credit creating by commercial banks – NBFI.

UNIT III: Central banking system **(12 hours)**

Role of Central Bank – Development and promotional functions – Credit control methods – RBI: Recent RBI Policies and Guidelines.

UNIT IV: Money and Capital Markets **(12 hours)**

Characteristics of developed and underdeveloped money market – Indian money market capital market; Primary and Secondary market – Stock exchange: role and its functions, capital issue control and its aim – SEBI and its role functions.

UNIT V: Monetary Policy **(12 hours)**

Role of monetary policy in economic development – goals, targets and indicators of monetary policy – lags in monetary policy – Inflation – Philips curve – Narasimhan Committee report.

Text Book

1. M.L.Jhingan, Monetary Economics, Vrinda Publications, New Delhi, 2011

References

1. Suraj Gupta, Monetary Economics ,S.Chand and Company Ltd, New Delhi, 2019
2. S,Sankaran, Monetary Economics, Marcham Publications ,Chennai, 2018
3. R,K,Paul.: Monetary Economics, Kalyani Publications New Delhi, 2017
4. Muraleedharan.D., Modern Banking: Theory and Practice, PHI Learning Publications, New Delhi, 2014
5. Nadar.E.N., Money and Banking, PHI Learning Publications, New Delhi, 2013
6. Carl.E.Walsh, Monetary Theory and Practice, PHI Learning Publications, New Delhi, 2011

Course Outcomes

On the successful completion of the course, the students will be able to

K3	CO1	Apply the knowledge on the monetary theories
K1	CO2	Understand the concepts of money supply
K4	CO3	Assess the role and policies of bank
K3	CO4	Employ the concepts of money and capital markets
K5	CO5	Critically evaluate the monetary policy

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	M	S	S	S	S	N	W	S	S	M	M
CO2	S	W	S	S	M	M	M	S	S	W	S	M	S
CO3	S	M	M	S	S	S	M	W	S	S	N	S	M
CO4	S	M	S	W	M	S	S	M	S	M	M	M	M
CO5	M	S	S	M	M	M	M	W	M	M	M	N	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation

Course Code	P21ECT35	FISCAL ECONOMICS	L	T	P	C
CORE XV			4	-	-	4

Course Objectives

1. To help the students to understand the scope of fiscal economics.
2. To help the students to understand the importance of financial administration and fiscal policies.
3. To help the students to understand the theories of fiscal economics.
4. To help the students to aware of the existing financial scenario.
5. To enable the students to understand the recent changes in fiscal policies of the government.

UNIT I: Introduction to Public Finance **(12 Hours)**

Public Finance : Significance, Scope, and Function – Public Finance Versus Private Finance – Theory of Public Good – Market Failure – Externalities – Provision for Public Goods – general Model of Efficient Allocation for Public Good.

UNIT II: Taxation **(12 Hours)**

Sources of Public Revenue : Theory of Taxation – Taxable Capacity – Ability to Pay And Benefit Principle in Taxation – Indian Direct and Indirect Taxes – Incidence of Tax – Tax Reforms – MODVAT.

UNIT III: Public Expenditure and Budget **(12 Hours)**

Public Expenditure: Theories of Public Expenditure – Structure and Growth of Indian Public Expenditure – Expenditure Revenue Mobilization for the Budget – Performance Budget – Limitation of Budget – Analysis of Recent budget (State & Central).

UNIT IV: Public Debt **(12 Hours)**

Public Debt: Growth and Composition of Public Debt – Internal and External Debt – Central and State Deficit – Redemption of Public Debt.

UNIT V: Federal Finance **(12 Hours)**

Indian Fiscal Policy: Principle of Federal Finance – Evaluation of Federal Finance – 12th and 13th Finance Commission – Local Finance.

Text Books

1. D.M.Mithani, Modern Public Finance: Theory and Policy, Himalaya Publishing House, New Delhi, 2014
2. Sreenivasan.K. and Dayananda K.C., Money and Public Finance, Himalaya Publishing House, New Delhi, 2018

References

1. Huch Dalton, Principles of Public Finance, Allied Publishers, Vikas Publishing House, 2019
2. S.K,Singh, Public Finance in Theory and Practice, S.Chand and Company Ltd, New Delhi, 2019
3. Lekhil R.K.,Johinder, Public Finance, Popular,2018
4. Bose.D, Ganesan.S and Marimuthu A, An Introduction to Public Finance, S.Chand and Company Ltd, New Delhi, 2012
5. H.L.Bhatia, Public Finance, Vikas, Noida, 2012

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the basic concepts of fiscal economics
K2	CO2	Classify the various types of goods
K3	CO3	Discuss different theories of fiscal economics
K4	CO4	Analyse the causes and effects of public debt and public financing
K5	CO5	Critically evaluate the budgetary procedure and the role of finance commission

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	N	S	S	M	W	N	M	N	S	S	W	M
CO2	M	S	N	S	S	N	S	N	N	N	S	S	M
CO3	M	M	M	M	M	M	S	M	S	M	N	N	M
CO4	M	S	M	S	S	M	M	M	S	N	S	M	M
CO5	S	S	M	M	M	N	S	N	N	S	M	M	N

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECT36	DEVELOPMENT ECONOMICS	L	T	P	C
CORE XVI			4	-	-	4

Course Objectives

1. To provide a strong knowledge base on the features of Indian economy
2. To help the students to understand the theories of economic development.
3. To help the students to understand the various growth models.
4. To help the students to understand the recent development in Indian economy.
5. To help the students to understand the importance of capital formation for economic development.

UNIT I: Economic Development and Growth (12 Hours)

Economic Development – Concept and Approaches – Characteristics of under developed economy – Obstacles to economic development – Factors influencing Economic Development and growth – Characteristics of modern economic growth and strategies of development.

UNIT II: Theories of Economic Development (12 Hours)

Theories of Economic Development : Adam smith – Richard – Malthus – J.S. Mill – Karl Marx – Schumpeter – Keynes – Rostow – Nurkse.

UNIT III: Growth Theories (12 Hours)

Lewis – Fei Ranis – Leibenstein – Nelson – Rosenstein – Rodan's Doctrine of Balanced Growth – Concept of Unbalanced growth – Dualistic Theory – Myrdal's Theory.

UNIT IV: Growth Models (12 Hours)

Harod – Domar – Kaldor – Joan Robinson – Meades – Solow – Models of Technical change – Steady – State growth – Fel'dman model – Mahalanobis Model – Endogenous Growth Model.

UNIT V: Capital Formation (12 Hours)

Capital formation - Domestic Measures – human capital formation – Role of State – International Measures: Foreign Capital and MNCs.

Text Books

1. Jhingan M.L, The Economics of Development and Planning, Virinda Publications, New Delhi, 2014

References

1. K,L,Datta, Growth and Development Planning in India, Oxford University Press, 2021
2. Michael P. Todoro and Stephen. C.Smith, Economic Development, Pearson, UK, Longman, London, 13th edn, 2020.
3. Gerard Roland, Development Economics, Routledge Publishers, New York,2014.
4. Bhabesh Sen. Ed, Economic Development and Poverty in India, New Century Publications, New Delhi, 2012.
5. Agion and Philippe, Economics of Growth, PHI Learners, new Delhi, 2010.

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the nature of developing economy
K2	CO2	Describe the theories of economic development
K5	CO3	Measure the growth and development of the economy
K4	CO4	Analyse various models of economic growth
K5	CO5	Critically appraise the capital formation, human capital and foreign capital

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	M	S	S	N	M	S	S	S
CO2	S	S	S	W	S	S	S	S	S	S	M	M	M
CO3	S	N	S	M	S	M	S	S	N	M	W	M	M
CO4	S	S	S	S	S	M	S	S	N	W	M	S	S
CO5	S	s	M	N	W	M	S	S	S	S	N	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation

SEMESTER-IV

Course Code	P21ECE411	WELFARE ECONOMICS	L	T	P	C
ELECTIVE-II			4	-	-	4

Course Objectives

1. To provide knowledge on the basic concepts of welfare economics.
2. To provide knowledge on importance of welfare in modern economy.
3. To provide knowledge on theories of welfare economics.
4. To enhance the knowledge of the students in the subject matter of welfare economics.
5. To enable the students to understand the behaviour of consumers.

UNIT I: Introduction to Welfare Economics (12 Hours)

Definition and Meaning of Welfare Economics – Difference between Welfare Economics and Positive Economics – Concept of Social Welfare in Welfare Economics – Old Welfare Economics – Pigouvian Welfare Condition – Analysis of Externalities – Pigou's ideal output.

UNIT II: The Walrasian general equilibrium (12 Hours)

Introduction – The Walrasian general Equilibrium Model – 2x2x2 Graphical General Equilibrium Model.

UNIT III: The Pareto's Optimum (12 Hours)

The Pareto's Optimum, Compensation criteria – Kaldor, Hicks criterion, Scitovsky Criterion, Little Criterion – Social Welfare Function – Arrows Impossibility Theorem, Maximization of Social Welfare – Production possibility Curve (PPC) – PPC to grand possibility curve (GPC) – Rawls theory of Social Justice.

UNIT IV: Pareto's exchange (12 Hours)

Optimum conditions of Pareto's exchange – Factors substitution and degree of specialization – Optimum conditions of product utilization and product substitution – Pareto's Optimality – Trade Off between Efficiency and Equity – Theory of Second Best.

UNIT V: Economics of Risk and Uncertainty (12 Hours)

Economics of Risk and Uncertainty – Individual Consumer Behaviour Risk, Gambling and Insurance – Choice between Insurance and gambling Asset port folio selection.

Text Book

1. Edgar K.Browning, Mark A. Zupan, Micro Economics : Theory and Applications, 13th Edition, Wiley Publications, 2020

References

1. DN.Dwivedi, Micro Economics Theory and Applications: Third Edition Vikas Publication Pvt. Ltd., 2016.
2. Jhingan M.L., Advanced Economic Theory, .Himalaya Publishing House, New Delhi, 2014
3. Koutsoyiannis, A, Modern Economics, Macmillan press, London,2014.
4. Maddala G.S and Miller, Ellen, Micro Economics: Theory and Applications, Tata McGraw Hill, New Delhi, 2004.

Course Outcomes

On the successful completion of the course the students will be able to

K2	CO1	Enhance their knowledge on welfare economics
K1	CO2	Understand the concepts of social welfare.
K3	CO3	Estimate the responsibility of all the firms in the society.
K4	CO4	Analyse risks and uncertainty in the economy.
K6	CO5	Create awareness on the social cost and benefits in the modern economy

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	W	W	N	N	N	W	M	N	W	W	M	S
CO2	W	S	S	M	N	S	S	S	S	S	S	M	S
CO3	W	S	S	M	W	M	S	S	S	M	M	S	S
CO4	M	S	S	W	N	M	S	S	M	S	S	S	S
CO5	N	S	S	W	N	S	M	W	W	S	W	S	S

*S-Strongcorrelation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

Course Code	P21ECE412	EXPORT MARKETING AND PROCEDURE	L	T	P	C
ELECTIVE-II			4	-	-	4

Course Objectives

1. To improve the knowledge of the Students in Export Marketing and procedure.
2. To equip the Students to gain knowledge and skills in Export Policy and Marketing Decision.
3. To make the students to be aware of the importance of export pricing and costing.
4. To prepare the students to be aware of the export finance and post shipment finance.
5. To enable the student to understand the export marketing communication.

UNIT I: Export Marketing -Introduction **(12 Hours)**

Export Marketing - Definition – features – importance of marketing – Distinction between market and marketing – Approaches of Export Marketing – Export Decisions – Various types of marketing Decisions – Export Documents and Procedure – Commercial Invoice , Shipping Bill , Certificate of Origin – Pre-shipment procedure of export marketing.

UNIT II: Export Policy and Decision **(12 Hours)**

Export policy and decision – definition – Need and Importance – Factors affecting export policy – International market – Branding decision in international market – Branding problem in export marketing – Segmentation, strategies of International market segmentation – Basis of market segmentation – Segmentation of consumer market.

UNIT III: Export Pricing and Costing **(12 Hours)**

Export Pricing and costing – Factors influencing pricing decisions – Process of price determination of a product - kinds of pricing and policies – International price , export costing - various elements of costs –Production -selling and special costs.

UNIT IV: Export Finance **(12 Hours)**

Export Finance- Need and purpose- time and source – pre- shipment finance- packing credit – period of packing credit – packing credit to sub – suppliers – foreign currency – post shipment finance – Trade finance – export finance in India – Marketing mix and system – element of marketing system.

UNIT V: Export Communication (12 Hours)

Export Communication – communication process – factors influencing international marketing communication – Export marketing channels of communication - channel of distribution – selection of distribution channel.

Text Book

1. Natarajan .L., International Marketing , Margham Publications, Chennai, 2014

References

1. Balaji.C.D., International Trade, Margham Publications, Chennai, 2018
2. Kapoor D, Marketing Management and Sales Management, Sultan and company Ltd. New Delh, 2017
3. Kathiresan S, and Radha V, Marketing Management, Bhavani Publications Chennai, 2011
4. Sankaran.S., International Trade, Margham Publications, Chennai, 2011

Course Outcomes

On the successful completion of the course the students will be able to

K1	CO1	Understand the theories of Export marketing
K2	CO2	Describe the export marketing procedure and policy decision
K4	CO3	Assess the Regulation and Prohibition measures of Export pricing and costing.
K5	CO4	Evaluate India's Export finance
K6	CO5	Create export marketing communication

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO 5	PO 6	PO 7	PO8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	N	M	M	M	M	S	M	S	S
CO2	S	S	M	S	M	S	S	M	S	M	S	S	M
CO3	S	S	M	S	M	S	S	M	S	M	M	S	S
CO4	S	S	M	N	M	S	S	M	N	M	N	M	M
CO5	M	S	M	M	S	M	S	M	M	S	S	S	S

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation

Course Code	P21ECE421	ECONOMICS OF HUMAN RESOURCE	L	T	P	C
ELECTIVE-III			4	-	-	4

Course Objectives

1. To familiarize the concepts of human resources
2. To gain sound knowledge on issues in Education
3. To enable the students to know about the importance of investment in health
4. To gain knowledge on Wage theories
5. To enable the student to understand the human resource requirements.

UNIT I: Human Resource and Economic Development (12 Hours)

Importance of Human Resource- Human Resource and Economic Development- Investment in Human Capital- Unemployment- Types, Causes and remedies.

UNIT II: Investment on Education (12 Hours)

Importance of Education- Education and Economic Development- Women's Education- Issues in Education.

UNIT III: Investment on Health (12 Hours)

Importance of human Resource in Health- Investment in Health-Healthcare Expenditure in India-Healthcare Issues and Challenges- Health Insurance for poor.

UNIT IV: Labour Market (12 Hours)

Theories of Labour Market- Wage theories-Trade Unions- Women and Child Labour- Labour Market Discrimination-Wage discrimination- Social Security in India.

UNIT V: Human Resource Planning (12 Hours)

Importance of Human Resource Planning-Forecasting Human resource requirements-Orientation and Training-Training process.

Text Book

1. Jaysankar,J, Human Resource Management, Margham Publications, Chennai, 2011

References

1. Steve Bradley & Colin Green, The Economics of Education, Academic Press, 2020.
2. Jhingan M L, The Economics of Development and Planning, Vrinda Pub, 2019.
3. Ruddar Dutt & K.P.M. Sundaram, Indian Economy, S.Chand & Co, New Delhi, 35th edn, 2018.
4. Michael Lovenheim & Sarah Turner, Economics of Education, Worth Publishers, 2017.
5. Jon Ingham, Strategic Human Capital Management, Butterworth-Heinemann, 2006.

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the importance of Human Resource Development
K2	CO2	Identify the importance of investment on Education and Health
K4	CO3	Assess the impact of health care on human resources
K5	CO4	Evaluate the theories of Labour Market and the issues in Social Security Measures.
K6	CO5	Create awareness on training of employees

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**S**	**M**	**M**	**S**	**M**	**S**	**S**	**N**	**W**	**W**	**M**	**M**
CO2	**S**	**S**	**M**	**M**	**S**	**N**	**S**	**S**	**M**	**M**	**N**	**S**	**M**
CO3	**S**	**M**	**M**	**W**	**M**	**W**	**S**	**W**	**S**	**M**	**N**	**S**	**M**
CO4	**S**	**W**	**M**	**M**	**S**	**S**	**M**	**M**	**S**	**W**	**W**	**S**	**M**
CO5	**S**	**M**	**M**	**N**	**M**	**M**	**S**	**S**	**W**	**S**	**N**	**S**	**M**

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>Course Code</td><td>P21ECE422</td><td rowspan="2">DEMOGRAPHY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE-III</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives

1. To make the students to understand about the demography.
2. To know about the reasons for migration.
3. To understand the population policy in India
4. To equip the students with the knowledge regarding the relationship between demography and economic development
5. To understand the population trends in India.

UNIT I: Population and Development **(12 Hours)**

Population and Development- Meaning and scope of demography; components of population growth and their interdependence; Measures of population change; Structure, distribution and sources of population data; Theories of population – Malthus, Optimum theory of population; theory of demographic transition –Population and development.

UNIT II: Population Trends **(12 Hours)**

Population trends in the twentieth century; Population explosion –Determinants of age and sex structure; Demographic effects of sex and age structure, economic and social implications; Age pyramids and projections.

UNIT III: Fertility, Nuptiality and Mortality **(12 Hours)**

Fertility, Nuptiality and Mortality-Importance of study of fertility – Factors affecting fertility – Socio-economic factors. Nuptiality – Concept and analysis of marital status, single mean age at marriage. Mortality – Death rates, crude and age-specific; Mortality at birth and infant mortality rate.

UNIT IV: Migration and Urbanization **(12 Hours)**

Migration and Urbanization-Concept and types – Temporary, internal and international; International migration –Its effect on population growth and pattern; Factors affecting migration; Urbanization – Growth and distribution of rural-urban population in developed and developing countries. Urbanization in India.

UNIT V: Population Policy **(12 Hours)**

Population Policy in India-Evolution of population policy in India – The shift in policy from population control to family welfare, to women empowerment; Family planning strategies and their outcomes.

Text Book

1. M.L. Jhingan, B.K. Bhatt and J.N. Desai, Economic Planning and Development, 3rd Edition, Vrinda Publication (P) Ltd. New Delhi, Reprint 2019.

References

1. Rajendra K Sharma, Demography and Population Problems, Atlantic Publishers, 2020.
2. Krishnamurthy Srinivasan, Population Concerns in India: Shifting Trends, Policies and Programs, Sage Pub, 2017.
3. Bedprakas SyamRoy, India's Journey Towards Sustainable Population, Springer, 2017.
4. Mahendra K Premi, India's Changing Population Profile, Kindle edn, 2011.
5. Choubey, P. K., Population Policy in India, Kanishka Publications, New Delhi, 2000.

Course Outcomes

On the successful completion of the course, the students will be able to

K2	CO1	Describe the growth of population in India
K3	CO2	Examine the theories of population
K1	CO3	Understand the concepts of Fertility, Nuptiality and Mortality
K5	CO4	Analyse the reasons for migration
K4	CO5	Develop a proactive attitude towards the population policy

<u>Mapping of COs and POs and PSOs</u>

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO 5**
CO1	M	M	M	M	N	M	M	M	M	N	N	S	M
CO2	S	S	M	S	M	S	S	M	S	M	S	S	M
CO3	S	S	M	S	M	S	S	M	S	M	M	S	S
CO4	S	S	M	N	M	S	S	M	N	M	N	M	M
CO5	M	S	M	M	S	M	S	M	M	S	S	S	M

*S-Strong correlation ; M-Moderate correlation; W- Weak correlation, N – No correlation

Course Code	P21ECV11	MARKETING STRATEGIES	L	T	P	C
VALUE ADDED PROGRAMME I			2	-	-	2

Course Objectives

1. To improve the knowledge of the students on the basic concepts of the market.
2. To enhance the decision making power of students in the marketing under various environmental conditions.
3. To make the students to understand the Marketing environment.
4. To enhance the knowledge of the students on Pricing strategies.
5. To enable the students to understand the various forms of marketing services.

UNIT I: Nature and Scope of Marketing **(6 Hours)**

Introduction : concepts, nature, scope and importance of marketing- Marketing concept and its evolution- market mix – Strategic marketing planning – an over view.

UNIT II: Product Decisions and Product mix **(6 Hours)**

Concepts of a product – classification of products – Major product decisions –Product line and product mix - Branding , Packaging and labeling – Product life cycle – Strategic implications – Pricing decisions : Factors affecting price determination – Pricing strategies.

UNIT III: Marketing environment **(6 Hours)**

Marketing environment – micro and macro components and their impact on marketing decisions – Market segmentation and positioning – Buyer behavior - consumer decision making process.

UNIT IV: Social, ethical and legal aspects of marketing **(6 Hours)**

Social, ethical and legal aspects of marketing – Marketing services – international marketing – Green marketing , Cyber marketing – Relationship marketing and other developments of marketing.

UNIT V: Marketing Research **(6 Hours)**

Meaning and scope of marketing research – Marketing research process – Marketing organization and control – organizing and controlling marketing operations-marketing strategies

References

1. Francis Cherunilam, International Marketing , , Himalaya Publishing House, New Delhi, 2021
2. Sherlekar.S.A, Marketing, Himalaya Publishing House, New Delhi, 2020
3. Karunakaran.K. Marketing Management, Himalaya Publishing House, New Delhi, 2017.
4. Kathiresan S and Radha.V, Marketing Management, Prasanna Publications, Chennai, 2011
5. Saxena, Rajan, Marketing Management, Tata McGraw Hill, New Delhi, 4th edn, 2009.
6. Kapoor. D.C, Marketing Management and Sales Management, Sultan Chand and Company Ltd, New Delhi, 2006.

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the conceptual framework of marketing and its applications.
K2	CO2	Take decision in marketing under various environmental constraints.
K3	CO3	Examine market analysis and select suitable strategies
K5	CO4	Analyse the issues and development in marketing
K6	CO5	Prepare themselves to conduct marketing research

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	S	S	S	S	M	M	S	N	W	S
CO2	S	M	S	N	M	S	M	M	M	W	M	M	M
CO3	S	S	M	M	S	M	S	W	S	S	M	S	N
CO4	S	M	M	S	S	S	S	M	M	S	N	W	S
CO5	S	W	W	M	M	N	M	W	S	N	M	M	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>Course Code</td><td>P21ECV42</td><td rowspan="2">DATA ANALYSIS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">VALUE ADDED PROGRAMME II</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
</table>

Course Objectives

1. To impart knowledge on available statistical software
2. To impart knowledge in steps in data storage
3. To provide knowledge on visualization and representation
4. To help the students to adopt appropriate tools in research
5. To help the students to use SPSS package in their research

UNIT I: Statistical software **(6 Hours)**

Using data-available statistical software-steps in data storage

Data input and output-process of data analysis

UNIT II: Organisation and planning **(6 Hours)**

Organization and planning

Techniques for anlysing quantitative data

UNIT III: Computerised Data Analysis **(6 Hours)**

SPSS package-applications

Free software for data analysis

UNIT IV: Visualization and Representation **(6 Hours)**

Visualization and representation

Alternative forms of presenting summarizing and presenting data

UNIT V: Estimation techniques **(6 Hours)**

Simple estimation techniques

Tests for statistical inference

Text Book

1. Jennifer Sargunar, Introduction to Information Technology, Dorling Kindersley (India) Pvt. Ltd, 2011

References

1. Tattar.P, Ramaiah.S, Manjunath.B .A, Course in Statistics, Wiley, 2018
2. Levine.D, Stephen D, Szabat.K, Statistics for Managers using Microsoft Excel, Pearson, 2017

Course Outcomes

On the successful completion of the course, the students will be able to

K1	CO1	Understand the steps in data storage
K2	CO2	List the available statistical software
K4	CO3	Evaluate the impact of visualization and representation
K3	CO4	Apply appropriate tools in research
K6	CO5	Analyse data using various computerised software

Mapping of COs and POs and PSOs

Course Outcomes	Programme Outcomes								Programme specific outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	M	S	M	M	S	N	W	W
CO2	S	M	S	N	M	M	M	M	M	W	M	M	M
CO3	S	S	M	M	S	M	S	W	S	M	M	S	N
CO4	S	M	M	S	S	S	M	M	M	S	N	W	S
CO5	S	W	W	M	M	N	M	W	S	N	M	M	W

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL – 624 102

B.A. ECONOMICS

UNDER CBCS

(with effect from 2021-2022)

DEPARTMENT OF ECONOMICS

MOTHER TERESA WOMEN'S UNIVERSITY, KODAIKANAL – 624 102
DEPARTMENT OF ECONOMICS
Choice Based Credit System (CBCS)
(2021 -2022 onwards)
B.A. ECONOMICS

1. About the Programme:

B.A. (Economics) is a 3-years graduate degree course divided into 6 semesters, each semester spanning 6 months. The Economics as a branch of knowledge is growing in its significance in terms of practical applications. A wide range of its quantitative and qualitative tools necessary to understand the working of economic systems are helping to solve a wide area of real world issues. The knowledge on the subject enhances the critical thinking skills and quantitative reasoning, sharpens the ability to reason, provide a specialised knowledge and problem solving skills. All these are directed to attain the goals of social justice, equity and market intervention strategies helps to make the learner skills relevant to the requirements of the economist and in shaping macro environment. The course is designed to train students to analyse concepts and processes of the economy by educating them in areas such as Micro economics, Macroeconomics, Planning and Development, Monetary economics, Public Finance, International Economics, Indian Economic development etc. The undergraduate Programmes will prepare the students for both, academia and employability. The students can seek a career in the prestigious establishments like R.B.I., Planning Commission, Planning Board, Ministry of Economic affairs and the Indian Economic Service etc.

2. Programme Educational Objectives (PEOs)

PEO1	To apply Economic theories and make the students to understand the practical knowledge on present Economic System.
PEO2	To utilise the Economic concepts in the day-to-day life for better living.
PEO3	To Create strong subject knowledge in Economics to develop and uplift the Society
PEO4	To enhance the Entrepreneurial skills with Communication to excel their profession
PEO5	To train the students in Industrial, Agricultural and Service sector economics. This will be helpful for them to get into the concern sector for their Job Oriented goals.

3. Eligibility:

Candidate should have passed the 10th +2 from higher secondary examination Board or CBSE or other equipment examination.

4. General Guidelines for UG Programme

i. **Duration:** The programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

- **Evaluation Pattern**

Evaluation Pattern	Theory		Practical	
	Min	Max	Min	Max
Internal	**10**	**25**	**10**	**25**
External	**30**	**75**	**30**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions (MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 156**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade

(Performance in a Course/ Paper)

Range of Marks	Grade Points	Letter Grade	Description

90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

9. Programme Outcomes (POs)

On completion of the programme, the students will be able to

PO 1	Enable to understand the basic Economic concepts and apply in the day to day life for better living.
PO 2	Enable the students to meet the specified needs to resolve complex economic problems
PO 3	Enable the students to find solutions for complex economic issues.
PO 4	Enable the students to understand the application of Statistics in Economics
PO5	Enable the students to adopt the techniques to understand resource allocation and Macro Economic policies in Indian Economy.
PO6	Enable the students to understand the computer application in Economics
PO7	Show Continuous improvement in their professional career through life-long learning, appreciating human values and ethics.

10. Programme Specific Outcomes (PSOs)

On completion of the programme, the students will be able to

PO 1	Gain knowledge in Economics and creation of domain knowledge will be effectively served to the students to understand the Society, Societal complex problems and for attainment of Comprehensive Solutions.
PO 2	Gain basic knowledge in Economics, Mathematics, Statistics and Accountancy. This type of getting knowledge may helpful to students to clear any kind of basic Competitive Examinations.
PO 3	Understand the importance of business in economic development and learn the Business Environment and Policy.
PO 4	Utilise Entrepreneurial skills with Communication to excel their profession in the competitive world.
PO 5	Acquire knowledge in contemporary economic issues and problems and find solutions to solve the economic problems.

B.A. (ECONOMICS) CURRICULUM

Course code	Title of the course	Credits	Hours		Int	Ext	Total
			T	P			
FIRST SEMESTER							
U21LTA11	**Part I** Tamil I / French I	3	6	0	25	75	100
U21LEN11	**Part II** Communicative English I	3	6	0	25	75	100
U21ECT11	**Core I** Micro Economics–I	4	5	0	25	55	100
U21ECT12	**Core II** Economics of Planning and development	4	6	0	25	55	100
U21ECA11	**Allied I** Economic Statistics–I	4	5	0	25	75	100
U21EVS11	Environmental Studies	2	2	0	25	75	100
U21PEAS11	Professional English-I	4	6	0	25	75	100
Total		**24**	**36**				**700**
SECOND SEMSTER							
U21LTA22	**Part I** Tamil II / French II	3	6	0	25	75	100
U21LEN22	**Part II** Communicative English-II	3	6	0	25	75	100
U21ECT21	**Core III** Microeconomics–II	4	5	0	25	75	100
U21ECT22	**Core IV** Monetary Economics	4	5	0	25	75	100
U21ECA22	**Allied II** Economic Statistics-II	4	5	0	25	75	100
U21VAE21	Value Education	3	3	0	25	75	100
U21PEAS22	Professional English- II	4	6	0	25	75	100
Total		**25**	**36**				**700**
THIRD SEMESTER							
U21LTA33	**Part I** Tamil III/ French III	3	6	0	25	75	100
U21LEN33	**Part II** General English-I	3	6	0	25	75	100
U21ECT31	**Core V** Macroeconomics–I	4	5	0	25	75	100
U21ECA33	**Allied III** Principles of Accountancy–I	4	5	0	25	75	100
U21ECE311/ U21ECE312	**Elective I** Principles of Management/ Micro Finance and Women Empowerment	3	4	0	25	75	100
U21CSS31	**SBE-I Job Oriented Course-I** Computer Skills for Office Management	2	0	2	25	75	100
	NME-I	2	2	0	25	75	100
U21PEAS33	Professional English-III	4	6	0			100
Total		**25**	**36**				**800**
FOURTH SEMSTER							
U21LTA44	**Part I** Tamil IV/ French IV	3	6	0	25	75	100
U21LEN44	**Part II** General English II	3	6	0	25	75	100

U21ECT41	**Core VI** Environmental Economics	4	4	0	25	75	100
U21ECT42	**Core VII** Macroeconomics – II	4	4	0	25	75	100
U21ECA44	**Allied IV** Principles of Accountancy-II	4	4	0	25	75	100
U21ECE421/ U21ECE422	**Elective II** Marketing/ Export Procedure and Documentation	3	3	0	25	75	100
U21MSS42	**SBE-II Job Oriented Course-II** Managerial Skills	2	0	2	25	75	100
	NME-II	2	2	0	25	75	100
U21PEAS44	Professional English-IV	4	6	0			100
	Total	**29**	**37**				**900**
	FIFTH SEMESTER						
U21ECT51	**Core VIII** Indian Economic Development- I	4	5	0	25	75	100
U21ECT52	**Core IX** Mathematical Economics-I	4	5	0	25	75	100
U21ECT53	**Core X** International Economics	4	5	0	25	75	100
U21ECT54	**Core XI** History of Economic Thought	4	5	0	25	75	100
U21ECT55	**Core XII** Agricultural Economics	4	5	0	25	75	100
U21ECE531/ U21ECE532	**Elective III** Human Resource Management/ Population Studies	3	3	0	25	75	100
U21ECS53	**SBE-III** Economics of Tourism	2	2	0	25	75	100
	Total	**25**	**30**				**700**
	SIXTH SEMSTER						
U21ECT61	**Core XIII** Indian Economic Development- II	4	5	0	25	75	100
U21ECT62	**Core XIV** Mathematical Economics-II	4	5	0	25	75	100
U21ECT63	**Core XV** Public Finance	4	5	0	25	75	100
U21ECT64	**Core XVI** Industrial Economics	4	5	0	25	75	100
U21ECT65	**Core XVII** Rural Economics	4	5	0	25	75	100
U21ECE641/ U21ECE642	**Elective IV** Labour Economics / Health Economics	3	3	0	25	75	100
U21ECS61	**SBE-IV** Business Communication	2	2	0	25	75	100
U21EAS61	Extension Activities	3	0	-	25	75	100
	Total	**28**	**30**				**800**
	Grand Total	**156**	**205**		**Grand Total**		**4600**

Non-Major Elective

The candidates, who have joined the UG Programme, can also undergo Non Major Elective offered by other Departments.

Non Major Elective (NME) offered by Economics Department

U21ECN31	**NME-I** Gender and Economy
U21ECN42	**NME-II** Economics for Competitive Examinations

Additional Credit Courses (Two Credit Courses)

1. **U21ECO31 -** Online Course – III Semester
2. **U21ECI41 -** Internship – IV Semester
3. **U21ECV51 -** Value Added Course – V Semester **– Entrepreneurship Development**

SEMESTER I

COURSE CODE	U21ECT11	MICRO ECONOMICS-I	L	T	P	C
CORE -I			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze				
Learning Objectives		1. To enhance the knowledge of the students in the fundamental theories of micro economics. 2. To help the students to understand the subject matter of economics. 3. To enable the students to understand the laws of economics. 4. To enable the students to understand the theories of factors of production. 5. To impart the knowledge on cost and revenue concepts.				

UNIT I: Introduction to Micro economics

Definitions – Definition of Economics - Adam Smith - Marshall - Robbins - Samuelson - Nature and Scope of Economics - Micro and Macro approach - Inductive and deductive methods - Positive Vs Normative study - Static and Dynamic analysis - Economic Laws.

UNIT II: Basic laws of Economics

Utility Analysis - Law of diminishing Marginal utility – Law of Equi-marginal utility – consumer's surplus –Indifference curve analysis – Properties – Consumer' s Equilibrium – Price Effect – Income Effect and Substitution effect.

UNIT III: Demand

Meaning of Demand - Types of Demand – Law of Demand – Exceptions - Determinants of demand – Elasticity of demand –Types; price, Income and cross elasticity – Measurement Methods – Uses.

UNIT IV: Factors of production

Factors of Production - Land, Labour, Capital and Organization - Laws of returns - Law of variable proportions

UNIT V: Cost and Revenue concepts

Cost and Revenue - concepts of cost and revenue - Average, Marginal and Total cost - Nature of short run and long run average cost curves – Revenue and revenue curves - Importance of revenue curves.

TEXT BOOKS:

1. M. L. Jhingan, Micro economic Theory, Vrinda Publications, Delhi, 2014.
2. H.L Ahuja, Advanced Economic Theory, S.Chand & Co, 2009.

REFERENCE BOOKS:

1. Seth. M. L, Principles of Economics, Lakshminara Publications, 2012.

2. Sundaram K.P.M., Micro Economics, Rotan Prakshan Publications Ltd, 2014.
3. Pindy and Robinson, Micro Economic Analysis, 2013.
4. Dr. S. Sankaran, Micro Economics, Margham Publications, Chennai, 2010.
5. Misra and Puri, Advanced Micro Economics Himalaya Publishing House, Mumbai, 2016.
6. V. Lokanathan, Principles of Economics, Economic Analysis S. Chand & Co., New Delhi, 2014.

Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Understand the relevance of micro economics concepts to the economy.	**K1**
CO2	Apply their knowledge on the basics of Micro Economics	**K3**
CO3	Improve their attitude towards economic laws.	**K2**
CO4	Get involved in the application of economics for business decision, planning and forecasting.	**K3**
CO5	Analyse the economic relationship between the variables.	**K4**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	M	W	M	S	S	W	M	**M**	**M**
CO2	S	S	M	S	M	S	S	M	M	S	**W**	**S**
CO3	S	S	M	S	M	M	S	S	M	M	**S**	**S**
CO4	S	S	M	W	M	N	M	M	M	N	**S**	**M**
CO5	M	S	M	M	S	S	S	S	S	S	**N**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT12	ECONOMICS OF PLANNING AND DEVELOPMENT	L	T	P	C
CORE -II			6	-	-	4
Cognitive Level	**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate					
Learning Objectives	1. To make the students to understand the concepts of planning and development. 2. To make the students community to understand the factors determining development. 3. To make the students to understand the planning and growth models. 4. To enhance the knowledge of students on growth models. 5. To make the students to understand the causes of underdevelopment and measures to achieve .development					

UNIT I: Introduction to Planning

Planning – Definition – Characteristics – Objectives limitations – For and against planning.

UNIT II: Types of Planning

Types of planning; Democratic planning Vs Totalitarian planning; centralized Vs Decentralized planning; Material planning Vs financial planning; short term, medium & long term and perspective planning – Cyclical planning.

UNIT III: Planning Model

Meaning - P.C Mahalanobis two sector Model -Planning models and five year plans in India.

UNIT IV: Theories of Economic Development

Development – Economic Development – characteristics of UDCS Distinction between Growth and Development – Theories of under development – vicious circle of poverty - Dualistic Economics – Rostow stages of growth – the Lewis Model of unlimited supplies of labour.

UNIT V: Approach of Economic Development

Rosenstein Rodan and the three indivisibilities - Libenstein theory. The low level equilibrium trap – Balanced vs unbalanced growth.

TEXT BOOK:

1. Jhingan M.L., The Economics of Development and Planning, Vrinda Publications Private Ltd, India, 2014.

REFERENCE BOOKS:

1. Andrew Beer and Terry L.Clower, Globalisation, Planning and Local Economic Development, Routledge First edition, 2019.
2. Puri V.K. & S.K. Misra, Economics of Development and Planning: Theory and Practice, 16th edition, Himalayas Publishing House, Mumbai, 2016.

3. Alexander Eckstein, Planning and Economic Development in India, Cambridge University Press, 2011.
4. Marcelo M.Giugale, Economic Development, Oxford University Press Inc, 2014.
5. Giorgio Secondi, The Development Economics Reader, Taylor and Francis group India Private Ltd, Manohar, 2020.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Know the basics of planning and development and acquire in depth knowledge about types of planning and development.	**K1**
CO2	Improve their knowledge on the basics of planning models	**K2**
CO3	Develop their attitude towards economic growth models.	**K3**
CO4	Apply their knowledge on economics for business decision, planning and forecasting.	**K4**
CO5	Analyse the economic relationship between the planning and growth models.	**K5**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	W	M	S	S	M	S	S	S
CO2	M	M	M	S	W	M	M	S	S	W	N	M
CO3	S	S	S	W	M	M	W	S	S	W	M	M
CO4	S	S	M	M	S	S	S	M	M	M	M	M
CO5	M	S	S	N	W	S	M	M	N	M	W	W

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECA11	ECONOMIC STATISTICS –I	L	T	P	C
ALLIED - I			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K6:** Create				
Learning Objectives		1. To make the students community to understand the applications of statistics in economics. 2. To make the students to understand the application of statistics in research. 3. To make the students to understand the fundamentals of statistics. 4. To enhance the knowledge of the students on statistical investigation 5. To impart knowledge on data collection method				

UNIT I: Introduction to Statistics

Introduction – Meaning - Definition –Scope - importance of statistics - Limitations.

UNIT II: Sources of Data

Statistical Investigation and Sampling – Source of data – methods of collection of data – sample design – Theoretical basis of sampling – sample and population –Methods of sampling.

UNIT III: Frequency Distribution

Statistical presentation - Classification and Tabulation of data-Presentation of data – Diagrams and charts - Graphs

UNIT IV: Measures of Central tendency

Measures of central location – Averages – Arithmetic mean – Median – mode – Geometric mean – Harmonic mean – quartiles - Deciles and percentiles.

UNIT V: Measures of Dispersion

Measures of Dispersion – Range – Mean Deviation – Quartile Deviation and its coefficient – standard Deviation – Coefficient of Variation.

NOTE: Question Papers must contain problems to the extent of 60% of the marks allotted to the subject.

TEXT BOOKS:

1. Gupta S.P, Statistical Methods, Sulthan chand & sons, New Delhi, 2014.
2. Gupta S.C and Kapoor V.K, Fundamentals of Applied Statistics, Sulthan chand & sons, New Delhi, 2010.

REFERENCE BOOKS:.

1. Gupta S.C Fundamentals of Statistics, Himalaya Publishers 2020.

2. Gupta S.C and Indira Gupta Business statistics, Himalaya Publishers 2019.
3. Bhupendra T. Kesaria Numerical & Statistical Methods, Himalaya Publishers 2018.
4. Kathambarajan D. Economic & Business Statistics, Himalaya Publishers 2017.
5. Seemon Thomas Business Statistics, Narosa Publishing house, 2014.
6. Manoharan M Palani Paramount Publications, Palani, 2012.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Understand the application of statistics in other fields.	**K1**
CO2	Get knowledge of method of collecting data.	**K2**
CO3	Apply the skill of draw the various diagram and graphical representation.	**K3**
CO4	Analyse statistics in everyday life.	**K4**
CO5	Solve the problems in various measures such as central tendency, dispersion and standard deviation in statistics.	**K6**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	W	S	M	S	M	S	M	W	S	M
CO2	W	S	M	S	M	S	M	W	S	W	S	M
CO3	M	M	W	S	M	S	S	S	M	W	S	M
CO4	W	S	M	S	M	M	M	W	S	W	S	M
CO5	M	M	W	S	M	S	M	S	M	W	S	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER – II

COURSE CODE	U21ECT21	MICRO ECONOMICS –II	L	T	P	C
CORE -III			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K5:** Evaluate **K6:** Create				
Learning Objectives		1. To enhance the knowledge of the students in the subject matter of micro economics. 2. To help the students to understand the various forms of market structure in the economy. 3. To enable the students to understand the methods of factor pricing. 4. To enable the students to understand the theories of factor pricing. 5. To impart the knowledge on business decision making.				

UNIT I: Market Structure

Market Structure - Meaning - Types - Perfect Competition - Time Element Theory - Price and Output Determination - Equilibrium of the firm and industry in short and long run.

UNIT II: Price Determination under Monopoly

Meaning – Features of Monopoly – Price and Output Determination under Monopoly - Price Discrimination - Meaning – Price Discrimination under Monopoly.

UNIT III: Monopolistic Competition

Features of Monopolistic competition – Price and Output Determination under Monopolistic Competition - Selling Cost – Oligopoly – Meaning-Features-Kinked Demand Curve.

UNIT IV: Theories of Rent and Wages

Theories of Rent – Ricardian Theory of Rent - Modern Theory of Rent – Quasi– rent –Theories of Wages – The Subsistence Theory of Wages – Wage Fund Theory-Marginal Productivity Theory of Wages.

UNIT V: Interest and Profit

Interest - Gross Interest and Net Interest – Classical Theory of Interest - Neo - Classical Theory; Loanable fund Theory and Keynesian Theory of Interest - Profit - Gross and Net Profit - Theories of Profit – Schumpeter's Innovation Theory – Knight's Uncertainty Bearing Theory.

TEXT BOOKS:

1. M. L. Jhingan, Micro economic Theory – Vrinda Publications, Delhi .2014
2. HL AHUJA (2009) Advanced Economic Theory S.Chand & Co

REFERENCE BOOKS:

1. Misra and Puri, Advanced Micro Economics Himalaya Publishing House, Mumbai, 2016.
2. Dutt & Sundaram, Micro Economics, S. Chand & Co Ltd, New Delhi, 2015.
3. V. Lokanathan, Principles of Economics, Economic Analysis S. Chand & Co., New Delhi, 2014.
4. K.P.M. Sundaram, Micro Economics, Rotan Prakshan Publications Ltd, 2014.
5. Pindy and Robinson, Micro Economic Analysis, 2013.
6. M. L. Seth, Principles of Economics, Lakshminara Publications, 2012.
7. Dr. S. Sankaran, Micro Economics, Margham Publications, Chennai, 2010.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Understand the subject matter of micro economics.	**K1**
CO2	Classify the various forms of market structure in the economy.	**K2**
CO3	Apply the methods of factor pricing.	**K3**
CO4	Evaluate the theories of factor pricing.	**K5**
CO5	Take business decision wisely.	**K6**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	M	W	M	W	M	M	M	W	M	**S**
CO2	M	S	M	S	M	M	N	M	M	S	M	**M**
CO3	S	S	S	M	M	M	S	S	S	M	M	**M**
CO4	M	M	M	W	M	M	S	M	M	W	M	**W**
CO5	S	M	S	S	M	S	S	M	S	S	M	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT22	MONETARY ECONOMICS	L	T	P	C
CORE -IV			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To make the students aware of the present situations regarding monetary phenomena. 2. To enable the students to understand the fundamental concepts of money and banking. 3. To help the students to know about the existing monetary policy in India. 4. To help the students to understand the theories of trade cycle 5. To enable the students to understand the banking system in India.				

UNIT I: Evolution of money

Evolution of Money –Barter system and its defects – kinds of money – functions of Money – Benefits and Drawbacks of Money - Paper standard –Advantages and Disadvantages – Fiduciary system - Methods of Note Issue – Role of Money in Developing and Mixed economy.

UNIT II: Value of money

Value of money – depreciation and appreciation of money- Theories of Money – Irving Fisher's Quantity Theory of Money – Cambridge Equations – Superiority of Cambridge version over Fisher's version.

UNIT III: Inflation and deflation

Inflation – Meaning – Causes for Inflation – Types of Inflation – Effects of Inflation – Inflationary Gap – Anti-Inflationary Measures – Deflation – Meaning – Causes for deflation – Effects of Deflation.

UNIT IV: Trade cycle

Trade Cycle – Meaning – Characteristics – Causes – Phases of Trade cycle – Theories of Trade of cycle – Schumpeter's and Keynesian theory of Trade cycle.

UNIT V: Banking

Functions of commercial Banks – Role of Commercial Banks in Economic Development – Credit Creation – Functions of Central Bank – Recent trends in Banking: ATM, Debit card, Credit card, e-banking.

TEXT BOOKS:

1. Seth M.L., Money Banking and International Trade and public Finance, Lakshmi Narayan Agarwal, Educational Publishers, Agra, 2017.
2. Cauvery R., Sudha Nayak U.K., Kruparani N., and Manimekalai A., Monetary Economics, S,Chand & Co. Ltd, New Delhi, 2010.

REFERENCE BOOKS:

1. Indian Institute of Banking and Finance, International Finance, Taxmann Publ, 2021.
2. D.M. Mithani, Money, Banking, International Trade and Public Finance, Himalaya, 2017.
3. Suraj B Gupta, Monetary Economics: Institutions, Theory and Policy, S.Chand, 2010.
4. Sundaram K.P.M., Money Banking & Public Finance, Alfa Publications, 2009.
5. Steven N Durlauf & Lawrence E Blume, Monetary Economics, New Palgrave Pub, 2009.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Learn about the evolution of monetary system	**K1**
CO2	Examine the importance of money in the economy.	**K3**
CO3	Understand the meaning and theories of Trade cycle	**K2**
CO4	Examine the role of money in different business situations.	**K4**
CO5	Evaluate the role of banking system in the economy	**K5**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M	M	W	W	W	W	M	M
CO2	S	S	S	S	S	S	M	M	M	M	M	N
CO3	S	W	W	W	M	M	M	M	S	S	S	M
CO4	S	M	M	M	M	S	S	S	S	S	M	W
CO5	S	S	S	S	M	M	M	W	W	N	S	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECA22	ECONOMIC STATISTICS–II	L	T	P	C
ALLIED -IV			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To make the students community to understand the applications of statistics in economics. 2. To make the students to understand the application of statistics in research. 3. To make the students to understand the application of statistics in other fields. 4. To enable the students to understand the correlation and regression techniques, 5. To help the students to understand the concept of probability and its applications				

UNIT I: Correlation and Regression

Correlation and Regression – Scatter Diagram, - Karlpearson's Coefficient of correlation – Spearman's Rank correlation –Regression lines – Regression equations.

UNIT II: Association of Attributes

Association of Attributes – Independence – Consistence association – disassociation – Yule's coefficient of association – simple cases.

UNIT III: Index Numbers

Index Numbers – definition and Classification - methods of constructing price and cost of living index numbers – problems in the construction of the index numbers – uses. Limitations

UNIT IV: Time Series

Time Series – Nature, Objectives and components, methods of Measurements of trend and seasonal Variations – Applications in Economics and Business.

UNIT V: Probability

Probability – definition – concepts Rules of probability – Addition and Multiplication Theorem.

NOTE: Question Papers must contain problems to the extent of 60 % of the marks allotted to the subject.

TEXT BOOKS:

1. Gupta S.P, Statistical Methods, Sulthan Chand & sons, New Delhi, 2014.
2. Gupta S.C and Kapoor V.K, Fundamentals of Applied Statistics, Sulthan Chand & sons, New Delhi, 2010.

REFERENCE BOOKS:.

1. Manoharan M Palani Paramount Publications, Palani, 2012.

2. Gupta S.C Fundamentals of Statistics, Himalaya Publishers 2020.

3. Gupta S.C and Indira Gupta Business statistics, Himalaya Publishers 2019.
4. Bhupendra T .Kesaria Numerical & Statistical Methods, Himalaya Publishers 2018.
5. Kathambarajan D. Economic & Business Statistics, Himalaya Publishers 2017.
6. Seemon Thomas Business Statistics, Narosa Publishing house, 2014.

Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Acquire knowledge on basic concepts of statistical methods relevant to economic problems.	**K1**
CO2	Apply the theoretical and practical knowledge to do applied statistical methods	**K3**
CO3	Analyse the Correlation and Regression.	**K4**
CO4	Acquire the knowledge on index numbers and time series.	**K2**
CO5	Practice association of attributes, time series and basic concepts of probability	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**M**	**S**	**M**	**M**	**W**	**S**	**M**	**W**	**S**	**M**
CO2	**S**	**M**	**W**	**S**	**M**	**M**	**S**	**W**	**S**	**M**	**S**	**M**
CO3	**W**	**S**	**M**	**S**	**M**	**M**	**M**	**W**	**S**	**W**	**S**	**M**
CO4	**S**	**M**	**M**	**W**	**S**	**S**	**M**	**M**	**S**	**M**	**W**	**M**
CO5	**S**	**W**	**S**	**M**	**S**	**M**	**M**	**M**	**W**	**W**	**S**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER - III

<table>
<tr><td>COURSE CODE</td><td>U21ECT31</td><td rowspan="2">MACRO ECONOMICS–I</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -V</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To help the students to understand the fundamental concepts of macroeconomics.
2. To create basic knowledge about macroeconomic policy and tools.
3. To Provide a strong foundation for the students to clarify the ideas of macro economics
4. To impart knowledge on the concepts of National Income
5. To provide knowledge on theories of employment</td></tr>
</table>

UNIT I: Introduction to Macroeconomics

Meaning of Macro Economics - Difference between Micro and Macro Economics — Importance and Limitations of Macro Economics analysis – Circular Flow of Income – Two, Three and four Sector Models

UNIT II: National Income

Definition and concept – Per – capita income and Disposal personal income, Real income and National Income – Concept of National Product – GNP and NNP – Methods of Measuring National Income – Difficulties in the computation of National Income – National Income and Social Welfare – Uses of National Income – Social Accounting.

UNIT III: Theory of employment

Meaning of Full Employment – Kinds of Unemployment – Classical Theory of Employment – Say's Law of Market – Keynesian theory of Employment – Savings and Investment approach to under – employment equilibrium – A Comparison of Classical and Keynesian Theory of Employment

UNIT IV: Consumption function

Keynesian Psychological Law of Consumption – Significance of Keynes's Law – Propensity to consume – APC and MPC – Determinants of Propensity to consume.

UNIT V: Theories of Consumption Function

Propensity to consume - Absolute Income Hypothesis – Relative Income Hypothesis – Permanent Income Hypothesis – Life Cycle Hypothesis.

TEXT BOOKS:

1. Dr.S.Sankaran, Macro Economics, Margham Publication, 2016.
2. L.N.Dutta Modern Macro Economics, Publisher IK International Publishing, 2013.
3. H.L.Aguja Macro Economics Theory and Policy Publisher S.Chand, 2019.

REFERENCE BOOKS:

1. M.L.Jhingan, Macro Economic Theory, Publisher Vrinda Publication, 13th Edition, 2017.
2. Lovelean Gupta & Pradeep kumar Panda, Macro Economics, A Primer Publisher, Bharthi Bhawan, 1st edition, 2017.
3. M.L.Seth, Macro Economics, Lakshmi Narain Agarwal Pub, 2017.
4. David Romer, Advanced Macro Economics, McGraw Hill India Publisher, Edition 4, 2019.
5. Rana K.C. & Verma, Macro Economic Analysis, Vishal Publishing Co, New Delhi, 2014.
6. Rangaraj Narayan, Principles of Macro Economic Publisher, McGraw Hill Education, 2012.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Understand the evolution of Macro Economics and know the difference between micro and macroeconomics.	**K1**
CO2	Examine the various concepts of National income Accounting and issues related to measurement of National income, and also develop an environmental concern in economic activities	**K4**
CO3	Comprehend the classical theory of output, employment and income and consumption function.	**K2**
CO4	Apply the knowledge to understand the Consumption function and theories of consumption function.	**K3**
CO5	Create awareness on various concepts of investment, determinants of investment, role of MEC.	**K5**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	S	M	M	S	S	S	W	S	M
CO2	S	M	M	M	W	W	M	M	M	S	S	M
CO3	S	S	W	S	S	M	M	S	W	N	W	M
CO4	S	S	W	W	M	M	S	S	M	M	M	S
CO5	S	S	W	M	S	S	M	M	M	S	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECA33</td><td rowspan="2">PRINCIPLES OF ACCOUNTANCY–I</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED -III</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K4: Analyze K5: Evaluate K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To help the students to understand the book keeping.
2. To enrich the knowledge of students in preparing journals, ledger and cash book.
3. To provide knowledge about bills of exchange.
4. To make the students to understand the fundamental principles of accounting
5. To provide knowledge on subsidiary books in accounting</td></tr>
</table>

UNIT I: Introduction to Book Keeping

Meaning – scope and importance - Introduction to Book keeping – Journal – Ledger - double entry book keeping.

UNIT II: Subsidiary Books

Subsidiary books – purchase book, sales book, cash books-single column cash book, double column cash book and triple column cash book.

UNIT III: Capital and Revenue Expenditure account

Capital and Revenue Expenditure and Income, Final accounts and Balance sheet of sole Trading concerns–common adjusting Entries

UNIT IV: Bills of Exchange

Bills of Exchange – Account Entries

UNIT V: Average Due Date

Average Due Date

TEXT BOOKS:

1. Gupta R.L & Gupta V.K, Principles and Practice of Accountancy, Sultan Chand & Sons, 2019.
2. Maheswari S.N & Maheswari S.K, Financial Accounting, 5th edn, Vikas, 2012.

REFERENCE BOOKS:

1. Grewal T.S & Gupta S.C, Introduction to Accountancy, S. Chand, 2016.
2. Narayanaswamy R, Financial Accounting: A Managerial Perspective, 5th edn, PHI, 2014.
3. Vinayakam N & Charumati B, Financial Accounting, S. Chand, 2004.

Course Outcomes:

On the successful completion of the course the students will be able to:

CO1	Enhance their knowledge in preparing final accounts.	**K2**
CO2	Prepare various types of accounts.	**K4**
CO3	Understand the book keeping procedure	**K1**
CO4	Analyse the capital and revenue expenditure accounts	**K4**
CO5	Gain knowledge to evaluate verification and valuation of bills of exchange	**K6**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	M	M	W	S	S	S	M	M
CO2	S	M	M	M	S	S	S	S	M	W	M	N
CO3	S	M	S	S	S	M	M	M	W	M	M	S
CO4	S	M	M	M	S	S	M	W	W	M	M	S
CO5	S	S	S	M	M	M	S	S	N	M	M	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECE311	CHOICE -I	L	T	P	C
ELECTIVE -I		PRINCIPLES OF MANAGEMENT	4	-	-	3
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To make the students to understand the management concepts. 2. To Develop the skills of decision making, organizing and management of a business organization 3. To help the students to understand the principles of management. 4. To acquire knowledge of manpower planning, motivation theory and communication barriers and importance. 5. To understand the importance of leadership in business scenario				

UNIT I: Character and functions of Management
Management – Meaning and Definition – Characteristics Function Importance – Approaches to the study of management – Henry Foyol's Theory of management – F.W. Taylor's theory of scientific Management.

UNIT II: Managerial Planning
Managerial planning – Meaning & Definition – characteristics Objectives – steps in planning Process – Methods of planning – Planning tools- Significance – obstacles to effective planning.

UNIT III: Forecasting and Decision making
Forecasting - Concept - Techniques - Decision Making Need - Elements In Decision making – Decision making Process- Types - Factors involved in Decision Making - Decentralisation - Delegation of Authority - Span of Control.

UNIT IV: Directing and Controlling
Directing –Principles of Direction – Importance – Types –Motivation-Meaning-Importance. Controlling –steps in Control Process – Techniques of control – needs for control –Types of Managerial control.

UNIT V: Leadership
Leadership - Definitions - Characteristics - Distinction between leadership and management - Importance of Leadership - Formal and Informal Leaders - Functions and qualities of a Good Leader.

TEXT BOOKS:

1. Tripathi P.C & Reddy P.N, Principles of Management, 6th edn, Tata McGraw Hill, 2017.
2. T.Ramasamy, Principles of Management, Himalaya Publishing House, 2014.

REFERENCE BOOKS:

1. L.M. Prasad, Principles and Practice of Management, Sultan & Sons, 2019.
2. C.B. Gupta, Business Organisation and Management, Sultan Chand & Sons, 2019.
3. Ramesh B Rudani, Principles of Management, 2nd edn, McGraw Hill, 2019.
4. Dinker Pagare, Principles of Management, Sultan and sons Publications, 2018.
5. Lallan Prasad, S.S. Gulshan, Management: Principles & Practice, S. Chand & Co, 2011.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Improve their knowledge on the Management techniques	**K3**
CO2	Develop the skills of good managers.	**K5**
CO3	Apply the forecasting techniques in decision making	**K4**
CO4	Acquire knowledge of manpower planning, motivation theory and communication barriers and importance.	**K2**
CO5	Understand the importance of leadership in business scenario	**K1**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	M	S	S	S	M	W	W	S	S
CO2	S	S	S	M	S	M	S	W	M	N	S	S
CO3	M	S	S	W	S	M	S	W	N	M	M	S
CO4	M	S	S	W	M	W	S	M	N	S	S	S
CO5	S	S	S	N	S	M	M	W	N	M	S	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECE312	CHOICE -II	L	T	P	C
ELECTIVE -I		MICRO FINANCE AND WOMEN EMPOWERMENT	4	-	-	3
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To make the students to understand the factors determining women empowerment 2. To enable the students to understand the role of micro finance in poverty alleviation 3. To impart the knowledge on Women Empowerment 4. To enable the students to understand the role of banks in micro finance. 5. To make the students to understand the challenges to the Self Help Groups.				

UNIT 1: Empowerment of Women

Meaning – Factors determining Women Empowerment – Challenges - Role of Women Empowerment in the Indian Economy.

UNIT II: Micro Finance

Concept – Elements – Importance – History of Micro Finance – Role of Micro Finance in Poverty Alleviation – Role of Banks in Micro Finance.

UNIT III: Techniques of Women Empowerment

Women Empowerment Programmes – Women Empowerment through Micro Finance – Women and Child Development Welfare Programmes: Awareness Camps,.

UNIT IV: **Self Help Group**

Meaning – Activities of the Self Help Groups: Savings, Credit, Marketing and Insurance – Rules for the Formation of Self Help Groups – Role in Self Help groups.

UNIT V: **Evaluation of Self Help Group**

Need and Features of Evaluation of Self Help Groups – Role of Governmental and Non-Governmental Organisation in Strengthening Self Help Groups – Marketing Challenges to the Self Help Groups - Problems faced by Self Help Groups.

TEXT BOOK:

1. Subhas Chandra Parida & Sasmita Nayak, Empowerment of Women in India, Northern Book Centre, New Delhi, 2009.
2. Muralidhar A. Lokhande, Micro Finance and Women Empowerment, New Century Pub, 2014.

REFERENCE BOOKS:

1. Sukanta Sarkar & Mohammad Afsar Alam, Microfinance and Women Empowerment: A Geo-Economic Perspective, 2015.
2. Rama Raju P.S., Women Empowerment: Strategies and Interventions, Swastik Publications, New Delhi, 2014.
3. Ganesamurthy V.S, Empowerment of Women in India: Social, Economic and Political, New Century Publications, New Delhi, 2008
4. Das S.K, Nanda B.P and Rath J, Microfinance and Rural Development in India, New Century Pub., New Delhi, 2008.
5. Hajira Kumar and Jaimon Varghese, Women Empowerment: Issues, Challenges and Strategies: A Source Book, Regency Publications, New Delhi, 2005.

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Understand the factors determining women empowerment	**K1**
CO2	Examine the role of banks in providing micro finance.	**K3**
CO3	Gain knowledge on women empowerment programme	**K2**
CO4	Analyse the role of micro finance in poverty alleviation	**K4**
CO5	Evaluate the role of micro finance in women empowerment	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**S**	**M**	**S**	**S**	**S**	**M**	**W**	**W**	**S**	**S**
CO2	**S**	**S**	**S**	**M**	**S**	**M**	**S**	**W**	**M**	**N**	**S**	**S**
CO3	**M**	**S**	**S**	**W**	**S**	**M**	**S**	**W**	**N**	**M**	**M**	**S**
CO4	**M**	**S**	**S**	**W**	**M**	**W**	**S**	**M**	**N**	**S**	**S**	**S**
CO5	**S**	**S**	**S**	**N**	**S**	**M**	**M**	**W**	**N**	**M**	**S**	**S**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECN31</td><td rowspan="2">GENDER AND ECONOMY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NON MAJOR ELECTIVE-I</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To help the students to understand the importance of women development.
2. To help the students to understand the problems of women labourers.
3. To help the students to understand the health issues of women.
4. To impart knowledge on occupational pattern of women
5. To impart knowledge on women development programme.</td></tr>
</table>

UNIT I: Women in organize sector

Women in organized and unorganized sector.

UNIT II: Occupational Pattern

Occupational pattern of women in India.

UNIT III: Problem and Working conditions

Problems and working Conditions of Indian women.

UNIT IV: Education Levels

Women and Education in different levels – primary, Secondary And tertiary.

UNIT V: Health status

Health status of women in India.

TEXT BOOK:

1. Mahajan V.S, Women's Contribution to India's Economic and Social Development, Deep and Deep Publication, Delhi 1989.

REFERENCE BOOKS:

1. Sriani A.K, Gender in Employment Policies and Programmes: What Works for Women?, ILO, 2017.
2. Pulla Rao D, Status of Women in Education, Employment and Social Exclusion: Essays in Honour of Prof. K.S. Chalam, Serials Pub, 2011.
3. OECD, Report on the Gender Initiative: Gender Equality in Education, Employment and Entrepreneurship, OECD Pub, 2011.
4. International Labour Office, Women in Labour Markets: Measuring Progress and Identifying Challenges, ILO, 2010.
5. Bandi S.A, Forms of Production and Women's Labour, Sage Pub, 1992.
6. Nirmala Banerjee, Indian Women in a Changing Industrial Scenario, Sage Pub, 1991.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Get knowledge on women development programmes.	**K2**
CO2	Identify the problems of women in organized and unorganized	**K3**
CO3	Understand the occupational pattern of women	**K1**
CO4	Assess the educational levels of women	**K4**
CO5	Gain knowledge on health status of women	**K5**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	W	S	S	S	M	M	M	S	M
CO3	S	W	S	M	S	S	S	W	S	W	S	M
CO4	S	S	S	S	S	M	S	S	W	S	S	S
CO5	S	S	M	N	M	S	S	S	S	S	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER-IV

COURSE CODE	U21ECT41	ENVIRONMENTAL ECONOMICS	L	T	P	C
CORE- VI			4	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To help the students in gaining knowledge about environmental economics. 2. To make the students understand the Nature and Scope of environmental economics in India. 3. To know the basic Concepts in Ecology and Economic development 4. To make the students aware of the environmental problems 5. To make the students to understand the environmental protection measures				

UNIT I: Economics and Environment

Introduction - Economics and Environment – Definition – Scope – Role - Significance of Environmental Economics - Economic Growth and Development - Ecology and Economic Development - Relationship between Environment and the Economy - Environment and Economic System

UNIT II: Economic development and Quality of Environment

Economic Development and Quality of Environment- Environmental Issues in Developed and Developing Countries – Uses of Resources – Environmental Protection Laws- Environmental Education in Curriculum.

UNIT III: Cost Benefit Analysis

Cost Benefit Analysis – Environmental cost of Economic growth – Limits to growth –Pollution cost distribution- Effects- Plans – Total and Marginal Benefits of Pollution Control – Efficiency in Pollution- Pollution Control Boards.

UNIT IV: Environmental Policy

Environmental Policy - Constitutional Protection - Planning and Management - Role of Government - Public Awareness - Law and Environment

UNIT V: Global Warming

Meaning of Global Warming - Green House Effect - Contribution to Global Warming - Response to Green House Effect - Ozone Depletion - Climate Change - Contribution of Nation and State

TEXT BOOKS:

1. Sankaran.S., Environmental Economics, Margham Publications, Chennai, 2012
2. Eugine T., Environmental Economics, Virnda Publications, 2005.

REFERENCE BOOKS:

1. Karpagam,M, Environmental Economics: A Textbook, 3rd edn, Sterling Pub, New Delhi, 2019.
2. Subhashini Muthukrishnan, Economics of Environment, PHI, 2015.
3. Ganesamurthy, V.S., Environmental Economics in India, New Century Publications, New Delhi, 2009.
4. Jhingan M.L and Sharma C.K, Environmental Economics: Theory, Management and Policy, 2nd edn, Vrinda Publications, 2009.
5. Ulagnathan Sankar, Environmental Economics, Oxford University Press, New Delhi, 2003.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Gain knowledge about environmental economics.	**K2**
CO2	Understand the Nature and Scope of environmental economics in India.	**K1**
CO3	Apply the basic Concepts in Ecology and Economic development	**K3**
CO4	Aware of the environmental problems	**K4**
CO5	Evaluate global warming and take environmental protection measures	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	S	S	S	S	W	S	W	**S**	**M**
CO2	S	M	S	S	M	S	M	M	M	S	**W**	**M**
CO3	S	M	M	M	N	S	W	M	M	N	**S**	**S**
CO4	S	M	W	M	M	S	M	W	M	M	**M**	**M**
CO5	S	M	S	M	W	S	S	M	M	M	**M**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECT42</td><td rowspan="2">MACRO ECONOMICS-II</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE- VII</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K2: Understand K3: Apply K4: Analyze K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To provide an elaborate understanding in the subject matter of macro economics.
2. To make the students to aware of the recent developments in the subject of macroeconomics.
3. To make the students to know about the relevance of macroeconomic concepts to the economy.
4. To make the students to understand the various phases of trade cycle and the theories of trade cycles.
5. To make the students to understand the role of monetary and fiscal policies in developing economy.</td></tr>
</table>

UNIT I: Investment function

Investment function – Meaning – Types – Determinants of Investment – Difference between Autonomous Investment and Induced Investment – Factors determining Investment Function – Marginal Efficiency of Capital and Rate of Interest – Investment Demand Schedule.

UNIT II: Multiplier and accelerator

Multiplier – Static and Dynamic multipliers – Induced Investment and Accelerator – The interaction principle – Super Multiplier.

UNIT III: Trade cycle

Trade cycle: Meaning – nature – types and phases of a Trade cycle. Theories of trade cycle; Keynesian theory of trade cycle. Schumpeter's innovation theory –Hwatrey's theory - Hicks theory of trade cycle .

UNIT IV: Post Keynesian and macro analysis

Post Keynesian Macro Analysis – General equilibrium of monetary and real sector – contribution of Hicks, Hansen – IS and LM – Diagram.

UNIT V: Monetary and Fiscal policy

Macro-Economic policy: Meaning - Targets - instruments, objectives of macroeconomic policy - Fiscal Policy – Objectives – Role of fiscal policy in a developing economy – Effectiveness of monetary and fiscal policies.

TEXT BOOKS:

1. Sankaran S, Macro Economics, Margham Publication, 2016.
2. Ahuja H.L, Macro Economics Theory and Policy, S.Chand, 2019.

REFERENCE BOOKS:

1. Sinha V.C, and Ritu Shrivastava, Macro Economics, SBPD Pub, 2021.
2. David Romer, Advanced Macro Economics, M.C.Graw Hill, 4th edn, 2019.
3. M.L.Jhingan, Macro Economic Theory, Publisher Vrinda Publication, 13th edn, 2017.
4. Lovelean Gupta and Pradeepkumar Panda, Macro Economics, Bharthi Bhawan, 2017.

5. M.L.Seth, Macro Economics, Lakshmi Narain Agarwal, 2017.
6. Rana K.C. and Verma, Macro Economic Analysis, Vishal Pub, 2014.

Course Outcomes:

On the successful completion of the course the students will be able to:

CO1	Gain knowledge about recent developments in theories of macro economics	**K2**
CO2	Examine the working principles of Multiplier and Accelerator, Super Multiplier.	**K3**
CO3	Attain the knowledge in classical and Keynesian theories of income and employment	**K4**
CO4	Assess the various phases of trade cycle and the theories of trade cycles.	**K5**
CO5	Describe the role of monetary and fiscal policies in developing Economy.	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**M**	**M**	**W**	**W**	**M**	**M**	**M**	**M**	**M**	**M**
CO2	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**M**	**M**	**W**
CO3	**S**	**S**	**S**	**S**	**S**	**W**	**W**	**W**	**M**	**M**	**M**	**N**
CO4	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**
CO5	**S**	**M**	**M**	**M**	**M**	**W**	**M**	**M**	**M**	**S**	**S**	**S**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECA44</td><td rowspan="2">PRINCIPLES OF ACCOUNTANCY-II</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED - IV</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To help the students to understand the concepts of accounting.
2. To help the students to understand the basic principles of accountancy.
3. To help the students to understand the application of financial accounting in business.
4. To help the students to understand the preparation of income and expenditure account
5. To provide knowledge on Insurance claims</td></tr>
</table>

Unit-I Self Balancing Ledger

Self Balancing Ledger

Unit-II Preparation of final accounts

Preparation of Final accounts from incomplete records.

Unit-III Receipts and Payment accounts

Receipts and Payments accounts.

Unit-IV Preparation of Income and Expenditure Accounts

Preparation of Income and Expenditure Accounts from receipts and payment accounts

Unit-V Insurance claims

Insurance claims for loss of stock only.

TEXT BOOKS:

1. Shukla M.C, Grewal T.S, and Gupta S.C, Advanced Accounts-Vol.2, 19th edn, S.Chand, 2016.
2. Pillai R.S.N et-al, Fundamentals of Advanced Accounting-Vol.1, S.Chand, 2012.
3. Pillai R.S.N et-al, Fundamental of Advanced Accounting-Vol.2, S.Chand, 2010.

REFERENCE BOOKS:

1. Gupta S.C, Grewal T.S, and Shukla M.C, Shukla & Grewal's Financial Accounting, S.Chand, 2019.
2. Maheswari S.N et-al, Advanced Accountancy-Vol.1, 11th edn, Vikas, 2017.
3. Leslie Breitner and Robert Anthony, Essentials of Accounting, 11th edn, Pearson, 2011.
4. Mishra K.C and Guria R.C, Financial Management and Insurance Accounting, Cengage Pub, 2009.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Understand the procedures of book keeping.	**K1**
CO2	Prepare final accounts.	**K6**
CO3	Prepare journals, ledger and cash book.	**K6**
CO4	Assess the capital and revenue expenditure accounts	**K3**
CO5	Gain knowledge on Insurance claims	**K2**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**M**	**W**
CO2	**S**	**M**	**M**	**M**	**S**	**S**	**S**	**S**	**M**	**W**	**N**	**S**
CO3	**S**	**M**	**S**	**S**	**S**	**M**	**M**	**M**	**S**	**S**	**M**	**S**
CO4	**S**	**S**	**W**	**S**	**S**	**S**	**M**	**M**	**M**	**M**	**S**	**S**
CO5	**M**	**S**	**S**	**S**	**N**	**M**	**M**	**M**	**M**	**W**	**S**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECE421	CHOICE -I	L	T	P	C
ELECTIVE-II		MARKETING	3	-	-	3
Cognitive Level		**K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To give solid understanding of key marketing concepts and skills. 2. To enable the students to understand the basic aspects of marketing. 3. To perform situation analysis to assess marketing opportunities 4. To make the students to learn about e-commerce and e-marketing. 5. To help the students in developing skills in marketing management				

UNIT I: Marketing Concepts

Marketing – Meaning and Definition – Planning – Planning process Types of Marketing Plan, Competitive Marketing Strategies, Interactions between Marketing Mix and Marketing Environment – Marketing objectives –Marketing organization – marketing risk.

UNIT II: Functions of Marketing

Functions of marketing – concentration – dispersion – Equalisation – buying and assembling – selling – transportation – storage – standardization – grading – AGMARK – ISI – ISO Certification.

UNIT III: Marketing Information System and Marketing Research

Marketing Information System – meaning and definition – characteristics – need – uses – components – marketing research – need – scope – kinds – procedure for marketing research.

UNIT IV: State Trading and Pricing

Policies State and marketing in India – State Trading – benefits – pricing policies – factors influencing price – marketable and marketed surplus – methods of sales promotion.

UNIT V: Commodity Exchange

Commodity exchange – Regulated markets – meaning – functions, working of commodity exchange - methods of trading. Recent Trends in Marketing - E-commerce, E-marketing, E-Retailing, Relationship marketing, Mobile marketing, Green marketing.

TEXT BOOKS:

1. Natarajan N, Marketing, Margham Publications, Chennai, 2017.
2. Philip Kotler and Kevin Lane Keller, Marketing Management, 15th edn, Pearson, 2015.

REFERENCE BOOKS:

1. Sherlekar S.A, Marketing: Principles and Management, Himalaya Pub, 2015.
2. Pillai R.S.N and Bagavathi, Marketing Management, 3rd edn, S.Chand, 2012.
3. Kathiresan S and Radha V, Marketing Management, Bhavani Pub, 2011.
4. Mamoria C.B et-al, Marketing Management, Himalaya, 2012.
5. Kapoor D.C., Marketing and Sales Management, Sultan Chand, 2017.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Gather, analyse and draw conclusions from market and environmental data.	**K2**
CO2	Develop marketing strategies such as segmentation, targeting and positioning to achieve company objectives.	**K5**
CO3	Build an effective marketing plan to promote a company product service.	**K4**
CO4	Make strategic recommendations and persuasively communicate their recommendations and rationale.	**K3**
CO5	Develop skills in marketing management	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**M**	**M**	**M**	**M**	**S**	**S**	**S**	**M**	**S**	**S**
CO2	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
CO3	**S**	**W**	**S**	**S**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**
CO4	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**W**
CO5	**S**	**M**	**M**	**S**	**S**	**S**	**S**	**S**	**W**	**M**	**M**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECE422</td><td>CHOICE -II</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE-II</td><td>EXPORT PROCEDURE AND DOCUMENTATION</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To improve the knowledge of the students in Export Marketing and procedure.
2. To equip the students to gain knowledge and skills in export documentation
3. To make the students to be aware of the importance of export licensing
4. To prepare the students to be aware of the export finance and post shipment finance.
5. To enable the students to understand the factors influencing the export marketing communication.</td></tr>
</table>

UNIT I: Preliminaries for Export

Meaning and Definition of export – classification-Strategy and preparation for export marketing-Registration formalities-Export licensing—Selection of Export product-methods of exporting.

UNIT II: Export Documentation

Aligned Documentation system-certificate of origin-Commercial Invoice , Shipping Bill , Certificate of Origin – Consumer invoice- Pre-shipment procedure- Bill of lading-Types of marine insurance policies

UNIT III: Export Procedure

Steps in export procedure-Export contract-Forward cover—Export finance-Excise clearence-Pre-shipment inspection-Shipping and custom formalities

UNIT IV: Export Finance

Export Finance- Need and purpose- time and source – pre- shipment finance- packing credit – period of packing credit – packing credit to sub – suppliers – foreign currency – post shipment finance – export finance in India

UNIT V: Export Communication

Export Communication – communication process – factors influencing international marketing communication – Export marketing channels of communication - channel of distribution – selection of distribution channel.

TEXT BOOK:

1. Natarajan L, International Marketing, Margham Publications, Chennai, 2014

REFERENCE BOOKS:

1. Madhurima Lall & Sultan Ahmad, Export Import: Procedure and Documentation, Sultan Chand, 2021.
2. Balaji.C.D., International Trade, Margham Publications ,Chennai, 2018
3. John Daniels et-al, International Business, 16th edn, Pearson, 2018.
4. Gupta C.B, International Business, S.Chand, 2014.
5. Sankaran.S, International Trade, Margham Publications, 2011.
6. Kapoor D.C, Export Management, Vikas, 2007.

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Gain knowledge in export procedure.	**K2**
CO2	Understand the export procedure and policy decision	**K1**
CO3	Apply the Regulation and Prohibition measures of Export	**K3**
CO4	Evaluate India's Export finance	**K5**
CO5	Examine the factors influencing international marketing communication.	**K4**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	S	M	S	S	S	S	M	M	M
CO2	S	S	S	S	M	S	S	M	N	S	S	W
CO3	S	M	M	M	S	S	S	M	M	M	N	S
CO4	S	S	S	S	S	S	S	S	S	M	M	M
CO5	M	S	M	M	M	M	S	S	W	M	S	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation

<table>
<tr><td>COURSE CODE</td><td>U21ECN42</td><td rowspan="2">ECONOMICS FOR COMPETITIVE EXAMINATIONS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NON MAJOR ELECTIVE-II</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K5: Evaluate
K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To enable the students to prepare for various competitive examinations.
2. To make the students to understand the nature of Indian economy.
3. To make the students to understand the current trends in Indian industrial sector.
4. To equip the students with the knowledge regarding the relationship between industrial growth and economic development.
5. To impart knowledge on New Economic Policy</td></tr>
</table>

UNIT I: Features of Indian economy

Basic features of Indian economy

UNIT II: Demographic profile

Demographic Profile of Indian economy.

UNIT III: Agricultural sector

Agricultural sector in India

UNIT IV: Industrial sector

Industrial Sector in India

UNIT V: New economic policy

New Economic Policy in India

TEXT BOOKS:

1. Sankaran S, Indian Economy, Margham Publications, 2014.
2. Disha, Expert’s Quick Indian Economy for Competitive Exams, Disha Pub, 2018.

REFERENCE BOOKS:

1. Sanjay Kumar, Objective Economics: Collection of highly useful questions for Competitive Exams, Ramesh Pub House, 2021.
2. Nitin Singhania, Indian Economy for Civil Services and Other Competitive Examinations, 2nd edn, McGraw Hill, 2021.
3. Pranave Nerurkur, Mastering Economy of India: Competitive Exams, Kindle edition, 2020.
4. John Kennedy M, Objective Economics for Competitive Examinations, Himalaya, 2020.

5. Laxmikanth M, Indian Polity for Civil Services and other State Examinations, McGraw Hill, 2019.
6. Pearson, Indian Economy: Objective Questions for all Competitive Exams, Planet knowledge first edition, 2015

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Aware of the present scenario in Indian economy.	**K2**
CO2	Understand the demographic profile of India	**K1**
CO3	Examine the status of agricultural sector.	**K3**
CO4	Equip with the knowledge regarding the relationship between industrial growth and economic development.	**K5**
CO5	Create awareness on New Economic Policy of India	**K6**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	M	S	S	S	S	M	M	M
CO2	S	S	S	M	M	M	M	M	N	S	S	W
CO3	S	M	M	M	S	S	S	M	M	M	N	S
CO4	M	M	S	S	S	S	S	S	S	M	M	M
CO5	M	M	M	M	M	M	S	S	W	M	S	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER-V

COURSE CODE	U21ECT51	INDIAN ECONOMIC DEVELOPMENT–I	L	T	P	C
CORE-VIII			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To make the students understand the structure of Indian economic development. 2. To help the students to understand the problems of Poverty on Indian economic development and how it should be eradicated. 3. To understand the Population Policy of India 4. To understand the progress of Human Development 5. To understand the Economics Reforms of our country.				

UNIT I: Nature and Characteristics

Characteristics of Indian Economy -present scenario – types of economy -Major issues of development - Determination of Economic Development – Economic and non – economic factors.

UNIT II: Occupational and Social Infrastructure

Economic Development and Occupational Distribution - Worker Participation rate- Concept of Social Sector - Social Infrastructure – Development of general Educational and health Infrastructure- Educational Policy - Health and Family Welfare programmes.

UNIT III: Demography

Demography details of India-population growth-trends- birth rate and death rate – causes for increase birth rate in India – measures to control population growth-population policy in India.

UNIT IV: Human Development

Concept of Human Development - Human Development Index - Gender Related Development Index – Human Poverty Index – National Human Development Report – Progress of Human Development in India.

UNIT V: Poverty and inequality

Concept of Poverty – Estimates of Poverty in India – Causes for Poverty - vicious circle of poverty - inequality – types of inequality-Economic Reforms and reduction of poverty and inequality- Sen poverty index -Gini co-efficient.

TEXT BOOKS:

1. Sankaran S., Indian Economy, Margham Publications, 2014.
2. Dutt R & Sundaram K.P.M, Indian Economy, S.Chand, 72nd edn, 2016.

REFERENCE BOOKS:

1. Dristi Experts and Manohar Pandey, Indian Economy, Dristi Publication, 2020.
2. Vaishnavi Shankar, Indian Economy, Kiran Prakashan Publication, 2019.
3. Government of India: India Vision, Academic Foundation, New Delhi.2020
4. Sanjiv Verma, The Indian Economy, Unique Pub, 2018.

5. Ramesh Singh, Indian Economy, 10th edn, McGraw Hill, 2018.
6. Bhole L.M, Financial Institutions and Markets, 6th edn, McGraw Hill, 2017.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Learn about the nature of the Indian Economy and its basic characteristics.	**K1**
CO2	Discuss the magnitude of Social infrastructure in Indian Economic Development.	**K2**
CO3	Analyse the availability of human resources and make use of it.	**K4**
CO4	Examine the extent of Poverty and inequality and overcome in the society.	**K3**
CO5	Evaluate the Power of Various transport system and its impact .	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**S**	**S**	**S**	**S**	**M**	**M**	**M**	**W**	**S**	**S**	**M**
CO2	**S**	**M**	**M**	**S**	**S**	**S**	**W**	**S**	**S**	**S**	**M**	**M**
CO3	**S**	**S**	**M**	**M**	**M**	**M**	**M**	**M**	**S**	**S**	**M**	**N**
CO4	**M**	**S**	**W**	**S**	**S**	**S**	**S**	**S**	**S**	**W**	**M**	**M**
CO5	**M**	**S**	**M**	**M**	**M**	**N**	**S**	**S**	**W**	**S**	**S**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT52	MATHEMATICAL ECONOMICS–I	L	T	P	C
CORE-IX			5	-	-	4
Cognitive Level	**K1:** Recall **K2:** Understand **K3:** Apply **K6:** Create					
Learning Objectives	1. To enable the students to understand the fundamentals of mathematics. 2. To impart various mathematical methods. 3. To improve the mathematical knowledge of the students.. 4. To help the students to understand the relationship between economics and mathematics 5. To help the students to calculate the changes in basic economic variables					

UNIT I: Introduction

Use of Mathematical Techniques in Economics – Basic Rules of Arithmetic Operations – simple operations with common and decimal fraction – Algebraic Symbolism – Exponents and Radicals

UNIT II: Equations

Solution to linear equations – Linear Equation in one Variable –Simultaneous Linear Equation with Two and Three Variables

UNIT III: Application of linear equation in economics

Application of Linear Equation In Economics With reference to Linear demand function and Linear supply function only – Quadratic Equation (by using standard quadratic formula only)

UNIT IV: Logarithm

Logarithm – Definition – Formula (Product, Quotient, Exponent – No proof needed) – Calculation using logarithmic tables (simple problems only)

UNIT V: Set theory

Set Theory – Definition – Types of sets – Set operations - Union of sets – Intersection of sets - Difference of Sets- Complement of a sets - De-Morgan's law - Venn diagram (for 2 & 3 sets) – Problems for 2 sets and 3 sets and also using Venn diagram.

TEXT BOOKS:

1. Bose D, An Introduction to Mathematical Economics, Himalaya Publishing House, 2018.
2. Prabakar Pawas & Alka Budhiraja, A Text on Mathematical Economics, Academic Foundation, 1995.

REFERENCE BOOKS:

1. Kunt Sydsaeter & Peter J. Hammond, Mathematics for Economics Analysis, Pearson Publication, 2020.
2. Joshi R.C and Nancy, Mathematical Methods in Economics-II, Vishal Pub, 2019.
3. Agarwal C.S and. Joshi R.C, Mathematics for Students of Economics, The New Academic Publishing, 2017.

4. Nik Hashim Nik Mustapha, Mathematical Economics with Application, University Malaysia Teragganu Publication, 2015
5. Vali Shapoor, Principles of Mathematical Economics, Attantis, 2014.

Course Learning Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Apply mathematical formula in practical life.	**K3**
CO2	Understand the mathematical methods which are useful for economic study.	**K1**
CO3	Apply the Mathematics knowledge into Economics Theory	**K3**
CO4	Identify the relationship between economics and mathematics	**K2**
CO5	Calculate the changes in basic economic variables	**K6**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	M	M	S	S	S	W	M	M
CO2	S	S	S	M	S	M	M	S	M	S	S	S
CO3	S	S	M	S	S	M	W	M	S	W	N	M
CO4	M	S	S	W	S	N	S	M	W	M	S	S
CO5	S	M	S	S	M	M	W	W	S	S	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT53	INTERNATIONAL ECONOMICS	L	T	P	C
CORE-X			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K5:** Evaluate				
Learning Objectives		1. To enable the students to understand the working and application of open economic system. 2. To enable the students to understand the consequences of international trade. 3. To enable the students to understand the general concepts of international economics 4. To provide knowledge on the concepts of balance of payments and the terms of trade 5. To provide knowledge on exchange rate				

UNIT I: International trade

International Trade – Meaning – features Advantages and Disadvantages – Internal vs International Trade.

UNIT II: Theories of International trade

Classical Theory of International Trade – Hickscher Ohlin theory of International Trade – Free Trade vs Protection. Arguments for and Against Protection.

UNIT III: Balance of Payment

Balance of Trade and Balance of Payment – causes for Disequilibrium in balance of payments – Measures to correct it – BOP in India – Recent Position.

UNIT IV: Exchange rates

Foreign Exchange – Exchange rates - Determination – Theories – Mint Par Parity – Fixed and Flexible Exchange rates - Advantages and disadvantages.

UNIT V: International Financial Institutions

International Financial Institutions - Working of IMF, IBRD, IDA, International Liquidity, UNCTAD, New International Economic Order - WTO.

TEXT BOOKS:

1. Jhingan M.L, International Economics, 7th edn, Vrindha Pub, 2016.
2. Mithani D.M, International Economics, Himalaya Publishing House, Mumbai, 2015.

REFERENCE BOOKS:

1. Francis Cherunilam, International Economics, 6th edn, McGraw Hill, 2020.
2. Mannur H.G, International Economics, 2nd edn, Vikas, 2018.
3. Desai S.S.M, International Economics, Himalaya Publishing House, 2017.
4. Dominic Salvatore, International Economics: Trade and Finance, Wiley, 2014.
5. Gupta K.R, International Economics, Atlantic Pub, 2009.

Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the significance of international trade.	**K1**
CO2	Identify the importance of comparative cost concept in international trade	**K3**
CO3	Examine the functioning of the international financial institutions	**K2**
CO4	Understand the concepts of balance of payments and the terms of trade	**K1**
CO5	Evaluate the importance of the concept of exchange rate in international trade	**K5**

Mapping :

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	W	S	S	S	M	M	M	S	M
CO3	S	W	S	M	S	S	S	W	S	W	S	M
CO4	S	S	S	S	S	M	S	S	W	S	S	S
CO5	S	S	M	N	M	S	S	S	S	S	M	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT54	HISTORY OF ECONOMIC THOUGHT	L	T	P	C
CORE-XI			5	-	-	4
Cognitive Level	**K1:** Recall **K3:** Apply **K4:** Analyze **K5:** Evaluate **K6:** Create					
Learning Objectives	1. To provide knowledge on basic concepts of economics. 2. To make the students to know about contribution of various economists. 3. To provide theoretical knowledge about recent Indian economics thought. 4. To make the analytical interest in the Marxian Economics. 5. To understand the application of economic theories.					

UNIT I: Ancient Economic Thought

Introduction – Ancient Economic Thought –The Greek. Plato – Aristotle – The Roman – Kautilya‘s Arthasastra – Thiruvalluvar.

UNIT II: Medieval Economic Thought

Medieval Economic Thought – St. Thomas Aquinas- Mercantilism- Sir Thomas Mun- James Steuart- Physiocrates–Quessnay- Jacques- Classical Thoughts- Adam Smith- Malthus.

UNIT III: Economic Ideas of Marx

Karl Marx ideas – Dialectical Materialism- Theory of Class Struggle – Theory of Value and Distribution - Theory of Surplus Value- Industrial reserve army- Marxian Prediction - Scientific Socialism

UNIT IV: Economic ideas

Alfred Marshal – Keynes - J.B.Clark - J.B.Say - J.S.Mill - Irving Fisher - A.C.Pigou –Walras – Pareto - Their theories and Economic ideas.

UNIT V: Recent Indian Economic Thought

Recent Indian Economic Thought – Dada BaiNaoroji - M.K.Gandhi– Nehru- B.R.Ambedkar - VKRV Rao – AmartyaSen

TEXT BOOK:

1. Loganathan V, History of Economic Thought, S.Chand, 2012
2. Ganguli B. N, Indian economic Thought: A 19th Century Perspective, Tata McGraw Hill, 2013.

REFERENCE BOOKS:

2. Sankaran S, History of Economic Thought, Margham Publication, 2014.

3 Seshadri G. B, Economic Doctrines, B. R. Publishing Corporation, 2014.

4 Jhingan M.L, Girija M, and Sasikala L, History of Economic Thought, 3rd edn, Kindle Edition, 2014.

5 Hajela T.N, History of Economic Thought, 18th edn, Ane Books, 2011.

6 Blackhouse R, A History of Modern Economic Analysis, Basil Blackwell Oxford, 2011.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Get knowledge about thinking of various school of economists.	**K1**
CO2	Evaluate of economic ideas.	**K4**
CO3	Develop a positive attitude towards economic ideas.	**K6**
CO4	Get analytical interest in the Marxian Economics.	**K5**
CO5	Understand the application of economic theories.	**K3**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	M	S	M	W	S	M	M	M	S
CO2	S	S	M	S	S	W	M	S	S	S	M	M
CO3	S	S	S	M	S	M	N	S	W	M	M	N
CO4	S	S	S	M	S	M	M	S	S	S	S	S
CO5	S	S	M	S	M	M	M	S	M	M	M	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT55	AGRICULTURAL ECONOMICS	L	T	P	C
CORE-XII			5	-	-	4
Cognitive Level		**K1:** Recall **K3:** Apply **K4:** Analyze **K5:** Evaluate **K6:** Create				
Learning Objectives		1. To make the students to understand the features of Indian Agriculture 2. To make the students to understand the role of Institutional agencies for Agricultural credit 3. To equip the students with the knowledge regarding the relationship between Agricultural economy and Indian economy 4. To engage the students in the analysis of debt crisis in the farm sector. 5. To impart knowledge on agriculture policy in India				

UNIT I: Agricultural and economic Development

Agricultural Development – Role of Agriculture in Indian Economy- Agricultural Development under Five Year Plans- Productivity in Agriculture – Causes for Low Productivity- Measures to improve Productivity.

UNIT II: Agricultural Productivity

Productivity in Indian Agriculture, Measuring Agriculture Productivity, Farm size, Cropping Pattern – Mechanisation – Advantages and Limitations- Farm Size and Efficiency - Agricultural Labour and Wages – women in Agriculture, wage discrimination. Green Revolution- Problems of small and marginal farmers.

UNIT III: Agricultural Price Policy

Size of land holdings- Tenancy systems and Land Reforms – Supply of Inputs: Irrigation, Power, Seed and Fertilizer – Pricing of Inputs – Agricultural price policy in India – Minimum support price – objectives of price policy, Food security in India, PDS– Crop Insurance.

UNIT IV: Agricultural Finance and Agencies

Agricultural Credit in India - Agricultural Indebtedness – causes – remedies - Institutional agencies supplying Agricultural finance: Co-operatives, Commercial Banks, and Regional Rural Banks, NABARD. Role of Rural Credit Institutions. NBFC and agricultural credit.

UNIT V: Agricultural Marketing

Agricultural Markets- Definition and Scope – Recent State of Agricultural Marketing- Role and Functions of efficient marketing system - Types of Agricultural markets – cooperative marketing and regulated markets - New Agricultural policy.

TEXT BOOKS:

1. P.K. Gupta, Agricultural Economics, Vrinda Publication, Reprint 2020.
2. Singh C.B, and Singh R.K, A Textbook of Agricultural Economics, Lakshmi Publications, 2011.

REFERENCE BOOKS:

1. Andrew Barkley and Paul W Barkley, Principles of Agricultural Economics, Routledge, 2020.
2. Gail L.Cramer, Krishna P. Pandel and Andrew Schmitz, The Routledge Handbook of Agricultural Economics, Routledge, 2019.
3. Reddy S.S et-al, Agricultural Economics, 2nd edn, Oxford Pub, 2019.
4. Dhingra I.C, The Indian Economy, 28th edn, Sultan Chand, 2014.
5. Agarwal A.N., Indian Economy: Problems of Development and Planning 37th edition, New Age International Publishers, 2014.
6. P.Mala, Agricultural Economics, Dominant Publishers, 2014.

Course Outcomes:

On the successful completion of the course, the students will be able to

CO1	Get knowledge on the status of agricultural sector	**K1**
CO2	Develop the skills in the measurement of productivity.	**K6**
CO3	Apply their theoretical knowledge in pricing of agricultural products.	**K3**
CO4	Analyse of debt crisis in the farm sector.	**K4**
CO5	Gain knowledge about agriculture policy in India	**K1**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	M	S	S	S	M	M	W	S
CO2	S	S	S	S	M	M	W	S	S	M	M	M
CO3	S	M	M	S	S	M	M	W	M	M	M	S
CO4	S	M	S	M	S	S	S	M	M	N	S	S
CO5	S	S	S	M	M	M	M	S	S	M	M	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECE531	CHOICE -I	L	T	P	C
ELECTIVE-III		HUMAN RESOURCE MANAGEMENT	3	-	-	3
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze **K5:** Evaluate				
Learning Objectives		1. To enhance the knowledge of students in theories of human resource management. 2. To make the students to understand the importance of human health. 3. To make the students to understand the importance of human capital in economic development. 4. To enhance the knowledge of the students on staff recruitment and selection, employee relations management, staff training and job evaluation. 5. To impart knowledge on the concept of employee empowerment				

UNIT I: Introduction to Human Resource Management

Definition and Concept, Features, Objectives, Functions, Scope and Development of Human Resource Management, Importance of Human Resource Management, Human Resource Practices,

UNIT II: HRM and Personnel Management

Introduction, Concept of Personnel Management, Personnel Management in India, Functions of the Labour Welfare Officer, Difference between Personnel Management and HRM

UNIT III: Human Resource Planning

Human Resource Planning - Concept -Objectives- Need-Process- Benefits- Problems - Factors in HRP.

UNIT IV: Job Analysis

Job Analysis- Job Description and work design-Recruitment- Concept and Types of Recruitment- Selection- Concept and Process of Selection- Training- Concept and Types of Training- Performance Appraisal-Concept and Methods of Performance Appraisal- Job evaluation.

UNIT V: Employee Empowerment

Introduction, Concept of Employee Empowerment, Process of Empowerment, Empowerment in Indian Scenario, Empowerment in Global Scenario.

TEXT BOOK:

1. Jaysankar J, Human Resource Management, Margham Publications, 2013.

REFERENCES BOOKS:

1. Rao V.S.P, Human Resource Management, 2nd edn, Taxmann Pub, 2020.

2. Chhabra T.N and Monica S Chhabra, Essentials of Human Resource Management, Sun India Pub, 2020.
3. Aswathappa K, Human Resource Management: Text and Cases, 8th edn, McGraw Hill, 2017.
4. Mira S Saiyadain, Human Resources Management, 4th edn, McGraw Hill, 2008.
5. Gupta, C.B, Human Resource Management, Sultan Chand & Sons, 2012.

Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Equip with the management skills and human behavioural knowledge for a career in human resource management.	**K5**
CO2	Get understanding in the intellectual, social and personal development .	**K2**
CO3	Practically manage and coordinate people to achieve strategic business objectives.	**K3**
CO4	Exercise staff recruitment and selection, employee relations management, staff training and job evaluation.	**K4**
CO5	Gain knowledge on the concept of employee empowerment.	**K1**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	M	S	M	S	M	W	S	M	S	M
CO2	S	S	M	W	N	S	M	M	M	N	S	S
CO3	S	M	S	S	M	M	S	W	S	M	S	M
CO4	S	M	M	W	S	M	M	M	M	N	S	M
CO5	S	S	M	M	N	S	S	M	W	N	S	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECE532	CHOICE -II	L	T	P	C
ELECTIVE-III		POPULATION STUDIES	3	-	-	3
Cognitive Level		**K1:** Recall **K2:** Understand **K4:** Analyze **K6:** Create				
Learning Objectives		1. To make the students to understand the relationship between population growth and economic development. 2. To help the students to understand the reasons for migration. 3. To understand the population policy in India 4. To equip the students with the knowledge regarding the population policy of India 5. To understand the population trends in India.				

UNIT I: Population Science, Demography and Development

Population and Economic development- Population and environment -Implications of population Growth on Regional imbalances-Population Science and Demography- Meaning and scope of demography; components of population growth .

UNIT II: Theories of population growth

Malthusian Theory of Population- Optimum Theory of Population- Theory of Demographic Transition.

UNIT III: Fertility, Nuptiality and Mortality

Fertility, Nuptiality and Mortality-Importance of study of fertility – Factors affecting fertility – Socio-economic factors. Nuptiality – Concept and analysis of marital status, Mortality – Death rates, crude and age-specific; Mortality at birth and infant mortality rate.

UNIT IV: Migration and Urbanization

Migration and Urbanization-Concept and types – Temporary, internal and international; International migration –Its effect on population growth and pattern; Factors affecting migration; Urbanization – Growth and distribution of rural- Urbanization in India.

UNIT V: Population Policy

Population Policy in India-Evolution of population policy in India – The shift in policy from population control to family welfare, to women empowerment; Family planning programmes. Population trend in India

TEXT BOOK:

1. Jhingan M.L, Bhatt B.K. and Desai J.N., Economic Planning and Development, 3rd edn, Vrinda Publication, 2019.
2. Jain R.K, A Textbook of Population Studies, Neha Publishers, 2013.

REFERENCE BOOKS:

1. Rajendra Kumar Sharma, Demography and Population Problems, Atlantic Pub, 2020.
2. Tim Dyson, A Population History of India: From the First Modern People to the Present Day, Oxford University Press, 2018.

3. Krishnamurthy Srinivasan, Population Centres in India: Shifting Trends, Policies and Programs, Sage, 2017.
4. Pathak K.B and Ram F, Techniques of Demographic Analysis, Himalaya, 2016.
5. Majumdar P.K, India's Demography: Changing Demographic Scenario in India, Rawat Pub, 2013.
6. Mahendra K Premi, India's Changing Population Profile, National Book Trust, 2011.

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Understand the growth of population in India	**K1**
CO2	Know about the theories of Population	**K2**
CO3	Understand the concepts of Fertility, Nuptiality and Mortality.	**K1**
CO4	Analyse the reasons for migration.	**K4**
CO5	Develop a proactive attitude towards the population policy	**K6**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	S	S	S	S	S	M	W	W	S	S
CO2	S	S	S	M	S	M	S	W	M	N	S	S
CO3	M	S	S	S	S	M	S	W	M	M	M	S
CO4	M	S	S	S	M	W	S	M	M	S	S	S
CO5	S	S	S	N	S	M	M	W	S	M	S	S

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECS53	ECONOMICS OF TOURISM	L	T	P	C
SKILL BASED ELECTIVE-III			2	-	-	2
Cognitive Level	**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze					
Learning Objectives	1. To make the students to understand the role of tourism as an economic intervention and its significance in economy. 2. To make the students to understand the economic importance of tourism 3. To provide the knowledge about travel agents & tour operators 4. To emphasize on various tourism organization that brings about its development. 5. To give understanding in the global nature of the tourism Industry					

UNIT I: Economic importance of Tourism

Concepts- Definitions - Types of tourist- Types and Forms of Tourism;-Tourism system-Economic importance of Tourism – Contribution to National Income – Tourism and employment – Tourism and Foreign Gains.

UNIT II: Travel motivation

Factors influencing the growth of Tourism – Need for Rest and Relaxation – Travel Motivation – Participation in sports – Business activities.

UNIT III: Employment and Income creation

Employment and Income creation, Tourism Multiplier Effects, Balance of Payments, Foreign Exchange

UNIT IV: Tourism planning and tour operators

Tourism Planning- Need and Importance, Travel Agents and Tour operators -Role of Tourism Development Corporation in India.

UNIT V: Tourism Organizations:

Objectives and Role of ITDC- TTDC –IRCTC- IATO and Civil Aviation in development-Tourism in the Era of Globalisation.

TEXT BOOKS:

1. Jagmohan Negi, Travel Agency and Tour Operator, Kanishka Publishing House, 2012
2. Bhatia A.K, Tourism Development and Principles, Sterling Publishers, 2014

REFERENCE BOOKS:

1. Seth Praveen, Tourism: Today and Tomorrow, New Delhi, Anmol Publications, 2019.
2. Seth P.N and Bhat S.S, An Introduction to Travel and Tourism Management, Sterling Publication, 2017.
3. Bhatia A.K, Tourism in India, New Delhi, Sterling Publishers, 2016.
4. Ratan Deepsingh, Dynamics of Tourism, Kanishka Publishers, 2015.
5. Kaul R.N, Dynamics of Tourism, Sterling Publishers, 2013.
6. Singh P.K, Fifth Year of Indian Tourism, Kanishka Publishers, 2010.

Course Outcomes:

On the successful completion of the course, the students will be able to:

K3	**CO1**	Trace the impact of the tourism as a factor for development in all fields, viz., socioeconomic, ecological impacts.
K4	**CO2**	Analyse the impact of tourism on employment and income creation.
K2	**CO3**	Gain knowledge about travel agents and tour operators
K2	**CO4**	Get knowledge on various tourism organization that brings about its development.
K1	**CO5**	Understand the global nature of the tourism Industry

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	**S**	**M**	**M**	**W**	**S**	**S**	**W**	**M**	**S**	**M**	**W**	**M**
CO2	**W**	**S**	**M**	**S**	**M**	**M**	**S**	**S**	**M**	**W**	**S**	**M**
CO3	**S**	**M**	**M**	**W**	**S**	**M**	**S**	**M**	**S**	**M**	**W**	**M**
CO4	**S**	**W**	**S**	**M**	**S**	**M**	**M**	**M**	**M**	**W**	**S**	**M**
CO5	**S**	**W**	**S**	**M**	**S**	**S**	**M**	**W**	**S**	**M**	**S**	**M**

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

SEMESTER-VI

COURSE CODE	U21ECT61	INDIAN ECONOMIC DEVELOPMENT–II	L	T	P	C
CORE XIII			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze				
Learning Objectives		1. To make the students to understand the status of Indian agriculture. 2. To enable the students to have an understanding of the various issues/components of the Indian Economy. 3. To provide knowledge on economic planning of India. 4. To impart the knowledge of economic reforms in India 5. To provide knowledge on inclusive growth				

UNIT I: Agricultural Scenario

Role of Agriculture in Indian Economy - Causes for Low Productivity - Measures to Improve Productivity – Green Revolution - New Thrust Areas in Agriculture - New Agricultural Strategy.

UNIT II: Unemployment in India

Meaning – Concepts of Unemployment – Types of Unemployment – Causes for Unemployment – Remedial Measures for Unemployment.

UNIT III: Planning in India

Meaning and Significance of Planning – Types – Objectives of Economic Planning – Strategies – Review of Indian Fiver Year Plans – Targets, achievements and failures**.**

UNIT IV: Economic Reforms

Internal and External Reforms – New economic policy and India- WTO and its impact on the different sectors of the economy – Financial Sector Reforms – inclusive growth- goals and achievement.

UNIT V: Industrial Scenario

Definition of cottage, Small, medium and large Scale – Importance - Problems – Remedies – Public Sector Undertakings (PSUs) Role of PSUs in India – Causes for the Failure of PSUs in India – KVIC in India – development of basic and heavy industries in India- New Industrial Policy 1991.

TEXT BOOKS:

1. Sankaran S., Indian Economy, Margham Publications, 2014.
2. Dutt R & Sundaram K.P.M, Indian Economy, S.Chand, 72nd edn, 2016.

REFERENCE BOOKS:

1. Dristi Experts and Manohar Pandey, Indian Economy, Dristi Publication, 2020.
2. Government of India: India Vision, Academic Foundation, New Delhi.2020
3. Vaishnavi Shankar, Indian Economy, Kiran Prakashan Publication, 2019.
4. Sanjiv Verma, The Indian Economy, Unique Pub, 2018.

5. Ramesh Singh, Indian Economy, 10th edn, McGraw Hill, 2018.
6. Mishra S.K, & Puri V.K, Indian Economy, Himalaya Publishing House, 2011.

Course Outcomes:

On the successful completion of the course, student will be able to:

CO1	Understand the agricultural scenario of India.	**K1**
CO2	Understand the concepts of unemployment and measures to solve the unemployment in India.	**K1**
CO3	Gain knowledge in economic planning of India.	**K2**
CO4	Examine economic reforms of India	**K4**
CO5	Get insights in the concept of inclusive growth	**K3**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	S	S	S	S	S	S	M	S
CO2	S	M	S	S	M	S	M	S	M	S	S	S
CO3	M	M	S	S	W	M	S	S	S	M	S	W
CO4	S	S	S	M	M	S	W	M	S	M	M	M
CO5	S	S	S	S	W	M	S	S	W	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT62	MATHEMATICAL ECONOMICS–II	L	T	P	C
CORE XIV			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K3:** Apply **K4:** Analyze				
Learning Objectives		1. To enable the students to understand the fundamentals of mathematics. 2. To enable the students to understand the practical applications of mathematics in research. 3. To improve the mathematical knowledge of the students. 4. To provide the knowledge of application of derivatives in economic concepts 5. To develop the knowledge of Linear Programming				

UNIT I: Matrices

Matrices – Meaning – Types of Matrices – Operations of Matrices (Addition, Subtraction and Multiplication) – Transpose of Matrix- Inverse of matrix- Solution of linear equations by Crammer's rule

UNIT II: Analytical geometry of two dimensions

Equation of straight line- slope intercept form-point slope form-Two point form- Two intercept form-Concurrent lines- Two straight line.

UNIT III: Differentiation

Differentiation – Meaning – Basic Rules of Differentiation – Higher Order Differentiation (First and Second Order only) – Calculation Using Addition, Subtraction, Product Quotient and function of function rule)

UNIT IV: Application of derivatives in economics

Average Cost and Marginal Cost – Average and Marginal Revenues – Maxima and Minima – Profit and Sales Maximization

UNIT V: Linear programming

Linear Programming – Introduction – Meaning – Basic Concepts – Mathematical Formulation of Linear Programming – Problem and its Solution by graphical Method Only.

TEXT BOOKS:

1. Bose D, An Introduction to Mathematical Economics, Himalaya Publishing House, 2018.
2. Manoharan M, and Elango C, Business Mathematics, Palani Paramount Publications, 2018.

REFERENCE BOOKS:

1. Kunt Sydsaeter & Peter J. Hammond, Mathematics for Economics Analysis, Pearson Publication, 2020.
2. Joshi R.C and Nancy, Mathematical Methods in Economics-II, Vishal Pub, 2019.
3. Wilson Mion, Introduction to Mathematical Economics, 2018.

4. Agarwal C.S and. Joshi R.C, Mathematics for Students of Economics, The New Academic Publishing, 2017.
5. Nik Hashim Nik Mustapha, Mathematical Economics with Application, University Malaysia Teragganu Publication, 2015.
6. Sancheti D.C and Kapoor V.K, Business Mathematics, 11th edn, Sultan Chand, 2014.

Course Outcomes:

On the successful completion of the course, the students will be able to:

CO1	Gain the knowledge of matrix operation including addition, subtraction, multiplication and transposition	**K2**
CO2	Apply mathematical formula in practical life.	**K3**
CO3	Apply their acquired knowledge in research	**K3**
CO4	Understand the applications of derivatives in economic concepts	**K4**
CO5	Get knowledge in Linear Programming	**K1**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	N	N	W	S	W	M	N	N	S	W	N	M
CO2	M	M	M	M	M	M	W	M	S	M	W	M
CO3	S	M	M	M	W	M	W	M	S	W	W	M
CO4	S	M	W	M	M	S	W	M	S	M	N	W
CO5	W	N	N	S	W	M	W	M	S	N	N	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

COURSE CODE	U21ECT63	PUBLIC FINANCE	L	T	P	C
CORE XV			5	-	-	4
Cognitive Level		**K1:** Recall **K2:** Understand **K4:** Analyze **K6:** Create				
Learning Objectives		1. To enable the students to understand the concepts of public finance. 2. To enable the students to understand and analyze the role and functions of the government and the impact of financial operations on economic activities. 3. To enable the students to understand the polices of government related to financial administrations. 4. To make the students to understand the concept of public debt with its causes, effects and management 5. To provide knowledge in the framework of budget and overview of current Union Budget.				

UNIT I: Scope of Public Finance

Public Finance – Definition- Scope- Public Finance and Private finance- Principles of Maximum Social Advantage- Public goods and Private goods

UNIT II: Sources of Public revenue

Sources of Public Revenue – Taxes – Canons of Taxation–Principles of Taxation Classification of Tax – Direct and Indirect taxes—A brief note on different taxes – GST in India - Effects of Taxes

UNIT III: Public Expenditure

Public Expenditure - Meaning - Definition – Causes for the growth of Public expenditure In India – Cannons of public Expenditure- Effects of public expenditure- Control of public expenditure.

UNIT IV: Public debt and Budget

Public debt – Meaning – classification of public debt –causes, effects and redemption of public debt - Budget - Meanings and objective of budget- structure of budget- et- Budgetary procedure in India- – A overview of Current Union budget.

UNIT V: Fiscal Federalism

Meaning – Principles of Fiscal Federalism – Objectives of Finance Commission – Recommendations of 13th, 14th and 15th Finance Commission – Co-operative Federalism- NITI Aayog - Centre State Financial Relations.

TEXT BOOKS:

1. Kavery, SudhaNaik , Public Finance (Fiscal Policy), S.Chand & Co, 2010.
2. Tyagi B.P, Public Finance, Jai Prakash Nath& Co., 2015.

REFERENCE BOOKS:

1. Varshney J.C, Public Finance, SBPD Publishing, 2021.
2. Seth M.L, Money, Banking, International Trade and Public Finance, Lakshmi Narain Agarwal Pub, 2020.
3. Mithani M.D, Money, Banking, International Trade and Public Finance, 20th edn, Himalaya Publishing House, 2018.
4. Hajela, T.N, Money, Banking and International Trade, 9th edn, Books Wagon Pub, 2016.
5. Hajela, T.N, Money, Banking and Public Finance, Ane Books, 2009.
6. Bhatia H.L, Public Finance, 30th edn, S.Chand, 2000.

Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Understand the importance of public finance in economic development	**K1**
CO2	Get in-depth knowledge in public expenditure especially the significance and effects of increase in public expenditure	**K2**
CO3	Examine the ways in which direct and indirect taxes are levied for augmenting financial resources towards economic development	**K4**
CO4	Understand the concept of public debt with its causes, effects and management	**K1**
CO5	Develop the framework of budget and overview of current Union Budget.	**K6**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	S	S	S	S	W	S	W	S	M
CO2	S	M	S	S	M	S	M	M	M	S	S	M
CO3	S	M	M	M	N	S	W	M	M	N	S	M
CO4	S	M	W	M	M	S	M	W	M	M	S	M
CO5	S	M	S	M	W	S	S	M	M	M	S	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECT64</td><td rowspan="2">INDUSTRIAL ECONOMICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE XVI</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To make the students to understand the theories of industrial location.
2. To impart knowledge on industrial productivity.
3. To equip the students with the knowledge regarding the relationship between industrial growth and economic development.
4. To provide knowledge in industrial finance
5. To enhance the knowledge of the students in industrial policy of India</td></tr>
</table>

UNIT I: Industrialisation

Industrialisation– pattern – rationalization of industrialization – Factors inhibiting industrialisation – Inter dependence of agriculture and industry

UNIT II: Location of Industry

Location of Industry - Factors determining Industrial Location - Theories of Industrial Location - Weber's Theory – Sargent Florence's Theory –Balanced Regional development of Industries – Need for balanced Regional development in India.

UNIT III: Industrial productivity

Industrial Productivity – Tools of Productivity – Factors influencing industrial productivity – Productivity Movement in India – National Productivity Council – Scientific Management.

UNIT IV: Industrial Finance

Industrial Finance 14-- hours Industrial Finance - Term Finance: Short Term, Long Term - Specialized Financial Institutions - IFCI - IDBI - ICICI.

UNIT V: Industrial polices

Industrial Policies - 1956, 1977, 1991 - Role of State - New Industrial Policy and Economic Reforms.

TEXT BOOKS:

1. Barthwal, R.R, Industrial Economics: An Introductory Textbook, 3rd edn, New Age International Pub, 2019.
2. Sivayya K.V and Das V.B.M, Indian Industrial Economy, 11th edn, S.Chand & Co., 2014.

REFERENCE BOOKS:

1. Kuchhal S. C, Industrial Economy of India, Chaitanya Pub. House, 2018.
2. Chernnila F, Industrial Economics: Indian Perspective, Himalaya Publishing House, Mumbai, 2016.
3. Devine P.J, An Introduction to Industrial Economics, George Allen and Unwin, 2012.
4. Sharma N. K, Industrial Economics, Anmol Publications Pvt. Ltd, 2010.

5. Sadhu A.N, and Singh A, Industrial Economics, Himalaya Publishing House, 2010.

Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Understand the causes for industrial disputes, and find out the measures for social security	**K1**
CO2	Identify the factors affecting the location of an industry	**K2**
CO3	Examine the need for industrial growth in India.	**K3**
CO4	Get knowledge about Industrial Productivity	**K2**
CO5	Get insights in to the Industrial policies of India	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	W	S	M	S	S	S	M	M	W	S	M
CO2	S	M	W	S	M	M	S	S	M	W	S	M
CO3	W	S	M	S	M	S	M	W	M	W	S	M
CO4	W	S	M	S	M	M	W	S	M	W	S	M
CO5	S	M	M	S	M	M	M	W	S	M	S	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECT65</td><td rowspan="2">RURAL ECONOMICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE XVII</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K4: Analyze K5: Evaluate K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To provide the students with a thorough knowledge and understanding of the foundations of rural economics
2. To impart knowledge on concepts of the dimensions of rural development
3. To make the students to understand the challenges in rural development and strategies for rural upliftment.
4. To provide understanding in the causes and consequences of Rural Poverty, and the Poverty Alleviation Programmes
5. To enhance the knowledge about the tribal economy and analyse the tribal agricultural activities</td></tr>
</table>

UNIT I: Rural Economy

Rural economy: Characteristics – Need for the study of Rural economy – Comparison of Rural Economy and Urban Economy. Concepts: Barter System, Non Monetized Sector – Agricultural Marketing –Farm and Non-Farm Income - Problems of Rural Economy.

UNIT II: Rural Unemployment

Rural Unemployment: Types, Structure, Causes of Unemployment and Remedial measures. Rural Employment Generation Programmes: NRLM, MGNREGA. Technology for rural growth: ICT, mobile, successful programmes.

UNIT III: Rural Credit

Rural indebtedness: Causes and effects of rural indebtedness, Remedies. Rural Credit - Need for Credit – Sources of Rural Credit. Unorganized credit: Money lenders. Organized: Indigenous Bankers - Co-operatives, Commercial banks - Regional Rural banks - Micro-Finance Institutions (MFIs) – NABARD

UNIT IV: Rural Poverty

Rural Poverty: Causes and Consequences - Rural Poverty Line – Estimates of poverty –Factors influencing Rural Poverty – Removal of Poverty - Rural Development in India.

UNIT V: Tribal Economy

Tribal Economy: Characteristics of Tribal economy – Distribution of Tribal population in India - Tribal Agriculture and allied activities: Horticulture, Floriculture, Animal husbandry, Forest and forest collection. Problems in Tribal areas

TEXT BOOKS:

1. Sankaran S. Rural Economics ,Margham Publications
2. Dutt R & Sundaram K.P.M, Indian Economy, S.Chand, 72nd edn, 2016.

REFERENCE BOOKS:

1. Amarjit Singh, Fundamentals of Agricultural Economics, Himalaya Publication, 2019.
2. Reddy K.V, Agriculture and Rural Development, Himalaya Publishing House, 2017.
3. Sharma R.K et-al, Agriculture at a Glance, Daya Publications, 2011.
4. Vasant Desai, Rural Development in India, 2nd edn, Himalaya Publication, 2010.
5. Choudrey, C.M. Rural Economics. Sunshine Publications, 2009.

Course Outcomes:

On the successful completion of the course, students will be able to:

CO1	Understand the concepts and problems of rural economy.	**K1**
CO2	Define the structure of rural unemployment and the technology used for rural growth.	**K2**
CO3	Examine the extent of rural indebtedness, and the measures to remove rural unemployment.	**K4**
CO4	Evaluate the causes and consequences of Rural Poverty, and describe the Poverty Alleviation Programmes	**K5**
CO5	Improve the knowledge about the tribal economy and analyse the tribal agricultural activities	**K6**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	N	W	N	S	S	N	W	N	S
CO2	M	M	S	W	S	N	W	S	M	N	W	S
CO3	S	S	S	N	S	N	W	S	N	M	M	S
CO4	M	S	S	N	S	N	W	M	N	M	S	S
CO5	M	M	M	N	S	N	M	M	N	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECE641</td><td>CHOICE -I</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE-IV</td><td>LABOUR ECONOMICS</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To give knowledge in labour market and policies of labour market
2. To impart knowledge on the concepts of wage determination
3. To make the students to understand the students the Indian labour laws
4. To provide knowledge on rural employment
5. To provide knowledge on child labour and bonded labour</td></tr>
</table>

UNIT I: Labour Market and Policies

Labour Market- Nature and Characteristics, Demand for Labour in relation to size and pattern of investment, Choice of technologies and labour policies Supply of Labour, Growth of Labour Force.

UNIT II: Employment and Wage Determination

Employment and Development relationship- Employment Policy Wage Determination-Classical, Neo-classical and Bargaining theories; Concepts of minimum wage and efficiency wage; Non-wage component of labour remuneration,

UNIT III: Industrial and Agricultural Labour

Industrial Labour- Theories of labour movement, growth, pattern and structure of labour unions in India, Industrial Disputes and their settlements, trends in collective bargaining, Indian Labour laws in the context of international labour standards.

UNIT IV: Agricultural Labour Markets

Rural labour supply, interlocking of factor markets, nature and trends in rural employment, Agricultural wages in India, Non-agricultural rural employment

UNIT V: Social Security and Reforms

State and Social Security- Concepts and evolution, Social assistance and insurance, Review and Appraisal of State Policies, Special Problems- Child labour, discrimination, bonded labour Labour market Reforms- National Commission on Labour.

TEXT BOOKS: ·

1. Cahuc P, Carcillo S and Zylberberg A, Labor Economics, 2nd edn, PHI, 2014.
2. Bazen Stephen, Econometric Methods for Labour Economics, Oxford University Press, 2011.

REFERENCE BOOKS

1. Floro Caroleo et-al, Young People and the Labour Market, Routledge, 2018.
2. Saibal Kar and Debabrata Datta, Industrial and Labour Economics: Issues in Developing and Transition Countries, 5th edn, Springer, 2015.

3. Rajendra Prasad Singh, Agricultural Labour: Various Issues, Regal Pub, 2011.
4. Ehrenberg R and Smith R.S, Modern Labor Economics: Theory & Public Policy, Pearson, 2012.
5. Usha Sharma, Child Labour in India, Mittal Pub, 2006.
6. Jhabvala R. and Subrahmanya R.K, The Unorganised Sector: Work Security and Social Protection, Sage Publications, 2000. ·

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Understand the policies of labour market	**K1**
CO2	Gain knowledge about the concepts of wage determination	**K2**
CO3	Examine the application Indian labour laws	**K3**
CO4	Gain knowledge about rural employment	**K2**
CO5	Evaluate the cases and effects of child labour and bonded labour	**K5**

Mapping:

Course Outcomes	Programme Outcomes							Programme Specific Outcomes				
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	N	W	N	S	S	N	W	N	S
CO2	M	M	S	W	S	N	W	S	M	N	W	S
CO3	S	S	S	N	S	N	W	S	N	M	M	S
CO4	M	S	S	N	S	N	W	M	N	M	S	S
CO5	M	M	M	N	S	N	M	M	N	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECE642</td><td>CHOICE -II</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE-IV</td><td>HEALTH ECONOMICS</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze
K5: Evaluate</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To impart the importance of health and education
2. To make the students to understand the role of health and education in human development
3. To impart knowledge on health care demand and the health insurance market
4. To make the students to understand the existing public policies in health sector.
5. To provide knowledge on rate of return to education and quality of education in India</td></tr>
</table>

UNIT I: Health Education

Role of health and education in human development: health and education outcomes and their relationship with macroeconomic performance

UNIT II: Topics in Health Economic Theory

Demand for health, Grossman's model of demand for health, information asymmetry in healthcare demand, and the health insurance market, physician induced demand, adverse selection and moral hazard in health insurance

UNIT III: Economic evaluation of health care

Cost effectiveness and cost-benefit analysis; valuing life

UNIT IV: Public policy in the health sector

Externalities in health and health care; rationale for government intervention in the health sector

UNIT V: Education

Investment in human capital; rate of return to education: private and social; quality of education; signalling of human capital; theories of discrimination; gender and caste discrimination in India. Education sector in India: An overview.

TEXT BOOKS:

1. Bhattacharya J et-al, Health Economics, Palgrave Macmillan, 2014.

2. Ehrenberg R, and Smith R, Modern Labour Economics: Theory and Public Policy, 11th edn, Addison Wesley, 2012

REFERENCE BOOKS:

1. Kesavan Sreekantan Nair, Health Economics and Financing, New Century Publications, 2019.

2. Chee-Ruey Hsieh and Frank A. Sloan, Health Economics, The MIT Press, 2012.
3. Braverman J, Health Economics, Pharma Press, 2009.

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Understand the importance of human health and education	**K1**
CO2	Examine the role of health and education on economic development	**K3**
CO3	Gain awareness on health policies	**K4**
CO4	Get understanding in health care system in India	**K2**
CO5	Evaluate the rate of return to education	**K5**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	N	W	N	S	S	N	W	N	S
CO2	M	M	S	W	S	N	W	S	M	N	W	S
CO3	S	S	S	N	S	N	W	S	N	M	M	S
CO4	M	S	S	N	S	N	W	M	N	M	S	S
CO5	M	M	M	N	S	N	M	M	N	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation, N – No correlation.

<table>
<tr><td>COURSE CODE</td><td>U21ECS61</td><td rowspan="2">BUSINESS COMMUNICATION</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SKILL BASED ELECTIVE-IV</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To help the students to understand the importance of business communication.
2. To improve the communication knowledge of the students.
3. To help the students to understand the steps in drafting the business letter.
4. To improve the knowledge of students on banking correspondence
5. To enhance the knowledge of the students on report writing</td></tr>
</table>

UNIT I: Introduction

Business Communication –Meaning-objectives- Importance of business communication – Process and principles Modern Communication devices – Word processor- telex- Fax- E-mail-Tele conferencing – Telephone answering machine- Internet – websites and their uses.

UNIT II: Business Letter

Analysis of Business Letter- Layout – Kinds of Business letters- letter of enquiries- replies - Offers and Quotations – Offer orders – Cancellations – Replies- Circular- Complaints and Settlement-Sales letter.

UNIT III: Banking Correspondence

Bank Correspondence –correspondence with customers- Insurance Correspondence- Agency Correspondence- Correspondence relating to Exports and Imports

UNIT IV: Company Correspondence

Correspondence with share holders, Government Departments & Statutory Bodies-Application for appointment – Importance, Types, Structure – Oral Presentation -Planning for Oral presentation.

UNIT V: Report Writing

Report – Meaning , Importance, Principles governing the preparation of Report – Qualities of Good Report- Functions of a Report – Types of Reports- Reports by individuals, Committees.

TEXT BOOK:

1. Kathiresan and Dr. V. Radha, Business Communication, Prasanna Publishers, 2011.

REFERENCE BOOKS:

1. Bhatia R.C, BusinessCommunication,Annes Students Edition, 2019.
2. Kumkum Bhardwaj, Fundementals of Business Communication, Wiley, 2014.
3. Jain V.K, Business Ethics and Communication, S.Chand, 2008.

4. Jyoti Jai, Business Communication, Garima Publications, 2007.
5. Galgotia, Business Communication Skills, Galgotia Publication, 2006.

Course Outcomes

On the successful completion of the course, the students will be able to

CO1	Understand the importance of business communication	**K1**
CO2	Improve their communication skills in business	**K3**
CO3	Describe the steps in report writing	**K2**
CO4	Prepare the banking correspondence	**K4**
CO5	Create good report writing	**K6**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	N	W	N	S	S	N	W	N	S
CO2	M	M	S	W	S	N	W	S	M	N	W	S
CO3	S	S	S	N	S	N	W	S	N	M	M	S
CO4	M	S	S	N	S	N	W	M	N	M	S	S
CO5	M	M	M	N	S	N	M	M	N	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation N – No correlation

VALUE ADDED PROGRAMME

<table>
<tr><td>COURSE CODE</td><td>U21ECV51</td><td rowspan="2">ENTREPRENEURSHIP DEVELOPMENT</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SEMESTER - V</td><td>-</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="5">K1: Recall K2: Understand K3: Apply K4: Analyze K6: Create</td></tr>
<tr><td colspan="2">Learning Objectives</td><td colspan="5">1. To enable the students to understand the traits and qualities of successful entrepreneur
2. To make the students to understand the problems faced by the entrepreneurs.
3. To promote the knowledge of the students in project management and marketing techniques.
4. To enable the students to understand the preparation of project proposal
5. To enhance the knowledge of the students on getting finance for setting new enterprises.</td></tr>
</table>

UNIT I: Introduction

Entrepreneur – Meaning —Definition - Functions of Entrepreneur – Types – Role of Entrepreneurs in Economic Development – Entrepreneur and Manager – Traits and Qualities of Successful Entrepreneurs.

UNIT II: Entrepreneurship

Concept of Entrepreneurship – Motivation Theories – Motivating Factors Entrepreneurial Mobility – Factors Influencing Mobility.

UNIT III: Women entrepreneurship

Women Entrepreneurship – Concept, Types – Factors Influencing Women Entrepreneurship – Traits of women entrepreneur - Role and Functions – Growth of Women Entrepreneurship in India – Problems of Women Entrepreneur – Steps to Promote Women Entrepreneurship in India.

UNIT IV: Small scale industries

Meaning of Small Scale Industries – Types of SSI – Role of SSI in Economic Development – Problems of SSI – Project Report – Contents – Formulation.

UNIT V: Institutional arrangement

Institutional Arrangement for Entrepreneurship Development – DIC – SIDO – SIDCO – NSIC – SIPCOT – TIIC – SIDBI – Incentives and Subsidies – EDP – Need – Objectives Instructions.

TEXT BOOK:

1. Khanka S.S, Entrepreneurial Development, S. Chand & Co, 2007.

REFERENCE BOOKS:

1. Debasish Biswas and Chanchal Dey, Entrepreneurship Development in India, Routledge, 2021.

2. Robert D. Hisrich et-al, Entrepreneurship, 11th edn, McGraw Hill, 2020.
3. Gupta C.B, Srinivasan N.P, Entrepreneurial Development in India, Sulthan Chand & Sons, 2020.
4. Vasant Desai, Dynamics of Entrepreneurship Development, Himalaya Publishing House, 2011.
5. Saravanavel P, Entrepreneurship Development, Ess Pee Kay Publishing, 2009.

Course Outcomes:

On the successful completion of the course, student will be able to

CO1	Get the interest in entrepreneurial activity	**K2**
CO2	Understand the meaning and role of entrepreneur	**K1**
CO3	Equip themselves with entrepreneurial skills for self-employment	**K4**
CO4	Understand the importance of women entrepreneur in economic development	**K3**
CO5	Develop knowledge about the financial institutions which help the entrepreneur	**K6**

Mapping:

Course Outcomes	**Programme Outcomes**							**Programme Specific Outcomes**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	M	M	M	N	W	N	S	S	N	W	N	S
CO2	M	M	S	W	S	N	W	S	M	N	W	S
CO3	S	S	S	N	S	N	W	S	N	M	M	S
CO4	M	S	S	N	S	N	W	M	N	M	S	S
CO5	M	M	M	N	S	N	M	M	N	M	W	M

*S-Strong correlation; M-Moderate correlation; W- Weak correlation N – No correlation

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Department of Mathematics

M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN , DINDIGUL
PG AND RESEARCH DEPARTMENT OF MATHEMATICS
CHOICE BASED CREDIT SYSTEM (CBCS)
B.Sc. MATHEMATICS
ACADEMIC YEAR 2021-2022

P. No.	Paper Code	Course Title	Hours	Credits	Continuous Internal Assessment (CIS)	End Semester Exam (ESE)	Total
Semester I							
1.	ULTA11	Part-I- Tamil	6	3	25	75	100
2.	ULEN11	Part-II-English	6	3	25	75	100
3.	UMTT11	Core I - Calculus	5	4	25	75	100
4.	UMTT12	Core II- Classical Algebra	5	4	25	75	100
5.	UMTA11	*Allied Theory I -* Ancillary Physics-I	5	4	25	75	100
6.	UVAE11	Value Education	3	3	25	75	100
Total		**30**		**21**		**600**	
Semester II							
7.	ULTA22	Part I-Tamil	6	3	25	75	100
8.	ULEN22	Part II-English	6	3	25	75	100
9.	UMTT21	Core III -Analtical Geometry 3D	6	4	25	75	100
10.	UMTT22	Core IV - Differential Equations and Laplace Transforms	5	4	25	75	100
11.	UMTA21	*Allied Theory/Practical I -* Ancillary Physics-II	5	4	25	75	100
12.	UEVS21	Environmental Studies	2	2	25	75	100

Total		**30**		**20**	**600**		
Semester III							
13.	ULTA33	Part I-Tamil	6	3	25	75	100
14.	ULEN33	Part II- English	6	3	25	75	100
15.	UMTT31	Core V- Statics	5	4	25	75	100
16.	UMTA32	*Allied II* - Ancillary Mathematical Statistics-I	5	4	25	75	100
17.	UMTE31	Elective I - Vector Calculus , Fourier Series and Fourier Transform	4	3	25	75	100
18.	UMTN31	Non Major Elective Course I- Resource Management Techniques	2	2	25	75	100
19.	UMTS31	Skill Based Studies I: Astronomy –I	2	2	25	75	100
Total		**30**		**21**	**700**		
Semester IV							
20.	ULTA44	Part I-Tamil	6	3	25	75	100
21.	ULEN44	Part II-English	6	3	25	75	100
22.	UMTT41	Core VI - Dynamics	4	4	25	75	100
23.	UMTT42	Core VII- Sequence and Series	4	4	25	75	100
24.	UMTA42	*Allied Practical II-* Ancillary Mathematical Statistics –II	3	4	25	75	100
25.	UMTE42	Elective II - Discrete Mathematics	3	3	25	75	100
26.	UMTN42	Non Major Elective course II - Mathematical Aptitude	2	2	25	75	100
27.	UMTS42	Skill Based Studies II – Astronomy –II	2	2	25	75	100
Total		**30**		**25**	**800**		
Semester V							
28.	UMTT51	Core VIII- Abstract Algebra	5	4	25	75	100

29.	UMTT52	Core IX - Real Analysis	5	4	25	75	100
30.	UMTT53	Core X - Operations Research – I	5	4	25	75	100
31.	UMTT54	Core XI - Number Theory	5	4	25	75	100
32.	UMTT55	Core XII - Numerical Methods	5	4	25	75	100
33.	UMTE53	Elective III - Programming in C	3	3	25	75	100
34.	UMTS53	Skill Based Studies III - Mathematical Methods	2	2	25	75	100
Total		**30**		**25**		**700**	
Semester VI							
35.	UMTT61	Core XIII - Linear Algebra	5	4	25	75	100
36.	UMTT62	Core XIV - Complex Analysis	5	4	25	75	100
37.	UMTT63	Core XV - Operations Research-II	5	4	25	75	100
38.	UMTT64	Core XVI- Graph Theory	5	4	25	75	100
39.	UMTT65	Core XVII- Fuzzy Sets and Fuzzy Numbers	5	4	25	75	100
40.	UMTE64	Elective IV - Programming in C++	3	3	25	75	100
41.	UMTS64	Skill Based Studies IV: Numerical Methods Lab using C++	2	2	25	75	100
42.	UEAS61	Extension Activity	-	3	25	75	100
Total		**30**		**28**		**800**	
Total credits		**140**		**Total**		**4200**	

B.Sc. PROGRAMME OUTCOMES (POs)

PO No.	Upon completion of the B.Sc. Degree Programme, the graduates will be able to:
PO - 1	Apply the acquired scientific knowledge to face day to day needs.
PO – 2	Create innovative ideas through laboratory experiments.
PO – 3	Carry out field works and projects independently and in collaboration with Other institutions and industries.
PO – 4	Reflect upon green initiatives and take responsible steps to build a Sustainable environment.
PO – 5	Face challenging competitive examinations that offer rewarding careers in Science and education.
PO – 6	Impart communicative skills and ethical values.
PO - 7	Equip students with hands on training through various courses to enhance entrepreneurship skills.

B. Sc. Mathematics PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO	Upon completion of B.Sc. Mathematics, the graduates will be able to	PO Addressed
PSO - 1	Acquire a strong foundation in various branches of mathematics to Formulate real life problems into mathematical models.	PO - 1
PSO – 2	Develop problem solving skills, cultivating logical thinking, and face competitive examinations with confidence	PO - 5
PSO – 3	Enhance numerical ability and address problems in interdisciplinary. Areas which would help in project and field works.	PO - 3
PSO – 4	Apply the mathematical knowledge and skills to face competitive Examination with confidence.	PO - 5
PSO – 5	Pursue higher studies which in turn will offer them job opportunities in government and public sector undertakings, banks, central government institutes etc.	PO - 5
PSO – 6	Develop entrepreneurial skills, become empowered and self-dependent in society.	PO – 7
PSO – 7	Understand the professional, ethical, legal, security, social issues and responsibilities.	PO – 4
PSO – 8	Apply knowledge of principles, concepts and results in specific Subject area to analyze their local and global impact.	PO – 3
PSO – 9	Communicate appropriately and effectively, in a scientific context using present technology and new findings.	PO – 6

Course Outcome
Semester : I

Name of the Course : CALCULUS **Course code : UMTT11**

CO	Upon completion of this course the students will be able to :
CO - 1	To learn the different concepts of differential and integral calculus.
CO – 2	To learn will acquire basic knowledge of integration.
CO – 3	To learn will become proficient in multiple integrals and its applications
CO – 4	The learner will gain concepts of change of variables

Name of the Course : CLASSICAL ALGEBRA **Course code : UMTT12**

CO	Upon completion of this course the students will be able to :
CO - 1	To impart skills in the various applications of algebraic methods.
CO – 2	The learner will become proficient in expansion and summation of function.
CO – 3	Understanding relation between roots and coefficients of equations, sign changes, reciprocals.
CO – 4	To understand terms of series, summation and its changes

Semester : II

Name of the Course : ANALYTICAL GEOMETRY 3 **Course code : UMTT21**

CO	Upon completion of this course the students will be able to :
CO - 1	This is used to model geometric objects - points, (straight) lines, and circles being the most basic of these.
CO – 2	To acquire knowledge of planes and its properties as a 3 dimensional objects.
CO – 3	To understand the concepts skew lines and spheres.
CO – 4	solving problems related to geometry of three dimension.

Name of the Course : DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS **Course code : UMTT22**

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the basic concepts of differential equations and Laplace Transforms
CO – 2	Understand the basic concepts of first order differential equation and it applications.
CO – 3	Determine solutions to second order linear homogeneous, non-homogeneous differential equations with constant coefficients.
CO – 4	Find solutions by applying Laplace transform methods.
CO - 5	Understand the elementary theory of partial differential equations, and solve it using various techniques.

Semester : III

Name of the Course : STATICS **Course code : UMTT31**

CO	Upon completion of this course the students will be able to :
CO - 1	To learn the application of geometric properties in equilibrium and motion of particles.
CO – 2	To learn know to apply geometrical concepts in parallel forces, moments and couples
CO – 3	Proficient in static equilibrium's three forces acting on a rigid body and friction.
CO – 4	The learner to understand real time application.

Name of the Course : ANCILLARY MATHEMATICAL STATISTICS-I
Course code : UMTA32

CO	Upon completion of this course the students will be able to :
CO - 1	To impart skills in various applications of statistical methods.
CO – 2	Analyze the given data by using statistical methods.
CO – 3	Understand the basic concepts of probability and related results.
CO – 4	Use different probabilistic methods to solve problems arise in different situations.

Name of the Course : VECTOR CALCULUS, FOURIER SERIES AND FOURIER TRANSFORM
Course code : UMTE31

CO	Upon completion of this course the students will be able to :
CO - 1	To enhance basic skills in the areas of vector calculus , Fourier series and Fourier transforms
CO – 2	Vectors and its product
CO – 3	Multiple vector integration
CO – 4	To study about Fourier series and their applications.

Name of the Course : RESOURCE MANAGEMENT TECHNIQUES
Course code : UMTN31

CO	Upon completion of this course the students will be able to :
CO - 1	To impart the basic concepts and applications of linear programming
CO – 2	The leaner will analyze the different aspects of transportation problems , assignment problems and also sequencing problem.
CO – 3	The leaner will develop, organize, evaluate short, long term processes and solve problems
CO – 4	The leaner will acquire the knowledge of basics in game theory

Name of the Course : ASTRONOMY- I **Course code : UMTS31**

CO	Upon completion of this course the students will be able to :
CO - 1	The learner understand basic knowledge about natural science.
CO – 2	The leaner will acquire the knowledge of the celestial objects and origin of those objects and phenomena and their evolution
CO – 3	The learner will acquire basic knowledge about morning , evening stars , circumpolar stars
CO – 4	The learner will acquire basic knowledge about the diurnal motion of sun and stars.

Semester : IV

Name of the Course : DYNAMICS **Course code : UMTT41**

CO	Upon completion of this course the students will be able to :
CO - 1	Proficient in Newton's laws of motion and projectiles
CO – 2	Proficient in collision of elastic bodies
CO – 3	Proficient in motion under action of central forces
CO – 4	To defines the path of orbiting body around central body relative to , without specifying position as a function of time.

Name of the Course : SEQUENCES AND SERIES **Course code : UMTT42**

CO	Upon completion of this course the students will be able to :
CO - 1	To enhance basic skills in the areas of sequences and series.
CO – 2	Types of sets, inequalities and sequences
CO – 3	Behavior of sequences and its subsequences
CO – 4	Infinite series and various tests for finding rearrangements its convergence

Name of the Course : ANCILLARY MATHEMATICAL STATISTICS - II
Course code : UMTA42

CO	Upon completion of this course the students will be able to :
CO - 1	To impart skills in various applications of statistical methods.
CO – 2	Analyze the given data by using statistical methods.
CO – 3	Construct and evaluate hypothesis tests.
CO – 4	Apply sampling techniques to real life situations.

Name of the Course : DISCRETE MATHEMATICS Course code : UMTE42

CO	Upon completion of this course the students will be able to :
CO - 1	To study of and, or and nor logics by truth tables.
CO – 2	To study of normal forms.
CO – 3	Analysis Free and Bound variable formulas.
CO – 4	Understand Types of Grammar, function of Pushdown automata.

Name of the Course : MATHEMATICAL APTITUDE Course code : UMTN42

CO	Upon completion of this course the students will be able to :
CO - 1	To impart skills in numerical and quantitative techniques.
CO – 2	Able to critically evaluate various real life situations by resorting to Analysis of key issues and factors.
CO – 3	Able to demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions.

Name of the Course : ASTRONOMY-II Course code : UMTS42

CO	Upon completion of this course the students will be able to :
CO - 1	Learnre able to knowledge about the Earth's pole, it is counterclockwise rotation.
CO – 2	Knowledge of equation of Time, seasons from earth rotation
CO – 3	Calculation to prepar calender and conservation of Time.
CO – 4	It applies mathematics, physics, and chemistry.

Semester : V

Name of the Course : ABSTRACT ALGEBRA Course code : UMTT51

CO	Upon completion of this course the students will be able to :
CO - 1	To provide some knowledge about various algebraic structures.
CO – 2	Recognize the basic properties of groups and subgroups
CO – 3	Understand the types of homomorphism and use them to classify groups.
CO – 4	Apply the theorems to study the structure of groups.
CO – 5	Recognize the basic properties of rings, fields and integral domains.
CO - 6	Using the algebraic methods for solving problems.

Name of the Course : REAL ANALYSIS Course code : UMTT52

CO	**Upon completion of this course the students will be able to :**
CO - 1	Understand the basic concepts of sets
CO – 2	To provide knowledge about Metric Spaces
CO – 3	The learner will acquire knowledge of open/closed sets and its properties
CO – 4	The learner will acquire knowledge of Continuity, Connetedness, and Compactness and apply theorem

Name of the Course : OPERATIONS RESEARCH – I Course code : UMTT53

CO	**Upon completion of this course the students will be able to :**
CO - 1	To impart the basic concepts and applications of linear programming.
CO – 2	The leaner will formulate a linear programming problem and solve them graphically and simplex method
CO – 3	The leaner will be able to understand the concepts of duality programming
CO – 4	The leaner will analyze the different aspects of transportation problems and also assignment problems
CO – 5	Students will be able to identify the basic analysis of various inventory models.
CO - 6	The leaner will develop, organize, evaluate short, long term processes and solve problems

Name of the Course : NUMBER THEORY Course code : UMTT53

CO	**Upon completion of this course the students will be able to :**
CO - 1	The learner will acquire knowledge of basic concepts of number theory
CO – 2	The learner will become proficient in various types of functions
CO – 3	The learner will be know the primitive roots
CO – 4	Apply the theorems to study the numbers .

Name of the Course : NUMERICAL METHODS Course code : UMTT55

CO	**Upon completion of this course the students will be able to :**
CO - 1	To develop efficient algorithms for solving problems in Science, Engineering and Technology
CO – 2	The leaner will analyze the different aspects of numerical solution of algebraic and transcendental equations.
CO – 3	Students will be able to identify the basic concept of numerical differentiation and integration, principle of least squares
CO – 4	The learner will become knowledgeable in solving solution to simultaneous linear equations.

Name of the Course : PROGRAMMING IN C Course code : UMTE53

CO	**Upon completion of this course the students will be able to :**
CO - 1	To develop programming skills in C and its object oriented concepts.
CO – 2	The learner will become proficient in object oriented programming concept and proficient in C tokens
CO – 3	Proficient in C operators , class declaration and definition and its objects
CO – 4	Proficient in conditional statements and loop concept

Name of the Course : MATHEMATICAL APTITUDE Course code : UMTS53

CO	**Upon completion of this course the students will be able to :**

CO - 1	To impart skills in numerical and quantitative techniques.
CO – 2	Able to critically evaluate various real life situations by resorting to Analysis of key issues and factors.
CO – 3	Proficient in applying graphs, charts and probability techniques on various problems.
CO – 4	Proficient in the problems on relations, coding and decoding.
CO – 5	Able to demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions.
CO - 6	Able to do fast calculation.

Semester : V

Name of the Course : LINEAR ALGEBRA **Course code : UMTT61**

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the fundamentals of Vector spaces.
CO – 2	Recognize the basic properties of vector spaces
CO – 3	Understand the concepts of linear algebra in geometric point of view
CO – 4	Visualize linear transformations as a matrix form
CO – 5	Formulate the importance and applications of linear algebra in many branches of Mathematics

Name of the Course : COMPLEX ANALYSIS **Course code : UMTT62**

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the concepts of complex numbers and analytic functions.
CO – 2	The learner will acquire basic concepts of analytic function and its properties
CO – 3	The learner will acquire basic knowledge about conformal and bilinear transformation
CO – 4	The learner will gain knowledge of integration of complex valued function
CO – 5	The learner will become proficient in series of analytic function
CO - 6	The learner will acquire skills of finding integral values of complex function using residues

Name of the Course : OPERATIONS RESEARCH - II **Course code : UMTT63**

CO	Upon completion of this course the students will be able to :
CO - 1	To impart mathematical modeling skills through operations research techniques.
CO – 2	The learner will become proficient in sequence modeling and processes in mathematics and engineering.
CO – 3	The leaner will acquire the knowledge of Simulation
CO – 4	The leaner will acquire the knowledge of basics in game theory and replacement problems
CO – 5	The learner will become to understand the role and application of PERT/CPM for project scheduling.

Name of the Course : GRAPH THEORY **Course code : UMTT64**

CO	Upon completion of this course the students will be able to :
CO - 1	To acquire knowledge of different types of graphs.
CO – 2	To understand different Models of a graph
CO – 3	To understand how to solve different real life problems
CO – 4	To understand many techniques to solve a particular problem
CO – 5	To understand directed graphs.

Name of the Course : FUZZY SETS AND FUZZY NUMBERS **Course code : UMTT65**

CO	Upon completion of this course the students will be able to :

CO - 1	Recognize the concept of fuzzy sets and its properties.
CO – 2	Distinguish fuzzy sets from crisp sets.
CO – 3	Perform various types on fuzzy sets
CO – 4	Understand the fuzzy numbers and fuzzy Lattice relations.

Name of the Course : PROGRAMMING IN C++ Course code : UMTE64

CO	Upon completion of this course the students will be able to :
CO - 1	To develop programming skills in C++ and its object oriented concepts.
CO – 2	The learner will become proficient in object oriented programming concept and proficient in C++ tokens
CO – 3	Proficient in C++ operators
CO – 4	Proficient in C++ class declaration and definition and its objects
CO – 5	Proficient in constructors, destructors

Name of the Course : NUMERICAL METHODS LAB USING C++ Course code : UMTS64

CO	Upon completion of this course the students will be able to :
CO - 1	To develop programming skills in numerical concepts.
CO – 2	Understand and Apply the numerical solution of algebraic and transcendental equations.
CO – 3	Implement Programs with numerical differentiation and integration, principle of least squares..
CO – 4	The Student can gain Knowledge to create program for numerical methods

Semester : I

Name of the Course : ANCILLARY MATHEMATICS I

CO	Upon completion of this course the studentswill be able to :
CO - 1	The learner will become proficient in expansion and summation of function
CO – 2	The learner will acquire knowledge of solving problems in matrices
CO – 3	The learner will capable of solving the interpolation problems.
CO – 4	The learner will gain knowledge of trigonometric functions and related problems
CO – 5	The learner will become proficient in various types of hyperbolic functions

Semester : II

Name of the Course : ANCILLARY MATHEMATICS II

CO	Upon completion of this course the students will be able to :
CO - 1	To learn methods of integration and properties and its solving related problems.
CO – 2	Understand the basic concepts of first order differential equation and it applications
CO – 3	Find solutions by applying Laplace transform methods.
CO – 4	Vectors and its product and its integrations.

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CHOICE BASED CREDIT SYSTEM (CBCS)
M.Sc. MATHEMATICS
ACADEMIC YEAR 2021-2022

S.No.	Subject Code	Subject Title	Hours	Credits	Int.	Ext	Total
First Semester							
1	PMTT11	Linear Algebra	6	5	25	75	100
2	PMTT12	Real Analysis I	6	5	25	75	100
3	PMTT13	Differential Equations	6	5	25	75	100
4	PMTT14	Graph Theory	6	5	25	75	100
5	PMTE11	Major Elective	6	5	25	75	100
Total		**30**		**25**		**500**	
Second Semester							
1	PMTT21	Algebra	6	5	25	75	100
2	PMTT22	Real Analysis II	6	5	25	75	100
3	PMTT23	Topology	6	5	25	75	100
4	PMTT24	Optimization Techniques	6	5	25	75	100
5	PMTE22	Major Elective	6	5	25	75	100
Total		**30**		**25**		**500**	
Third Semester							
1	PMTT31	Complex Analysis	6	5	25	75	100
2	PMTT32	Measure Theory	6	5	25	75	100
3	PMTT33	Classical Dynamics	6	5	25	75	100
4	PMTT34	Calculus of variations and Integral Equations	6	5	25	75	100
5	PMTE33	Major Elective	6	5	25	75	100
Total		**30**		**25**		**500**	
Fourth Semester							
1	PMTT41	Functional Analysis	6	5	25	75	100
2	PMTT42	Differential Geometry	6	5	25	75	100
3	PMTP43	Project	18	5	25	75	100
TOTAL		**30**		**15**		**300**	

Grand Total	90	1800

List of Elective Courses

S.No	Major Elective Courses
1.	Algebraic Number Theory
2.	Automata Theory
3.	Probability Theory and Statistics
4.	MatLab and LaTeX
5.	Fuzzy sets and their Applications
6.	Neural Network
7.	Stochastic Processes
8.	Fluid Dynamics
9.	Non linear Differential Equations
10.	Financial Mathematics
11.	Control Theory
12.	Fractal Analysis
13.	Tensor Analysis and special theory of relativity
14.	Mathematical Biology

M.Sc. PROGRAMME OUTCOMES (POs)

PO No.	Upon completion of the B.Sc. Degree, the graduates will be able to:
PO - 1	The graduates will become successful professionals through logical and analytical thinking abilities
PO – 2	Analyze , interpret solutions and to enhance their Entrepreneurial skills, Managerial skill and leadership
PO – 3	Employ mathematical ideas encompassing logical reasoning, analytical, numerical ability, theoretical skills to model real-world problems and solve them.
PO – 4	Develop critical thinking, creative thinking, self confidence for eventual success in career.
PO – 5	To prepare the students to communicate mathematical ideas effectively and develop their ability to collaborate both intellectually and creatively in diverse contexts.

M.Sc. PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO	Upon completion of B.Sc. Mathematics, the graduates will be able to
PSO - 1	Preparing Students For Productive Careers After The Completion Of This Programme
PSO – 2	Demonstrate Professional Acumen Through Learning New Avenues In Emerging Fields Of Pure And Applied Mathematics
PSO – 3	Ensure Continuous Learning Relevant Inter–personal Skills As An Individual, As A Member Or As A Leader Throughout The Professional Career
PSO – 4	Motivate To Pursue Higher Studies And Exhibit Research Skill To Meet Out Academic Demands Of The Country.
PSO – 5	Improvise The Women Resource That Is Furnished With The Mathematical Skills That Are Necessary In The Altering Industrial And Socio-economic Development Of The Country
PSO – 6	Instil A Wide Range Of Mathematical Techniques And Application Of Mathematical Methods/Tools In Scientific And Engineering Domains.
PSO – 7	Develop Students‟ Self-confidence In Research Process Independently Or Within A Group And Have The Ability To Pursue Multidisciplinary Research In Universities In India And Abroad
PSO – 8	Develop Students‟ Self-confidence In Research Process Independently Or Within A Group And Have The Ability To Pursue Multidisciplinary Research In Universities In India And Abroad

Course Outcome
Semester : I

Name of the Course : LINEAR ALGEBRA Course code : PMTT11

CO	Upon completion of this course the students will be able to :
CO - 1	To provide deep knowledge about various algebraic structures.
CO – 2	To give a depth knowledge about elementary matrix operations.
CO – 3	To explain the concept of eigen values and eigen vectors.
CO – 4	To solve linear equations easily.

Name of the Course : REAL ANALYSIS- I Course code : PMTT12

CO	Upon completion of this course the students will be able to :
CO - 1	To convey concepts of real valued functions in detail.
CO – 2	To provide the deep knowledge about sequences and series.
CO – 3	To make a clear difference between differentiability and continuity.
CO – 4	To know some basic theorems.

Name of the Course : DIFFERENTIAL EQUATIONS Course code : PMTT13

CO	Upon completion of this course the students will be able to :
CO - 1	To give an in-depth knowledge of differential equations and their applications.
CO – 2	Solve the higher order differential equations in different types with initial and boundary conditions
CO – 3	Use the method of separation of variables to reduce some partial differential equations to ordinary differential equations of 2nd order.
CO – 4	To make the students to solve the practical problems used differential equations.

Name of the Course : GRAPH THEORY Course code : PMTT14

CO	Upon completion of this course the students will be able to :
CO - 1	To impart the different types of graphs.
CO – 2	To give a depth knowledge about matching and colourings.
CO – 3	To make the students to identify the varieties of graphs.
CO – 4	To study related theorems.

Semester : II

Name of the Course : ALGEBRA Course code : PMTT21

CO	Upon completion of this course the students will be able to :
CO - 1	To Provide deep knowledge about various algebraic Structures.
CO – 2	Specific outcome learning: The learner will be able to recognize some advances of the theory of groups.
CO – 3	Use Sylow's Theorems in the study of finite groups.
CO – 4	Formulate some special types of rings and their properties.
CO – 5	Recognize the interplay between fields and vector spaces. Apply the algebraic methods for solving Problems.

Name of the Course : REAL ANALYSIS-II Course code : PMTT22

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the concept of integration of real-valued functions.
CO – 2	To give a deep knowledge about the real valued function.
CO – 3	To know about linear transformation.
CO – 4	To solve the problems of differentiation of integrals.

Name of the Course : TOPOLOGY **Course code : PMTT23**

CO	Upon completion of this course the students will be able to :
CO - 1	To provide the knowledge about various varieties of topology.
CO – 2	To explain the concepts of topology.
CO – 3	To know some basic theorems.
CO – 4	To train the students to develop analytical thinking.

Name of the Course : OPTMIZATION TECHNIQUES **Course code : PMTT24**

CO	Upon completion of this course the students will be able to :
CO - 1	Use integer programming programming problem to solve system of linear equations.
CO – 2	To provide the depth knowledge about inventory control theory and make students to solve the inventory problems.
CO – 3	To introduce the concept of non-linear programming problems.
CO – 4	Using optimization techniques to solve many practical problems.

Semester: III

Name of the Course : COMPLEX ANALYSIS **Course code : PMTT31**

CO	Upon completion of this course the students will be able to :
CO - 1	To impart various concepts about the sequence and series, analytic functions in the complex plane.
CO – 2	Provide deep knowledge about mapping and transformation.
CO – 3	The learner will gain knowledge of power series of analytic function
CO – 4	To learner will be proficient in applications of Cauchy’s theorem.

Name of the Course :MEASURE THEORY **Course code : PMTT32**

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce concepts of outer measures and integration on R.
CO – 2	To develop the concept of analysis in abstract situations.
CO – 3	Provide the relationship between Riemann and Lebesgue integral
CO – 4	Learner will be derive integration and derivates by using Radon-Nikodym Theorem and Fubini’s Theorem

Name of the Course :CLASSICAL DYNAMICS **Course code : PMTT33**

CO	Upon completion of this course the students will be able to :
CO - 1	Dynamical systems are of relatively recent origin, the concept of motion in phase-space and its geometrical depiction is simple.
CO – 2	Solutions find for some equations and canonical transformations
CO – 3	General study of Hamiltonian flows in here are treated as a special case as Jocobi.
CO – 4	This is following in the footsteps of Galileo and Newton.

Name of the Course : CALCULUS OF VARIATIONS AND INTEGRAL EQUATIONS
Course code : PMTT34

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the concept of calculus of variations and integral equations and their applications for fixed boundaries.
CO – 2	To give a knowledge about a calculations variation and make students to solve the problems.
CO – 3	To study linear integral problems and methods of successive approximations.

CO – 4	Learner will be able solve problems based on these topics.

Semester : IV

Name of the Course : FUNCTIONAL ANALYSIS Course code : PMTT41

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce three structure theorems of Function as Hahn – Banach theorem, open mapping theorem and uniform boundedness principle from Hilbert space.
CO – 2	To study the finite dimensional spectrum theory.
CO – 3	The learner will gain knowledge normed linear space, Banach spaces, Hahn-Banach theorem (open and closed) and (general and structure) banach algebra.

Name of the Course : DIFFERENTIAL GEOMETRY Course code : PMTT42

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce space curves, surfaces and its properties.
CO – 2	The learner will acquire knowledge in problem solving in curves and surfaces in geometrical approach.
CO – 3	To make the students to solve the problems based on these topics.
CO – 4	To study Representation of a surface, geodesic equations and geodesic curvatures.

Elective Papers

Name of the Course : ALGEBRAIC NUMBER THEORY

CO	Upon completion of this course the students will be able to :
CO - 1	To expose the students to the charm, niceties and nuances in the world of numbers.
CO – 2	To highlight some of the Applications of the Theory of Numbers.
CO – 3	The Learner will gain deep knowledge to solve the problems on algebraic number theory.
CO – 4	The Learner will be know the various type of equations.

Name of the Course : AUTOMATA THEORY

CO	Upon completion of this course the students will be able to :
CO - 1	To make the students to understand the nuances of Automata and Grammar.
CO – 2	To explain various types of automata and grammar.
CO – 3	To make them to understand the applications of these techniques in computer science.
CO – 4	To solve the sums based on automata and grammar.

Name of the Course : PROBABILITY THEORY AND STATISTICS

CO	Upon completion of this course the students will be able to :
CO - 1	To learn the advanced theory of possibility and distributions and Estimations.
CO – 2	To understand the concepts of probability and its properties.
CO – 3	The learner to know constructing the probability distribution of a random variable based on the real-world situation and compute mean and variance and many distributions.
CO – 4	The learner identifying situations where one-way ANOVA and Latin square.

Name of the Course : MATLAB & LATEX

CO	Upon completion of this course the students will be able to :
CO - 1	To impart the programming concepts of Matlab and Laxtex.
CO – 2	Specific outcome of learning the learner will be able to use Matlab for interactive computations Able to draw 2D and 3D graphs.
CO – 3	Able to applying programming techniques to solve the programs at advanced level.
CO – 4	Understand richness of Latex rather than using algebraic Number theory M.S. Word for documentation. Proficient in documentation using mathematical symbols, graph and tables.

Name of the Course : FUZZY SETS AND THEIR APPLICATIONS

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the concept of fuzzy theory and study its application in real problems
CO – 2	To study the uncertainty environment through the fuzzy sets that incorporates imprecision and subjectivity into the model formulation and solution process.
CO – 3	To understand the fuzzy relations and fuzzy arithmetic.
CO – 4	To explain the concept of operations on fuzzy sets.

Name of the Course : NEURAL NETWORKS

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the main fundamental principles and techniques of neural network systems and investigate the principal neural network models and applications.
CO – 2	To provide the deep knowledge on Dynamic Neural units.
CO – 3	To study the concepts of Continuous-time dynamic neural networks.
CO – 4	Specific outcome of learning: The learner will acquire in – depth knowledge of Neural Network-Applications of neural network Nonlinear models and dynamics behavior of DNN Hopfield dynamic neural network Conditions for equilibrium points in DNN.

Name of the Course : STOCHASTIC PROCESS

CO	Upon completion of this course the students will be able to :
CO - 1	To give a depth knowledge about Markov chain and Process.
CO – 2	To understanding the stochastic models for much real life probabilistic situations and expected results.
CO – 3	To learn the well known models like birth – death and queueing to reorient the knowledge of stochastic analysis.
CO – 4	The learner understands in depth knowledge about ergording, renewal theory and its application in discrete and continuous process.

Name of the Course : FLUID DYNAMICS

CO	Upon completion of this course the students will be able to :
CO - 1	It is a subject of almost all fields of engineering, astrophysics, biomedicine, and metrology. Basic concepts of fluid dynamics aredelt with in this paper.
CO – 2	To understand the concepts of irrotational motion, two dimensional motion and real fluids.
CO – 3	To provide clear knowledge about fluid dynamics and apply this concepts on real time problems.

CO – 4	To study the concepts of the laminar boundary layer.

Name of the Course : NON LINEAR DIFFERENTIAL EQUATIONS

CO	Upon completion of this course the students will be able to :
CO - 1	To study Non-linear DE and its properties.
CO – 2	To study oscillation and stability properties of the solutions.
CO – 3	To provide clear knowledge about perturbation methods.
CO – 4	To understand the concepts of linear systems and stability.

Name of the Course : FINANCIAL MATHEMATICS

CO	Upon completion of this course the students will be able to :
CO - 1	To study financial mathematics through various models.
CO – 2	To study the various aspects of financial mathematics.
CO – 3	To provide the deep knowledge on Brownian motion and stochastic calculus.
CO – 4	Use financial mathematics to solve the real time problems.

Name of the Course : CONTROL THEORY

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce basic theories and methodologies required for analyzing and designing advanced control systems.
CO – 2	Specific outcome of learning: The learner will acquire skills to solve observability problems of linear and nonlinear systems.
CO – 3	Proficient in solving linear and nonlinear control system Proficient in stability analysis of linear and nonlinear systems Proficient in stabilization of control systems Proficient in optimal control problems.
CO – 4	To able to solve problems on control theory.

Name of the Course : FRACTAL ANALYSIS

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the basic mathematical techniques of fractal geometry for diverse applications.
CO – 2	Specific learning outcome The learner will able to understand the basic concepts of fractals and measure recognize the space of fractals and fractal dimension find the Hausdorff, box-counting and other dimensions understand the self -similar sets properties of fractals recognize the concepts fractal interpolation.
CO – 3	To provide the clear knowledge about fractals and measures.
CO – 4	To understand the concepts of the space of fractals and fractal dimensions.

Name of the Course : TENSOR ANALYSIS AND SPECIAL THEORY OF RELATIVITY

CO	Upon completion of this course the students will be able to :
CO - 1	To introduce the notion of Tensor and study its properties.
CO – 2	To study the theory of relativity.
CO – 3	To understand the concepts of invariance, metric tensor and Einstein tensor.
CO – 4	To study specific theory of relativity and relativistic dynamics.

Name of the Course : **MATHEMATICAL BIOLOGY**

CO	**Upon completion of this course the students will be able to :**
CO - 1	To introduce the concept of Mathematical biology and study its applications.
CO – 2	To study some basic concepts of mathematical biology.
CO – 3	To provide a deep knowledge about models.
CO – 4	To understand the concepts of Biochemical kinetics.

Department of Commerce

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL-624102

B.COM. (CHOICE BASED CREDIT SYSTEM)

(Full-time)

SYLLABUS, REGULATION AND SCHEME OF EVALUATION

(From 2021-2022 onwards)

Mother Teresa Women's University, Kodaikanal

Department of Commerce
Choice Based Credit System (CBCS)
(2021-2022 onwards)
Bachelor of Commerce

1. About the Programme:

The Revised syllabus for B.Com. Programme is recommended from the academic year 2021– 2022 onwards. Regulations scheme of examinations and syllabus for B.Com. is based on UGC/TANSCHE guidelines under Choice Based Credit System (CBCS).The Bachelor's Degree in B.Com. is awarded to the student on the basis of demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes, and values) and academic criteria expected of graduates at the end of the Programme. Therefore, the learning outcomes of this particular Programme are aimed at facilitating the students to acquire these attributes, keeping in view of the changes in the current socio-economic environment. The Learning Outcomes-based Curriculum Framework (LOCF) of B.Com. has been designed keeping in view of the graduate attributes, qualification descriptors, Programme Learning Outcomes, and Course Learning Outcomes.

2. Program Educational Objectives (PEOs)

PEO1	Students will able to understand the concepts of Commerce.
PEO2	Students will develop comprehensive professional skills in the field of Commerce.
PEO3	Students will develop an understanding of various commerce functions such as finance, accounting, financial analysis, project evaluation, and cost accounting.
PEO4	Students will be able to prove the proficiency with the ability to complete exams like C.A, C.S and CMA.
PEO5	Students can do Commerce oriented research and consequence of this, they canbecome Professors in Colleges and Universities.

3. Eligibility

Candidate should have passed the Higher Secondary Examination or CBSE Examination from the school.

4. General Guidelines for UG Programme

i. **Duration:** The programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

- **Evaluation Pattern**

Evaluation Pattern	Theory		Practical	
	Min	**Max**	**Min**	**Max**
Internal	**10**	**25**	**10**	**25**
External	**30**	**75**	**30**	**75**

  - **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
  - **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	**Part**	**Type**	**Marks**
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 156**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade
(Performance in a Course/ Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction

70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance lesser than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

9. **Program Outcomes (POs)**

On successful completion of the B.COM Program, students will be able to	
PO1	build the wide range of knowledge in the areas of accounting concepts and techniques to meet the current and future requirement of the industry.
PO2	develop the strong knowledge in the areas such as finance, taxation and laws relating to commerce helps to relate the conceptual with the analytical skills in thefield of auditing, finance etc.
PO3	nurture the skills in personal, interpersonal, intellectual skills to develop their professional career and growth.
PO4	disseminate knowledge in developing decision making and problem solving skills to undertake their own venture as a feasible career option.
PO5	develop the needed knowledge in business and academics to develop their employability

10. Program Specific Outcomes (PSOs)

After the successful completion of B.COM Program, the students are expected to	
PSO1	have strong base on the course relevant to the area of commerce whichhelps to choose their career
PSO2	acquire knowledge and skills which build confidence to identify their career opportunities in multiple dimensions.

PSO3	nurture intellectual, personal, interpersonal and social skills with afocus on relevant professional career particularly, to maximize professional growth.
PSO4	empower necessary competencies and decision making skills to foster the innovative thinking to become an entrepreneur.
PSO5	become expert in the field of communication withethical consciousness.
PSO6	equip with the practical skills to work as accountants, audit assistants, tax consultants, and computer operators as well as other financial supporting services.
PSO7	develop advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in Business.
PSO8	get placement in Higher Education Institutions and can make research in the field of Finance, Banking and Commerce.

B.COM. CURRICULUM

Course Code	Title of the Course	Credits	Hours		Maximum Marks		
			L	P	CIA	EIA	Total
FIRST SEMESTER							
U21LTA11	Part I-TAMIL I	3	6	-	25	75	100
U21LEN11	Part II- ENGLISH I	3	6	-	25	75	100
U21COT11	CORE I – Financial Accounting –I	4	6	-	25	75	100
U21COT12	CORE II – Business Organization and Management	4	5	-	25	75	100
U21COA11	ALLIED I –Business Economics	4	5	-	25	75	100
U21EVS11	Environmental Studies	2	2	-	25	75	100
U21PECM11	PROFESSIONAL ENGLISH I	4	6	-	25	75	100
		24	**36**		**-**	**-**	**700**
SECOND SEMESTER							
U21LTA22	Part I-TAMIL II	3	6	-	25	75	100
U21LEN22	Part II -ENGLISH II	3	6	-	25	75	100
U21COT21	CORE III- Financial Accounting-II	4	5	-	25	75	100
U21COT22	CORE IV – Principles of Marketing	4	5	-	25	75	100
U21COA22	ALLIED-II-Business Communication	4	5	-	25	75	100
U21VAE21	Value Education	3	3	-	25	75	100
U21PECM22	PROFESSIONAL ENGLISH II	4	6	-	25	75	100
Total		**25**	**36**		**-**	**-**	**700**
THIRD SEMESTER							
U21LTA33	Part I-TAMIL III	3	6	-	25	75	100
U21LEN33	Part II -ENGLISH III	3	6	-	25	75	100
U21COT31	CORE V – Business statistics	4	5	-	25	75	100
U21COA33	ALLIED III- Principles of Insurance	4	5	-	25	75	100
U21COE311/ U21COE312	ELECTIVE –I 1.Human Resource Management 2. Training and Development	3	4	-	25	75	100
U21CSS31	SBE-1-Computer Skills for Office Management	2	2	-	40	60	100
	Non-Major Elective – I	2	2	-	25	75	100
U21PECM33	PROFESSIONAL ENGLISH II – Add on course	4	6	-	25	75	100
	Total	**25**	**36**		**-**	**-**	800
FOURTH SEMESTER							
U21LTA44	Part I-TAMIL IV	3	6	-	25	75	100
U21LEN44	Part II-ENGLISH IV	3	6	-	25	75	100
U21COT41	CORE VI- Cost Accounting	4	4	-	25	75	100
U21COT42	CORE VII- Business Environment	4	4	-	25	75	100

U21COA44	ALLIED IV-Business Mathematics	4	4	-	25	75	100
U21COE421/ U21COE422	Elective III – 1.Elements of E-Commerce 2.Digital Marketing	3	3	-	25	75	100
U21MSS41	SBE II- Managerial Skills	2	2		40	60	100
	Non -Major Elective II	2	2	-	25	75	100
U21PECM44	PROFESSIONAL ENGLISH III – Add on course	4	6	-	25	75	100
	Total	**29**	**37**				**900**
FIFTH SEMESTER							
U21COT51	CORE VIII- Management Accounting	4	5	-	25	75	100
U21COT52	CORE IX -Auditing	4	5	-	25	75	100
U21COT53	CORE X-Income Tax Law and Practice	4	5	-	25	75	100
U21COT54	CORE XI-Entrepreneurial Development	4	5	-	25	75	100
U21COT55	CORE XII- Banking Theory, Law and Practice	4	5	-	25	75	100
U21COE531/ U21COE532	ELECTIVE-III 1.Fundamentals of Investment 2.Artificial Intelligence For Business	3	3	-	25	75	100
U21COS53	SKILL BASED ELECTIVE – PAPER I – Company Law	2	2	-	25	75	100
	Total	**25**	**30**		**-**	**-**	**700**
SIXTH SEMESTER							
U21COT61	CORE XIII- Corporate Accounting	4	6	-	25	75	100
U21COT62	CORE XVI- Business Taxation	4	6	-	25	75	100
U21COT63	CORE XV – Financial Markets and Institutions	4	5	-	25	75	100
U21COT64	CORE-XVI - Financial Management	4	4		25	75	100
U21COT65	CORE XVII- Financial Services	4	4		25	75	100
U21COE641/ U21COE642	ELECTIVE –IV-1. Business Law 2.Corporate Governance	3	3	-	25	75	100
U21COS61	Skill Based Elective II-Personal Selling and Salesmanship	2	2		25	75	100
U21EAS61	Extension Activities	3	-	-	-	-	100
	Total	**28**	**30**		**-**	**-**	**800**
	Grand Total	**156**	**205**				**4600**

Non Major Elective

1. NME- I - U21CON31-Personal Finance and Planning (Practical)
2. NME –II - U21CON42-Commerce (Practical)

Additional Two Credit Courses

1. U21COO31-Online Course – III Semester,
2. U21COI41-Internship – IV Semester,
3. U21COV51-Value added course: Project Finance - Semester

SEMESTER-I

COURSE CODE	U21COT11	FINANCIAL ACCOUNTING-I	L	T	P	C
CORE I			6	-	-	4

Course Objectives:

The main objectives of this course are :

1. To enable the students to learn basic Financial Accounting.
2. To make the students skillfully to prepare and present the final accounts of sole trader.
3. To learn about various types of errors and calculation of depreciation in accounts.
4. To understand about Bill of Exchange and accounting for professionals.
5. To understand about the various accounts in Non-Trading Concern.

Unit 1 : **Introduction to Accountancy**

Accounting-Introduction-Meaning and Definition-Meaning and Scope of Accounting-Types of Accounting-Accounting concepts and Conventions- Functions of Accounting -Objectives of accounting-Book-keeping and accounting-Double entry system- Accounting Rules- Journal-ledger-Subsidiary Books- Preparation of Trial Balance -Advantages and disadvantages of Accounting.

Unit 2 : Errors rectification and Final Accounts

Average Due date – Account Current. Classification of errors – Rectification of errors – Preparation of Suspense Account. Bank Reconciliation Statement. Final accounts with adjustments – closing stock, outstanding expenses, unexpired or prepaid expense, accrued income, income received in advance, depreciation, additional bad debts, provision for doubtful debts, provide for a discount on debtors, interest on capital, interest in drawing, discount on creditors and creation of various reserves

Unit 3: Methods of Depreciation

Accounting for depreciation – Need for and significance of depreciation, Depreciation, Reserves and Provisions - Depreciation, Depletion and Amortization - Objectives of providing depreciation - causes of depreciation - methods of recording depreciation - straight line method - Diminishing Balance Method - Changes in method of depreciation - Machine Hour Rate Method - Depletion Method - Revaluation Method.

Unit 4 : Bills of Exchange

Bill of exchange – Types of Bill of Exchange-Promissory Note-Importance of Promissory note in Bill of Exchange- Accounting Treatment of Bill of Exchange-Bill Is Discounted With the Bank-Accommodation bills – Average due date – Account current.

Unit 5: Receipts and Payments

Receipt and Payment Account -Features of Receipt and Payment Accounts-Concept. Accounts of Non – Profitable Concerns- Receipts and Payments - Income and Expenditure Account and Balance Sheet.

Note: Question Paper shall cover 40% Theory and 60% Problem

Text books:

1. S.P. Jain & K.L. Narang, " Advanced Accounting", Kalyani publishers New Delhi, Delhi, Volume – I, 18th Revised Edition, 2014.

2. T.S.Reddy and A.Murthy, “ Financial Accounting”, Margam publications, Chennai – 600 017, 7th revised edition 2015.
3. R.L. Gupta and Radhasamy, “Advanced accounting” S.Chand & company ltd., New Delhi, edition 2013.

Reference books:

1. Dr. M.A. Arulanandam & Dr. K.S. Raman, “Advanced Accountancy” Himalaya publications, New Delhi, 1st edition 2015.
2. M.C. Shukla, T.S. Grewal & S.C. Gupta, “Advanced accounts”, Sultan & chand publications, New Delhi 2013.
3. P.L. Nagarajan N.Vinayagam, Mani.P.L “Principles of Accountancy”, S.Chand & company ltd, New Delhi – 2013.
4. T.S. Grewal,” Introduction to Accountancy”, S.Chand & company ltd, New Delhi – 2014. 5. P.L. Tulsian – Advanced Accountancy – Tata MC Grow Hill companies.

Course outcomes: At the end of the course, students would be able to:

1	recall Accounting Concepts and Conventions and use Accounting rules to record business transactions in the form of Journal, Ledger, subsidiary books and preparation of Trial Balance.	K1
2	understand the steps involved in locating errors and prepare them to understand the to preparation of final accounts for sole traders.	K2
3	outline the concepts of Bills of exchange, Average due date and Account Current	K2
4	examine the concepts of consignment and joint venture.	K4
5	analyze the bank reconciliation statement, Receipts and payments, Income and expenditure and Balance sheet and accounting for professionals to enhance the knowledge.	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping Outcomes- POs and PSOs

	PO					**PSO**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT12	BUSINESS ORGANIZATION AND MANAGEMENT	L	T	P	C
CORE II			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand different forms of organization
2. To understand various factors affecting business organization and functioning of stock exchange
3. To provide insight about office functioning, data processing system and EDP

Unit 1: Concept If Business and Organization

Concepts of Business, Trade, Industry and Commerce- Objectives and functions of Business– Social Responsibility of a business, Responsible Business, Ethical Conduct & Human Values. Forms of Business Organization-Meaning, Characteristics, Advantages and Disadvantages of Sole Proprietorship – Meaning, Characteristics, Advantages and Disadvantages of Partnership - Kinds of Partners - Partnership Deed - Concept of Limited liability partnership – Meaning, Characteristics, Advantages and Disadvantages of Hindu Undivided Family – Meaning, Advantages and Disadvantages of Co-operative Organization.

Unit 2: Company Clauses and Articles of Association

Joint Stock Company- Meaning, Definition, Characteristics - Advantages and Disadvantages, Code of Business Ethics. Kinds of Companies - Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents –Prospectus - Contents – Red herring Prospectus-Statement In lieu of Prospectus (as per Companies Act, 2013).

Unit 3:**Functions of Management**

Management - Meaning - Characteristics - Fayol's 14 Principles of Management. Functions of Management - Levels of Management – Skills of Management- Scientific Management - meaning, objectives, relevance and criticism.

Unit 4: Process of Organization

Planning -Meaning, Characteristics, Types of Plans, Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits –Weaknesses. Organizing - Process of Organizing; Principles of Organization - Formal and Informal Organization - Line, Staff Organizations, Line and Staff Conflicts. Functional Organization, Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision.

Unit 5: Steps in Management Process

Meaning of Authority, Power, responsibility and accountability - Delegation of Authority Decentralization of Authority - Definition, importance, process, and principles of Coordination techniques of Effective Coordination. Control-Meaning, Relationship between planning and control, Steps in Control – Types (post, current, and pre-control). Requirements for effective control.

Note: Question Paper shall cover 100% Theory\

Text Books:

1. Basu, C. R. (1998). Business Organization and Management. New Delhi: McGraw Hill Publishing India. Chhabra, T. N. (2011).
2. Business Organization and Management. New Delhi: Sun India Publications. Gupta, C. B. (2011).

Reference Books:

1. Modern Business Organization. New Delhi: Mayur Paperbacks. Kaul, V. K. (2012).
2. Business Organization and Management, Text and Cases. New Delhi: Pearson Education. Koontz, H., & Weihrich, H. (2008).
3. Essentials of Management. New York: McGraw Hill Education. Singh, B. P., & Singh, A. K. (2002).

Course outcomes: At the end of the course, students would be able to:

1	understand the concepts of business and its forms of organizations involved insole trader, partnership firms, companies and co-operative societies and public enterprise.	K2
2	analyze the business factors which are involved in sources of finance.	K4
3	explain the functioning of stock exchanges SEBI, DEMAT of shares.	K2
4	remember office functions, layout and accommodation.	K1
5	outline office equipments and EDP.	K2
	K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create	

Mapping Outcomes- POs and PSOs

	PO					**PSO**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COA11	BUSINESS ECONOMICS	L	T	P	C
ALLIED- I			5	-	-	4

Course Objectives:

The main objectives of the course are

1.To make an economic analysis, with particular application to decision-making in business, and the effects of policy on the broader economic environment in which business decisions must be made.

2. To learn and understand these concepts and principles and to apply them to a variety of economic situations.
3. To understand the Demand and Supply functions and its Law
4. To analyse the cost and production function.
5. To understand the perfect and imperfect completion in an Business Environment.

Unit 1: Introduction of Economics

Introduction to Managerial Economics Business Economics: Definitions, scope, role in Business decisions- Economics systems – theories of economics -Interdependence of Micro and Macro Economics – theory of firm - Production Possibility Curve - Opportunity Cost – consumer preference- utility analysis and Types of Utility -Introduction to Cardinal and Ordinal Approaches-indifference curve analysis - roles of business economist.

Unit 2: Law of Function

Production Laws and Functions Production Concept - Importance and Factors of Production-Theory Production Function: Meaning, Concept of productivity and technology – production laws-Short Run and long run production function - Introduction to Iso-quants.

Unit 3: Demand and Supply

Demand and Supply laws Demand and its Determination: Demand function - Determinants of demand - Demand elasticity, degrees and methods – Price, Income and cross elasticity - Use of elasticity for analyzing demand - Demand forecasting: Introduction and techniques – supply law – elasticity of supply.

Unit 4:Cost Output Relationship in Short and Long Run

Cost Output Relationship Cost analysis: Cost concepts and classification, cost-output relationship Determinants of cost - short run and long run cost theory - Modern Theory of Cost - Relationship between cost and production function - cost control and cost reduction - Concept of Revenue - Different Types of Revenues- scale of economies.

Unit 5:Market and Competition

Market Structure Market structure - Perfect competition: features, Assumptions -Equilibrium of the firm and the industry in the short and the long runs - imperfect competitions: Monopoly: features - Short-run and long-run equilibrium of monopoly firm -Price discrimination -Monopolistic Competition: features Assumption; Short – run and Long run Equilibriums - Oligopoly: features Causes for the existence of oligopolistic firms in the market rather than perfect Competition - difference between perfect and Imperfect competitions.

Note: Question Paper shall cover 100% Theory

Text Books:

1. S.Shankaran, Business Economics - Margham Publications - Ch -17
2. P.L. Mehta, Managerial Economics - Analysis, Problems & Cases ,Sultan Chand & Sons. New

Delhi– 02.
3. C.M.Chaudhary, Business Economics - RBSA Publishers - Jaipur - 03**.**

Reference Books:

1. Francis Cherunilam, Business Environment - Himalaya Publishing House Mumbai – 04.
2. Peter Mitchelson and Andrew Mann, Economics for Business - Thomas Nelson Australia
3. H.L. Ahuja, Business Economics – Micro & Macro - Sultan Chand & Sons – New Delhi – 55.
4. Yogesh Maheswari, Managerial Economics, PHI Learning, Newdelhi, 2005 Gupta G.S.,
5. Managerial Economics, Tata Mcgraw-Hill, New Delhi Moyer &Harris,
6. Geetika, Ghosh & Choudhury, Managerial Economics, Cengage Learning, New Delhi, 2005.
7. Managerial Economics, Tata Mcgraw Hill, New Delhi, 2011.

Course outcomes: At the end of the course, students would be able to:

1	understand the Business systems, the reason for existence of Firms, consumer preference and application of utility analysis and knowing role of business economist.	K1, K2,K3
2	understand and estimate production function, stages of production and forms of production function and laws	K1, K2,K3
3	understand basic concepts of demand and supply and its determinants, the determinants of elasticity and applications of different forecasting techniques.	K1, K2,K3
4	understand cost function, Analysis cost and concepts of relevant costs and revenues**.**	K1, K2,K3
5	compare and contrast four basic market types, concepts of monopolistic and oligopoly competition and its effect of non-price factors on products and services.	K1, K2,K3
	K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create	

Mapping Outcomes- POs and PSOs

	PO					PSO								Means Score of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

SEMESTER II

COURSE CODE	U21COT21	FINANCIAL ACCOUNTING-II	L	T	P	C
CORE-III			4	1	-	4

Course objectives:

The main objectives of this course are :

1. To explore various types of partnership accounts
2. To understand the basic concepts of Partnership accounts
3. To offer an idea about insolvency of partnership accounts
4. To promote knowledge about department and branch accounting
5. To facilitate knowledge about hire purchase and installment system of accounting

Unit 1:Hire Purchase System

Hire-purchase and installment purchase system; Meaning of hire-purchase contract; Legal provision regarding hire-purchase contract; Accounting records for goods of substantial sale values, and accounting records for goods of small values; Installment purchase system; After sales service-Accounting procedure – Calculation of interest - Default and Repossession – Installment Purchase System:

Unit 2: Branch and Departmental accounts

Introduction – Meaning – Objectives – Types of Branches - Dependent Branches – Features – Supply of Goods at Cost Price - Invoice Price – Branch Account in the books of Head Office (Debtors System Only)-Goods and cash-in-transit – Inter branch transactions. Departmental accounts – Allocation of expenses – Inter departmental branches.

Unit 3: Partnership firms

Partnership Accounts: Essential characteristics of partnership; Partnership deed; Final accounts; Adjustments after closing the accounts; Fixed and fluctuating capital; Goodwill; Joint Life Policy; Change in Profit Sharing Ratio. Reconstitution of a partnership firm -Amalgamation of partnership firms; Dissolution of a partnership firm -Modes of dissolution of a firm; Accounting entries;

Unit 4: Revaluation of assets and liabilities

Retirement of partner – Calculation of New ratio and gaining ratio – Revaluation of assets and liabilities – Treatment of goodwill – Adjustment of goodwill through capital A/c only – Settlements of accounts-Admission of new partner-Accounting treatment-Adjustment entries. Death of a partner; Accounting treatment-Adjustment entries.

Unit5: Dissolution and Insolvency of partner

Partnership Accounts - Dissolution of firm - Settlement of accounts - accounting treatment for goodwill and unrecorded assets and liabilities - Insolvency of a partner - Garner vs Murray - Fixed and Fluctuating -Capital - all partners insolvency - Gradual realization and Piecemeal distribution - proportionate Capital Method - Maximum loss Method.

Note: Question Paper shall cover 20% Theory and 80% Problem

Text books:

1. S.P. Jain & K.L. Narang, " Advanced Accounting", Kalyani publishers New Delhi, Delhi, Volume – I, 18th Revised Edition, 2014.
2. T.S.Reddy and A.Murthy, " Financial Accounting", Margam publications, Chennai – 600 017, 7th revised edition 2015.
3. S.P. Jain & K.L. Narang, " Patnership Accounting", Kalyani publishers New Delhi

Reference books:

1. Dr. M.A. Arulanandam & Dr. K.S. Raman, "Advanced Accountancy" Himalaya publications, New Delhi, 1st edition 2015.
2. M.C. Shukla, T.S. Grewal & S.C. Gupta, "Advanced accounts", Sultan & chand publications, New Delhi 2013.
3. R.L. Gupta and Radhasamy, "Advanced accounting" S.Chand & company ltd., New Delhi, edition 2013.
4. T.S. Grewal," Introduction to Accountancy", S.Chand & company Ltd, New Delhi – 2014.
5. P.L. Tulsian – Advanced Accountancy – Tata MC Grow Hill companies.

Course outcomes: At the end of the course, students would be able to:

1	describe the concepts based on depreciation and its methods in books of accounts.	K1
2	outline about the nature of Investment and Royal excluding Sublease.	K2
3	identify the essential characteristics of single entry system.	K3
4	apply the basic concepts of departmental and branch accounting.	K4
5	familiarize the procedure relating to hire purchase and installment in books of accounts	K2
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

	POS					**PSOS**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT22	PRINCIPLES OF MARKETING	L	T	P	C
CORE-IV			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To conceptualize an idea about marketing and related terms
2. To provide insight about various forms and types of marketing
3. To analyze various components of marketing channels
4. To understand various concepts relating to consumer behavior
5. To introduce the components of marketing mix

Unit 1: Marketing Concepts

Marketing – Definition of market and marketing – Importance of Marketing – Modern marketing concept – Global marketing – E-marketing and Tele marketing – Meaning and concepts – Marketing ethics – Career opportunities in marketing- Green marketing- Online marketing- Neuro marketing.

Unit 2: Marketing Functions

Marketing functions-Buying -Selling -Transportation -Storage - Financing -Risk Bearing - Standardization - Market Information. Segmentation, Targeting and Positioning: Introduction, Concept of Market Segmentation, Benefits of Market Segmentation, Requisites of Effective Market Segmentation, The Process of Market Segmentation, Bases for Segmenting Consumer Markets, Targeting (T), Market Positioning (P)

Unit 3:Consumer Behaviour and Personal Selling

Consumer behaviour – Meaning – Need for studying consumer behaviour – Factors influencing Consumer behaviour – Market segmentation – Customer relations marketing. Personal selling: Concept and features, classification of sales jobs, qualities and functions of a sales person, prospecting, personal selling process; Functions of a sales manager.

Unit 4:Marketing Mix

Marketing mix – Product mix – Meaning of product – Product life cycle – Branding – Labeling – Price mix – Importance – Pricing objectives – Pricing strategies – Personal selling and sales promotion – Advertising –Place mix – Importance of channels of distribution – Functions of middleman – Importance of retailing in today's context.

Unit 5:CRM and Consumer protection

Customer Relationship Management- Definitions of Customer Relationship Management (CRM),Reasons Behind Losing Customers by Organizations, Significance of Customer Relationship Management, Social Actions Affecting Buyer-Seller Relationships,---Marketing and government – Agricultural marketing – Problems – Remedial measures – Bureau of Indian standards – AGMARK – Consumerism – Consumer protection – Rights of consumers..

Note: Question Paper shall cover 100% Theory

Text Books:

1. R.S.N.Pillai and Bhagavathi, Marketing, S.Chand & Co Ltd, 2009 edition & 2011 reprint, New Delhi.
2. Rajan Nair, Marketing, Sultan Chand & Sons, New Delhi 2005 Edition.
3. Dr.L.Natarajan, Margham, Marketing, Publications, Chennai.

Reference Books:

1. K. Sundar, Essentials of Marketing, Vijay Nicole Imprints Pvt Ltd, Chennai-91.
2. J.Jayasankar, Marketing, Margham Publications, Chennai.
3. Sonatakki, Principles of Marketing, Kalyani Publishers, New Delhi.
4. William J Stanton, Fundamentals of Marketing, Mc Graw Hill Publishing Company Ltd, New Delhi.
5. Philip Kotler & Gary Armstrong, Principles of Marketing, 6th Edition, 2012, Prentice Hall of India Pvt. Ltd, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	define the various concepts and terms related to marketing	K1
2	explain about various marketing functions	K2
3	understand terms of consumer behaviour and examined about different concepts related to consumers.	K2
4	identify the marketing mix and its elements	K1
5	understand different provisions related to trends in emerging markets.	K2
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

	POS					**PSOS**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COA22	BUSINESS COMMUNICATION	L	T	P	C
ALLIED - II			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To provide information on effective business communication and techniques to respond tobusiness queries.
2. To provide knowledge about banking correspondence and company secretarial correspondence.

Unit 1: Business Communication Concepts

Business Communication: Meaning – Objectives – Media – Barriers - Importance of Effective Business Communication- Modern Communication Methods - Business Letters: Need - Functions - Kinds - Essentials of Effective Business Letters - Layout-Barriers to Communication, the Importance of Communication in the Workplace.

Unit 2: Business Correspondence

Business Correspondence : Enquiries - Replies - offers and quotations - Orders and their Execution - Credit and Status Enquiries - Meaning - Trade and bank references - Acknowledgment letters.-Sales letters.-Complaints and Adjustments - Collection Letters - How to write effective Collection letters - Sales Letters - Circular Letters.

Unit 3: Banking Correspondence

Banking Correspondence - Introduction - correspondence with customer, Head office – Insurance Correspondence –Life insurance- Fire insurance - Marine insurance - Agency Correspondence. Letters exchanged between two individual banks-Credit, Financial or Status Inquiries

Unit 4: Company Secretarial Correspondence

Company Secretarial Correspondence - With the Directors-With the Shareholders-With the Office Staff -With the Registrar of companies Agenda, Minutes and Report Writing- Types-Characteristics of good Report- Report of individuals.

Unit 5: Methods of Communication

Application for Jobs: Preparation of resume- Interviews- Meaning- types of Interview- Candidates preparing for an interview- guidelines to be observed during an interview- Business Report Presentations. Strategic Importance of E-Communication. Email, Text Messaging, Slide or Visual Presentation - Internet - Video conferencing - Group Discussion – Social Networking.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Rajendra Pal, J.S. Korahilli, Essentials of Business Communication, Sultan Chand & Sons, New Delhi.
2. N.S.Raghunathan & B.Santhanam, Business Communication, Margham Publications,

Chennai.
3. R.S.N.Pillai and Bhagavathi.S, Commercial Correspondence, Chand Publications, New Delhi.

Reference Books:

1. M.S. Ramesh and R.Pattenshetty, Effective Business English and Correspondence, S.Chand & Co, Publishers, New Delhi-2.
2. V.R. Palanivelu & N. Subburaj, Business Communication, Himalaya Publishing Pvt. Ltd, Mumbai.
3. Sathya Swaroop Debasish, Bhagaban Das, Business Communication, PHI Learning Pvt. Ltd., New Delhi, 2010 Edition.
4. Communication conquer: Pushpalatha & Kumar, A Handbook of group discussion and Job Interview, PHI Learning Publisher.
5. Lesikar, R.V. & Flatley, M.E. Basic Business Communication Skills for Empowering Internet Generation, Tata Mc Graw Hill Publishing Company Ltd, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	Outline the importance of effective business communication	K2
2	Understand the intricacies of responding to business related queries	K2
3	Categorize effective correspondence with banks, insurance and agencies	K3
4	Examine effective response to company secretarial correspondence	K4
5	Analyze new innovative and effective ideas for business communication	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping Outcomes - POs and PSOs

	POS					**PSOS**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

SEMESTER -III

COURSE CODE	U21COT31	BUSINESS STATISTICS	L	T	P	C
CORE –V			3	2	-	4

Course Objectives:

The main objectives of the course are:

1. To promote the skill of applying statistical techniques in business by enabling the students to apply the statistical tools in analysis and interpretation of data.
2. To understand the various measures of dispersion as Range, Quartile deviation and skewness.
3. To understand the practical knowledge on Correlation and Regression.

Unit 1: Introduction and Measures of Central Tendency

Introduction and Measures of Central Tendency: Introduction – Collection and Tabulation of Statistical data – Frequency Distribution – Measure of Central Tendency – Mean, Median, Mode, Harmonic Mean and Geometric Mean, Combined Mean.

Unit 2: Measures of Dispersion

Measures of Dispersion: Measures of Dispersion – Range – Quartile Deviation – Mean Deviation – Standard Deviation and their Co-efficient. Measure of Skewness – Karl Pearson and Bowley's Co-efficient of skewness.

Unit 3: Correlation and Regression

Correlation and Regression: Correlation – Types of Correlation – Measures of Correlation - Karl Pearson's Co-efficient of Correlation – Spearman Rank Correlation Co-efficient. Simple regression analysis – Regression equation, Fitting of Regression lines – Relationship between Regression Co-efficient and Correlation Co-efficient.

Unit 4: Index Numbers

Index Numbers: Index Number, Definition of Index Numbers, Uses – Problems in the construction of index numbers, Simple and Weighted index numbers. Chain and Fixed base index – Cost of living index numbers.

Unit 5: Analysis of Time Series

Analysis of Time Series: Analysis of Time Series – Definition – Components of Time Series, Uses, Measures of Secular Trend, Measure of Seasonal Variation. Method of simple average only. Indian Statistics – Birth and Death rates – Crude, Correlated and Standardized – Methods of Economic survey, preparation of schedules and questionnaires.

Note: Question Paper shall cover 20% Theory and 80% Problem

Text Books:

1. P.A. Navaneethan, Business Statistics, Jai Publishers, Trichy-21.
2. Wilson. M, Business Statistics, Himalaya Publishing House Pvt Ltd., Mumbai.
3. Pillai, RSN and V. Bagavathi, Statistics, S. Chand & Company Ltd., New Delhi, 2010.

Reference Books:

1. S.P.Gupta, Statistical Methods, Sultan Chand & Sons, New Delhi.
2. S.P. Rajagopalan & Sattanathan, Business Statistics, Vijay Nicole Imprints Pvt. Ltd, Chennai-91.
3. D.C.Sanchati and V.K.Kapoor, Statistics, Sultan Chand & Sons, New Delhi.
4. S.C. Gupta & V.K.Kapoor, Fundamentals of Mathematical Statistics, S.Chand & Sons, New Delhi, 2009.
5. S.P.Gupta & M.P.Gupta, Business Statistics, Sultan Chand & Sons, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	acquire knowledge about averages to be used in Business Research	K1, K2,K3
2	gain knowledge about Standard Deviation, Skewness.	K1, K2,K3
3	gain knowledge about the application of Correlation and Regression	K1, K2,K3
4	get an in depth knowledge about Index Numbers	K1, K2,K3
5	acquire knowledge in Measures of Trend and its application in Business Research.	K1, K2,K3 , K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

	POS					**PSOS**								**Means Score of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COA33	PRINCIPLES OF INSURANCE	L	T	P	C
ALLIED-III			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the basic concepts of insurance
2. To familiarize with the concept of working of agency
3. To understand various forms of underwriting
4. To provide knowledge about the formation of insurance companies
5. To acquaint with the basic principles of different types of insurance

Unit1: Insurance an Introduction

Life Insurance Organization : Important Activities, The Indian Context, Internal Organization, The Distribution, System, Appointment of Agent, Functions of Agents, Remuneration of Agents, Trends in Distribution Channels; Plans of Life Insurance : Annuities : Nature of Annuities, Types.- Importance of Insurance to Society, Individuals, Business and Government.

Unit 2: Life Insurance

Life Insurance - Meaning and Features of Life Insurance Contract – Classification of policies – Annuities – Selection of risk – Measurement of risk – Calculation of premium – Investment of funds – Surrender Value - Policy conditions –Life Insurance for the Under Privileged. Plans of Life Insurance : Need Levels, Basic Elements, Some Popular Plans, Limited Payment Plans, Participating Policies, Convertible Plans, Riders, For the Handicapped;

Unit 3: Fire Insurance

Fire Insurance – Meaning, Nature and Use of Fire Insurance- Characteristics of Fire Insurance - Fire Insurance Contract- Kinds of policies – Policy conditions – Payment of claim – Reinsurance – Double insurance- Progress of Fire Insurance-Inclusions under Fire Insurance -Exclusions under Fire Insurance .

nit 4: Marine Insurance

Marine Insurance - Meaning and Nature of Marine Insurance – Classification of policies – Insurance Functions-Eligibility Criteria-Policy conditions – Premium calculation – Marine Losses – Payment of Claims- Progress of Marine Insurance Business in India-Difference between Fire Insurance & Marine Insurance-Inclusions under Marine Insurance -Exclusions under Marine Insurance .

Unit 5: Personal Accident Insurance

Personal Accident Insurance – Motor Insurance – Burglary Insurance – Miscellaneous Forms of Insurance including Social Insurance – Rural Insurance and Prospects of Agriculture Insurance in India – Health Insurance – Liability Insurance - Bancassurance-Inclusions under Personal Accident -Exclusions under Personal Accident.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Mishra. M. N & Mishra. S.B - Insurance - Principles and Practice, S. Chand & Company Ltd. , New Delhi, 22nd Edition, 2016

2. Krishnaswamy. G - A Textbook on Principles and Practice of Life Insurance, Excel Books, New Delhi, First Edition- 2012.
3. Periasamy. P - Principles and Practice of Life Insurance, Himalaya Publishing House, 2017.

Reference Books:

1. Bodla B.S., Garg M.C. & Singh K.P., Insurance Fundamentals, Environment and Procedure, Deep & Deep Publications Pvt. Ltd., New Delhi, 2004
2. Ganguly Anand, Insurance Management, New Age International Publishers, New Delhi
3. Hargovind Dayal.,The Fundamentals of Insurance – Theories, Principles and Practices., Notion Press., Chennai., 2017.
4. Taxmann : Insurance Manual, Taxmann Publication Private Limited
5. M. N. Srinivasan : Principles of Insurance Law, Wadhwa & Co.
6. K.C. Mishra and G.E. Thomas, General Insurance - Principles and Practice, Cengage Learning: New Delhi.

Web Resource: https://www.insuranceinstituteofindia.com/

Course outcomes: At the end of the course, students would be able to:

1	Recall the different concepts of insurance and its working	K1
2	Explain the concept of agent and its working system	K2
3	Evaluate the functions of agents and various forms of underwriting	K5
4	Analyze the various actuarial aspects relating to insurance companies	K4
5	List the basic principles of insurance and various types of it.	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping Outcomes - POs and PSOs

	POS					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE311	CHOICE - I	L	T	P	C
ELECTIVE –I		HUMAN RESOURCE MANAGEMENT	4	-	-	3

Course Objectives:

The objectives of the course are

1.To discuss the role of human resource management in relation to organizational requirements

2.To acquaint students with the techniques and principles to manage human resource of an organization.

3. To understand the various processes of Human Resource Planning

Unit 1: HRM Concept and Functions

Introduction to Human Resource Management HRM Concept and Functions, Role, Status and competencies of HR Manager - HR Policies - Evolution of HRM - HRM vs HRD - Evolution of HRM - Emerging Challenges of Human Resource Management - Workforce diversity; Empowerment - Human Resource Information System.

Unit 2: Human Resource Planning

Acquisition of Human Resource Human Resource Planning- Quantitative and Qualitative Dimensions - job analysis – job description and job specification - Recruitment And Selection – meaning – process of requirement – sources and techniques of Recruitment – Meaning and Process of Selection – Selection Tests And Interviews – placement, induction, socialization and Retention. Retention strategy.

Unit 3: Training and Development

Training and Development Concept and Importance -Training and development methods – Identifying Training and Development Needs - Designing Training Programmes - Role Specific and Competency Based Training - Evaluating Training Effectiveness - Training Process Outsourcing - Management Development - Career Development.

Unit 4: Performance Appraisal

Performance Appraisal Nature, objectives and importance - Modern Methods and techniques of performance appraisal - potential appraisal and employee counselling - job changes - transfers and promotions -Problems in Performance Appraisal – Essentials of Effective Appraisal System – Job Evaluation – Concepts, Process and Objectives – Advantages and Limitations – Methods.

Unit5: Compensation and Maintenance

Compensation and Maintenance Compensation - Concept and policies- wage and Salary administration Methods of wage payments and incentive plans - Fringe benefits - Performance linked compensation - Employee health, welfare and safety social security - Employer-Employee relations- grievance handling and redressal - Grievance handling and redressal.

Note: Question Paper shall cover 100% Theory

Text Books:

1. K. Aswathappa : Human Resource Management Text and Cases: Tata McGraw Hill, New Delhi.
2. George W Bohlander and Scott A Snell: Principles of Human resource Management: Cengage Learning, New Delhi.
3. P.G.Aqinas: Human Resource Management Principles and Practice: Vikas Publishing House Pvt. Ltd., New Delhi

Reference Books:

1. Gary Dessler. A Framework for Human Resource Management. Pearson Education.
2. DeCenzo, D.A. and S.P. Robbins, Personnel/Human Resource Management, Pearson Education.
3. Bohlendar and Snell, Principles of Human Resource Management, Cengage Learning.
4. Ivancevich, John M. Human Resource Management. McGraw Hill.
5. Wreather and Davis. Human Resource Management. Pearson Education.
6. Robert L. Mathis and John H. Jackson. Human Resource Management. Cengage Learning.
7. TN Chhabra, Human Resource Management, Dhanpat Rai & Co., Delhi.
8. Biswajeet Patttanayak, Human Resource Management, PHI Learning.
9. Khurana Ashok, Human Resource Management, V.K. Publications.
10. Sankalp Gaurav, Human Resource Management, Sahitya Bhawan Publications.
11. Human Resource Management by Kalyani Publishers.

Course outcomes: At the end of the course, students would be able to:

1	understand the recent HRM concepts and its challenges	K1, K2,K3
2	know the job analysis for placing the suitable person at the suitable place	K1, K2,K3
3	gain the benefits of training and development to the employees of an organisation with a view to attaining goals of the organization	K1, K2,K3
4	gain basic knowledge of assessing and techniques of performance appraisal	K1, K2,K3
5	understand Compensation and Maintenance of Compensation system	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

	POS					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE312	CHOICE - II	L	T	P	C
ELECTIVE –I		TRAINING AND DEVELOPMENT	4	-	-	3

Course Objectives:

The main objectives are

1.To equip the learners with the concept and practice of Training and Development in the modern organizational setting through the pedagogy of case discussions and recent experiences.

2. To understand the concepts and various types of analysis in Training

3. To understand the various evaluation techniques in Training and Development

Unit 1: Introduction to Training and Development

Introduction Concepts and Rationale of Training and Development; overview of training and development systems; organizing training department; training and development policies; linking training and development to company's strategy; Requisites of Effective Training; Role of External agencies in Training and Development.

Unit 2: **Training Need Analysis**

Training Need Analysis (TNA) Meaning and purpose of TNA, TNA at different levels, Approaches for TNA, output of TNA, methods used in TNA.

Unit 3: **Training and Development Methodologies**

Training and Development Methodologies Overview of Training Methodologies- Skills of an Effective Trainer; Use of Audio-Visual Aids in training; Computer Aided Instructions- Distance Learning, Open Learning, E- Learning; Technologies Convergence and Multimedia Environment. Development Techniques for enhancing decision–making and interpersonal skills, Demonstration and Practice Monitoring; Coaching; Self Diagnostic Skills, Experience Learning, Discovery Learning, Brainstorming, Counselling, Position Rotation, Team Building, and Sensitivity Training.

Unit 4: Designing Training & Development Programme

Designing Training & Development Programme Organization of Training and Development programmes, Training design, kinds of training and development programmes- competence based and role-based training; orientation and socialization; diversity training, choice of training and development methods, Preparation of trainers; developing training materials; E-learning environment; Flexible learning modules; Self development; Training process outsourcing.

Unit 5: Evaluation of Training and Development

Evaluation of Training and Development Reasons for evaluating Training and development programmes, Problems in evaluation; Evaluation planning and data collection, different evaluation frameworks, Problems of Measurement and Evaluation; Costing of training, measuring costs and benefits of training programmes, obtaining feedback of trainees; Methods of evaluating effectiveness of Training Efforts; Kirkpatrick Model of Training Effectiveness; Training issues resulting from the external environment and internal needs of the company.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Sharma, D., & Kaushik, S. (2019). Training & Development. New Delhi: JSR Publishing House.

Reference Books:

1. Blanchard, N. P., & Thacker, J. W. (2012). Effective Training: Systems, Strategies and Practices, 4 th Edition. New York: Pearson Education.
2. Noe, R. A., & Kodwani, A. D. (2018). Employee Training and Development, 7th Edition. New York: McGraw Hill Education.
3. Lynton, R. P., & Pareek, U. (2011). Training for Development. New Delhi: SAGE India.
4. Phillips, J. J., & Phillips, P. P. (2016). Handbook of Training Evaluation and Measurement Methods. Houston: Gulf Publishing Co.
5. Prior, J. (1991). Handbook of Training and Development. Mumbai: Jaico Publishing House.

Course outcomes: At the end of the course, students would be able to:

1	analyse the training strategies adopted by companies in real situations	K1, K2,K3
2	identify training needs of an individual by conducting Training Need Analysis	K1, K2,K3
3	differentiate between the applicability of various training strategies and select a strategy based upon the result of TNA	K1, K2,K3
4	develop a training and development module	K1, K2,K3
5	evaluate and assess the cost and benefits of a training and development programme.	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

	POS					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

SEMESTER IV

COURSE CODE	U21COT41	COST ACCOUNTING	L	T	P	C
CORE-VI			3	1	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the concept and various components of costing
2. To assist preparation of accounts under process costing
3. To familiarize with the techniques of operating costing

Unit 1: Cost accounting Concept

Meaning, Objectives, Importance and Uses of Cost Accounting, Functions of Cost Accounting Department in an Organization, Difference between Cost Accounting and Financial Accounting; Various Elements of Cost and Classification of Cost; Cost object, Cost unit, Cost driver, Cost reduction and Cost control; Limitations of Cost Accounting; **Cost Sheet:** Meaning and Cost heads in a Cost Sheet, Presentation of Cost Information in Cost Sheet / Statement - Problems on Cost Sheet, Tenders and Quotations

Unit 2: Material Control

Procedure for procurement of materials and documentation involved in procurement of materials – **(**Bill of materials, Material requisition note, Purchase requisition note, Purchase order, Goods received note); Inventory Control: Inventory control techniques and determination of various stock levels – Problems on level setting and computation of EOQ; ABC Analysis, FSN Inventory, VED Inventory, HML Inventory, Physical Control- KANBAN, JIT Inventory Management Technique, Perpetual Inventory system (Concepts only)

Unit 3: Labour Costing

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead – classification of overhead – allocation and absorption of overhead. Labour Cost: Meaning, Components, Classification and Importance of Employee (Labour) Cost in Organization; Methods of Remuneration (Payment of Wages and Incentives) Labour Turnover – Meaning, Reasons and Effects of LTO/ETO.

Unit 4: Process costing

Process costing – Features of process costing –Distinction between job costing and process costing - process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production).-Valuation of Work-in-progress

Unit 5: Operating Costing

Operating Costing – Contract costing – Reconciliation of Cost and Financial accounts-Contract Costing: Contract Costing - Definition, Features, Work Certified and Un certified - Incomplete Contact - Escalation Clause - Cost Plus Contract - Contract Account.

Note: Question Paper shall cover 20% Theory and 80% Problem

Text books:

1. S.P. Jain and K.L. Narang, "Cost Accounting", Kalyani publications. New Delhi. Edn. 2011
2. R.S.N. Pillai and V. Bhagavathi, "Cost Accounting", S chand and company ltd., New Delhi. Edn. 2004.
3. T.S. Reddy and Dr. Y. Hari prasad reddy, "Costl Accounting", Margam publications,Chennai – 600 017, 7th Revised Edition 2009.

Reference books:

1. S.P. Iyyangar, "Cost Accounting principles and practice", Sultan chand, New Delhi. 2005 2. V.K.Saxena & C.D. Vashist, "Cost Accounting", Sultan chand, New Delhi 2005
3. M.N. Arora, "Cost Accounting", Sultan chand, New Delhi.2005.
4. B.S. Kanna, I.M. Pandey, G.K. Ahuja, M.N. A rora, Practical costing, sultan chand & sons. Edition 2009.
5. Bhattacharya "Principles and practices of Cost Accounting" PHI Publications, Third Edition – 2010.

Course outcomes: At the end of the course, students would be able to:

1	recall various concepts of costing and costing methods	K1
2	analyze the various elements of costing	K4
3	explain the labour wage payment system	K2
4	outline the cost under process costing system	K2
5	examine about operational costing, contract costing and Reconciliation of Cost and Financial Statements.	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

	POS					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT42	BUSINESS ENVIRONMENT	L	T	P	C
CORE-VII			4	-	-	4

Course Objectives:

The objectives of the course are

1.To provide an overview of Business Environment in India

2.To know the impact of environmental factors on the Business Policies

3.To formulate Decisions and to understand the concept of Corporate Governance, Social Responsibility of Business and Business Ethics.

Unit 1: Introduction to Business Environment

Introduction to Business Environment - Nature and Scope of Business - Concept and Characteristics of Business - Scope of Business - Nature, Objectives and Uses of Study of Business Environment - Types of Business Environment - Micro Environment - Macro Environment - Environmental Analysis - Managing Diversity - Nature and scope of business

Unit 2 : The Constitutional Environment

The Constitutional Environment - Functions and Role of the State - Legal Environment -Functions of state, economic roles of government, government and legal environment. The constitutional environment, rationale and extent of state intervention.

Unit 3:Demographic Environment and Socio-Cultural Environment

Demographic Environment - Culture & Business - Business and Society - Social Responsibilities of Business - Business Ethics & Values - Corporate Governance -Nature and impact of culture on business, culture and globalization, social responsibilities of business, social audit, business ethics and corporate governance, Demographic environment population size, migration and ethnic aspects, birth rate, death rate and age structure

Unit 4 : Economic Systems

Economic Systems - Economic Planning - Economic Parameters - Economic Policies - Consumer Protection Act and Competition Act, 2008 - Liberalization, Privatization and Globalization of Indian Economy.-New industrial policy, FEMA, Monetary and fiscal policies. Consumer Protection Act and Competition Law. Liberalization, Privatization and Globalization of Indian Economy, Trends and Issues

Unit 5: Natural Environment

Natural Environment: Meaning and Components of Natural Environment - Impact of Natural Environment on Business - Guidelines for Development of Natural Resources - Sustainable Development - Green Index. Technological Environment: Meaning, Factors Governed and Impact of Technological Environment - Indicators of Technological Progress - Technology as a Source of Competitive Advantage - Sources of Technological Dynamics - Time Lags in Technology Introduction - Impact of Technology on Globalization.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Gupta C.B., Essentials of Business Environment, Sultan & Chand Publications, New Delhi. First Edition, 2018.
2. Dhanabhakiyam. M & Kavitha. M., Business Environment, Vijay Nicole Imprints Private Ltd., Chennai., 2014. 3. Sankaran, Business Environment, Margham Publications. Chennai

References Books:

1. Cherunilam, F. (2013). Business Environment: Text and cases. New Delhi: Himalaya Publishing House Pvt. Ltd.
2. Sloman, J. & Sutcliffe, M. (2004). Economics for Business (3rd Edition.). New Delhi: Pearson Education.
3. Dhingra, I. C. & Dhingra, N. (2014). Concise Business Environment (1st Ed.). New Delhi: Book Age Publications.
4. Bosch, F. & Man, A. (1994). Government's Impact on the Business Environment and Strategic Management. Journal of General Management, Vol. 19 No. 3
5. Fernando, A. C. (2011). Business Environment. New Delhi, Pearson Education.

Course outcomes: At the end of the course, students would be able to:

1	understand the concept, significance and changing dimensions of Business Environment	K1, K2,K3
2	appreciate the importance and impact of changing laws and regulations on a business firm	K1, K2,K3
3	learn about emerging dimensions in socio-cultural environment and its relevance for a business firm.	K1, K2,K3
4	gain insights on role of economic systems, economic planning, government policies, public sector and development banks, economic reforms, liberalization and its impact on business.	K1, K2,K3
5	gain insights on patent laws, policy on research and development and new technological developments in Business Environment	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

	POS					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COA44	BUSINESS MATHEMATICS	L	T	P	C
ALLIED - IV			2	2	-	4

Course Objectives:

The main objective of the course is

1.To acquaint students with the familiarity of Business Mathematics and on particular emphasis is laid on the foundation aspects of business mathematics.

2.To understand the theory of sets, Indices and surds

3. To understand the various methods of Depreciation and annuities.

Unit 1: Development of number system

Operations on Numbers – Development of number system – Natural number – Integers – Rational and Irrational numbers – Imaginary numbers – Complex numbers – Greatest Common divisor – Least Common multiple**.**

Unit 2:Theory of Sets

Theory of Sets – Definition – Types – Union, Intersection, Difference and Complement of Sets – De Morgan's Law – Venn Diagram – Simple set applications – Numbers of elements in a finite set.

Unit 3: Indices and Surds

Indices and Surds – Positive indices – Laws of indices – Zero and Unity index – Fractional index – Miscellaneous illustrations – Surds – Definition – Types of Surds – Similar Surds – Conjugate Surds – Rationalizing factors – Properties of Bi-quadratic surds – Square root of a surds – Square root of trinomial quadratic surd.

Unit 4: Depreciation and Annuities

Interest, Depreciation and Annuities – Simple Interest – Compound Interest – Depreciation – Annuities – Types of Annuities – Definite integral – Simple applications – Finding total and average cost function – Producer surplus and consumer surplus.

Unit 5: Probability and Matrices

Probability and Matrices – Terminology – Probability measure – Classical or priori probability – Types of approach and Mathematical expectation – Matrices – definition – Types – Addition, Subtraction, Multiplication of Matrices – Inverse matrix – Solving a system of simultaneous linear equations using matrix inversion technique – rank of a matrix.

Note: Question Paper shall cover 20% Theory and 80% Problem

Text Books:
1. Business Mathematics – V.Sundaresan and S.D.Jeyaseelan.
2. Business Mathematics – M.Manoharan and C.Elango, Palani Paramount Publications.

Reference Books:
1. Business Mathematics – J.K.Singh, Himalaya Publishing House.
2. Business Mathematics – R.S.Soni, Arneet Kaur Soni, Himalaya Publishing House.
3. Business Mathematics – M.L.Bhargara, Dr.Ashok Saini, Dr.Dalip Singh, Jeevansons Publication.

Course outcomes: At the end of the course, students would be able to:

1	understand the number system	K1, K2,K3
2	understand the set theory	K1, K2,K3
3	Know the calculations of indices and surds	K1, K2,K3
4	Understand the calculations of interest , annuities and depreciation	K1, K2,K3
5	Know the applications of probability distributions and matrices	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping Outcomes - POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE421	CHOICE -I	L	T	P	C
ELECTIVE –III		ELEMENTS OF E-COMMERCE	3	-	-	3

Course Objectives:
The objectives of the course are
1. To enable the students to gain basic knowledge of Electronic-Commerce in the area of Business and Financing decisions
2. To understand the components of E-Commerce
3. To understand the Client Server Network Security

Unit 1: E-Commerce an Introduction
Electronic Commerce Framework -Traditional vs. Electronic Business Applications - The Anatomy of E-Commerce Applications -Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce.

Unit 2: E-Commerce Components
Network Infrastructure for E-Commerce Components of the I-way-Global Information Distribution Networks – Public Policy Issues Shaping the I-way. The Internet as a Network Infrastructure. The Business of the Internet Commercialization.-E-Retailing: Traditional retailing and e retailing, Benefits of e retailing, Key success factors.

Unit 3: Client Server Network Security
Models of e retailing, Features of e retailing. E services: Categories of e-services, Web-enabled services, matchmaking services, Information-selling on the web, e entertainment, Auctions and other specialized services. Business to Business Electronic Commerce-Network Security and Firewalls – Client Server Network Security – Firewalls and Network Security – Data and Message Security – Encrypted Documents and Electronic -Mail.

Unit 4: Business to Business Communication
Electronic Commerce and World-Wide-Web, Consumer Oriented E-Commerce, Electronic Payment Systems, Electronic Data Interchange (EDI), EDI Applications in Business, EDI and E-Commerce – EDI Implementation. -Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

Unit 5: Multimedia and Digital video
Multimedia and Digital video- key multimedia concepts, Digital Video and Electronic Commerce-Desktop Video processing – Desktop Video conferencing-Digital video compression/decompression-Types of desktop video conferencing.
Note: Question Paper shall cover 100% Theory

Text Books:
1. Kalakota, R and Winston, AB 2002 Frontiers of Electronic Commerce, Addison Westey
2. David Kosiur, 2002 Understanding Electronic Commerce, Microsoft Press,

3. Saily Chan & John Wiley 2000Electronic Commerce Management, Tata McGraw Hill, New Delhi.

Reference Books:

1. Parag Diwan& Sunil Sharma 2000 E-Commerce A Managerial guide to EBusiness Deep & Deep Pub.,Delhi
2. Agarwal Kamalesh N & Agarwal Deeksha _2000 Business On the Net – Introduction to the Electronic Commerce, Mc Millan India Pub, New Delhi
3. Soka, From EDI to Electronic Commerce,2002 Tata McGraw Hill, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	understand basic concepts on e-commerce	K1, K2,K3
2	understand various methods on Architectural aspect of e-Commerce**.**	K1, K2,K3
3	gain essential knowledge on security aspect of e-commerce	K1, K2,K3
4	gain application knowledge on ecommerce in business.	K1, K2,K3
5	gain conceptual knowledge on multimedia in e-commerce	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping outcomes - POs and PSOs

COS	**POS**					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE422	CHOICE -II	L	T	P	C
ELLECTIVE - III		DIGITAL MARKETING	3	-	-	3

Learning Objectives:

The objectives of the course are

1.To provide knowledge about the concepts, tools, techniques, and relevance of digital marketing in the present changing scenario.

2. To understand the various components of Digital Marketing Management

3. To understand the various basic concepts on online marketing, Interactive Marketing and Artificial Intelligence in Marketing.

Unit 1:Concept of Digital Marketing

Concept, scope, and importance of digital marketing. Traditional marketing versus digital marketing. Challenges and opportunities for digital marketing. Digital penetration in the Indian market. Benefits to the customer; Digital marketing landscape: an overview. Ethical issues and legal challenges in digital marketing. Regulatory framework for digital marketing in India.

Unit 2: Digital Marketing Management

Digital-marketing mix. Segmentation, Targeting, Differentiation, and Positioning: Concept, levels, and strategies in a digital environment; Digital technology and customer-relationship management. Digital consumers and their buying decision process.

Unit 3:Digital Marketing Presence

Concept and role of Internet in marketing. Online marketing domains. The P.O.E.M framework. Website design and Domain name branding. Search engine optimization: stages, types of traffic, tactics. Online advertising: types, formats, requisites of a good online advertisement. Buying models. Online public relation management. Direct marketing: scope and growth. Email marketing, Facebook marketing, YouTube and Video marketing, Twitter Marketing, Instagram Marketing: types and strategies.

Unit 4:Interactive Marketing

Interactive marketing: concept and options. Social media marketing: concept and tools. Online communities and social networks. Blogging: types and role. Video marketing: tools and techniques. Mobile marketing tools. PPC marketing. Payment options.

Unit 5: Artificial Intelligence in Marketing

Introduction of Artificial Intelligence in Marketing, How does AI Work, Benefit of AI in Marketing Automation, Content creation with AI, AI Tools available for Digital marketing

Note: Question Paper shall cover 100% Theory

Text Books:

1. Gupta, S. (2018). Digital Marketing. Delhi: Tata McGraw Hill Education.

Reference Books:

1.Chaffey, D., Chadwick, F. E., Johnston, K., & Mayer, R. (2008). Internet Marketing: Strategy, Implementation, and Practice. New Jersey: Pearson Hall.

2. Frost, R. D., Fox, A., & Strauss, J. (2018). E- Marketing. Abingdon: Routledge.

3.Kapoor, N. (2018). Fundamentals of E-Marketing. Delhi: Pinnacle India.

4.Kotler, P., Kartajaya, H., & Setiawan, I. (2017). Digital Marketing: 4.0 Moving from Traditional to Digital.

5.New Jersey: John Wiley & Sons. Ryan, D., & Calvin, J. (2016). Understanding Digital

Marketing: Marketing Strategies for engaging the Digital Generation.
6.London: Kogan page. Blanchard, O. A. (2011). Social Media ROI: Managing and Measuring Social Media Efforts in Your Organisation. Indianapolis: Que Publishing.
7. Charlesworth, A. (2018). Digital Marketing: A Practical Approach. Abingdon: Routledge.
8.Gay, R., Charlesworth, A., & Esen, R. (2007). Online Marketing: A Customer-led Approach. Oxford: Oxford University Press.
9. Tasner, M. (2015). Marketing in the Moment: The Digital Marketing Guide to generating more sales and reaching your customer first. London: Pearson.

Note: Learners are advised to use latest edition of text books.

Course outcomes: At the end of the course, students would be able to:

1	identify and assess the impact of digital technology in transforming the business environment and also the customer journey;	K1, K2,K3
2	explain the way marketers think, conceptualize, test continuously to optimize their product search on digital platforms;	K1, K2,K3
3	illustrate the measurement of effectiveness of a digital marketing campaign;	K1, K2,K3
4	demonstrate their skills in digital marketing tools such as SEO, Social media, and Blogging for engaging the digital generation;	K1, K2,K3
5	understand the concept of AI in Digital Marketing;	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping outcomes - POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

SEMESTER - V

COURSE CODE	U21COT51	MANAGEMENT ACCOUNTING	L	T	P	C
CORE-VIII			5	-	-	4

Course Objectives:

The main objectives of this course are to:

1. To understand the various components of management accounting and related terms
2. To understand analysis using ratio, working capital management and marginal costing
3. To familiarize with budget preparation and budgetary control tools

Unit 1: Management accounting Concepts

Management accounting – Definition – Objectives – Nature – Scope – Merits and limitations – Differences between management accounting and financial accounting – Financial statement analysis – Comparative statement – Common size statement – Trend percentage – Ratio analysis – Meaning – Classification – Liquidity, solvency, turnover and profitability ratios.

Unit 2: Fund Flow and Cash Flow Statement

Fund flow statement – Meaning – Preparation – Schedule of changes in working capital – Funds from operation – Sources and applications – Cash flow statement – Meaning – Difference between fund flow statement and cash flow statement – Preparation of cash flow statement as per AS3.

Unit 3: Budget and Budgetary control

Budget and Budgetary control – Meaning – importance and its Advantages -Essential Of Successful Budgetary Control – Preparation of Budgets – purchase, Sales Budget – Production Budget – Materials Budget – Cash Budget – Flexible Budget- overhead cost Budget.

Unit 4: Standard Costing

Standard costing – Meaning, Advantages and its Limitations. Variance analysis – Significance - Computation of variances (Material and Labour variance only) - Marginal costing – CVP analysis – Break even analysis – BEP - Managerial applications – Margin of safety – Profit planning.

Unit 5: Capital Budgeting

Capital Budgeting – Meaning – Importance – Appraisal methods – Payback period –– Accounting rate of return - Discounted cash flow – Net present value – Profitability index – Internal rate of return.

Note: Question Paper shall cover 20% Theory and 80% Problem

Text Books (Latest revised edition only)

1. Management accounting by S.N.Maheswari – Sultan Chand & sons publications, New Delhi
2. Management accounting by Sharma and Guptha, Kalyani Publishers, Chennai.
3. Management accounting by R.Ramachandran and R.Srinivasan – Sriram publication, Trichy

Reference Books (Latest revised edition only)

1. Management Accounting by R.S.N.Pillai&V.Baghavathi – S.Chand& Co, Mumbai.
2. Management Accounting by E.Gordon, P.Jeyaram, N.Sundaram & R. Jayachandran, Himalaya Publishing House, Mumbai.
3. Management Accounting by Reddy.T.S & Hari Prasath.Y, Margham Publications, Chennai.

4. Management accounting by A. Murthi and S. Gurusamy, Vijay Nicole Publications, Chennai.
5. Management accounting by Hingorani&Ramanthan – S.Chand& Co, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	outline the various concepts relating to management accounting	K2
2	analyze financial statements using ratio analysis	K4
3	evaluate the working capital management of companies	K5
4	comparing various alternatives using marginal costing and decision making	K2
5	analyze new budget and budgetary control for organizations	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

<table>
<tr><td>COURSE CODE</td><td>U21COT52</td><td rowspan="2">AUDITING</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-IX</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives:

The main objectives of this course are :

1. To understand the various concepts of auditing and the procedure for the conduct of internalaudit
2. To familiarize with the process of valuing assets and liabilities
3. To understand the process of auditing the joint stock companies and investigation mechanism

Unit 1 :Auditing An Introduction

Introduction – Meaning – Features – Objectives – Advantages of Auditing – Materiality in Auditing – Classifications or various types of Audit – Techniques of Auditing – Audit Evidence – Criteria for Selection of Audit Evidence – Process of gathering Evidence**.**

Unit 2 : Audit Programme

Audit Programme – Audit Note Book – Working Paper – Audit Planning - Engagement of an Auditor for Audit Work – Internal Control – Objectives of Internal Control – Forms of Internal Control – Merits and drawback of Internal Control – Internal Audit – Features – Objectives – Advantages of Internal Audit – Distinction Between Internal Control and Internal audit.

Unit 3: Vouching of Trade Transactions

Meaning – Definition – Objective – Requisites of a Valid Voucher – Types of Vouching – Vouching of Cash Transaction – Vouching of Trade Transactions- Verification – Objects of Verification – Principles of Verification – Verification and Valuation of Assets – Verification of Liabilities.

Unit 4 :Auditors Appointment and Removal

Auditors of a Company – Appointment – Removal – Remuneration – Qualification and Disqualification of Auditor – Rights, Duties and Powers of Auditor, Liabilities of Auditor – Audit Report – Types of Audit Report – Statutory Report – Matters to be included in the Audit Report.

Unit 5: Cost Audit and Management Audit

Cost Audit - Management Audit – Process of Management Audit – Human Resource Audit – Environment Audit – Social Audit - Forensic Audit- Computerised Audit – Benefits – Deficiencies – Role of Auditor in Computerised Environment – Audit of Government Accounts – Features of Government Audit – Functions of Comptroller and Audit General of India – Duties of Accountant General – Various authorities role in auditing.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Tandon B.N 2015 Practical Auditing, S.Chand & Co, New Delhi
2. Sundar K. and Paari, 2016 Auditing Vijay Nicole, Imprints Private Ltd, Chennai, 2015
3. Saxena, R.G. 2016 Principles of Auditing, Himalaya Publishing House, New Delhi.

Reference Books:

1. Natarajan, L. 2013. Auditing Chennai: Margham Publications.Chennai
2. Pagar, D. 2016. Principles and Practice of Auditing (14 ed.).: Sultan Chand & Sons.
3. Tandon, B.N & Sudharsanam, S. 2016. A Handbook of Practical Auditing : S Chand & Company Pvt. Ltd. New Delhi
4. Kamal Gupta, 2015 Contemporary Auditing Tata McGraw Hill, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	define the important concept and rules relating to auditing	K1
2	outline the techniques and applicability of internal audit	K2
3	analyze the valuation of assets and liabilities in business	K4
4	analyze the accounts and auditing the joint stock companies	K4
5	examine about investigation and auditing of computerized accounts	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT53	INCOME TAX LAW AND PRACTICE	L	T	P	C
CORE-X			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the various concepts of income tax and related terminologies
2. To familiarize with calculation if income under different heads
3. To enable the students to know the provisions of the income tax law.
4. To understand the process of set off and carry forward of losses while computing total income

Unit 1: Income tax-Basic concepts

Income tax-Basic concepts – Definition – Previous year – Assessment year – Person – Assessee – Income – Total Income – Casual income – Capital and Revenue – Residential status and incidence of tax incomes exempt under Section – 10

Unit 2: Computation Of Taxable Salary

Salary – Basis of charge – Different forms of salary – allowances – gratuity – pension – perquisites and their valuation – deduction from salary – computation of taxable salary .

Unit 3: Computation Of House Property Income

House property – basis of charge – determination of GAV and NAV – income from let – out property – deductions – computation of House property income**.**

Unit 4: Profits And Gains Of Business And Profession

Profits and gains of business and profession – basis of charge – methods of accounting – deductions – allowable expenses and disallowable expenses – computation of taxable income.Income from Capital Gains – Income from other sources.

Unit 5: Income Of Other Persons Included In Assesses Total Income

Income of other persons included in assesses total income – Aggregation of income; Set – off or carry forward and set off of losses – Deductions from gross total income – Computation of total income and tax payable; Rebates and relief's – Provisions concerning advance tax and tax deducted at source – Provisions for filing of return of income.

Note: Question Paper shall cover 40% Theory and 60% Problem

Text Books :

1. Dr.Vinod K.Singhania, Taxmen's Direct Taxed Law & Practice. Taxman Publications, New Delhi.
2. Dr. A. Murthy, Income Tax Law and Practice - Vijay Nichole Publications, Chennai.
3. Dr. T.S. Reddy & Dr. Hariprasad, Income tax law and practice, Margam publications, Chennai.

Books for Reference:

1.Gaur and Narang, " Income Tax Law and Practice" Kalyani Publishers, New Delhi.
2. Dr. H. C.Mehrotra, " Income Tax Law and Accounts" Sahithya Bhavan publishers, Agra.
3. R. G. Shaha, Income Tax Law and Practice (Direct Tax) Himalaya Publications, Mumbai.
4. Dinkar Pagare, Direct Tax – Sultan Chand publishers, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	outline the various terminologies related to income tax	K1
2	understand the method of calculating and levying tax	K2
3	apply the various tax laws and available provisions in tax computations	K3
4	evaluate the set off and carry forward of losses while calculating personal income	K5
5	analyze self-assessment of income and tax computation	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

COS	**POS**					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT54	ENTREPRENEURIAL DEVELOPMENT	L	T	P	C
CORE-XI			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the basic concepts of entrepreneurship and related initiatives
2. To provide insights about the setting up of startups
3. To familiarize with the institutional services to entrepreneur
4. To provide knowledge about various financial support available to the entrepreneurs
5. To provide knowledge about various subsidies and incentives available for entrepreneurs

Unit 1: Concept of Entrepreneurship

Entrepreneur - Entrepreneurship – Women Entrepreneurship – Rural Entrepreneurship – Factors affecting Entrepreneurial Growth - Entrepreneurial Motivation - Entrepreneurial Competencies - Entrepreneurial Mobility – Challenges to Entrepreneurship- Ethics and Entrepreneurship – Social Responsibility in Entrepreneurship - Entrepreneurial Development Programmes.

Unit 2: Business Modelling

Opportunity Analysis – Ideation Techniques – Ideation Catalysts and Inhibitors – Idea to Opportunity Maps – Evaluation of Idea to Opportunity Maps – Business Model – Functions of a Business Model - Business Modelling – Benefits of Business Modelling - Business Models to Business Plans.

Unit 3: Project Appraisal

Small Enterprises: An Introductory Framework – Project Identification and Selection – Project Formulation – Project Appraisal – Legal, Regulatory and Statutory Body – Clearance Approvals and NOC – Compliance – Financing of Enterprise - Boot Strapping - Ownership Structures.

Unit 4: Institutional Finance

Institutional Finance to Entrepreneurs – Lease Financing and Hire-Purchase – Institutional Support to Entrepreneurs – Taxation Benefits to Small-Scale Industries – Government Policy for Small-Scale Enterprises.

Unit 5: Accounting for Enterprises

Accounting for Enterprises - Break-Even Analysis – Elements of Financial Statements- Growth Strategies – Intellectual Property – Innovation – Knowledge Management – Leadership and Governance – Sickness and Rehabilitation – Application of Electronic Commerce.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Khanka . S.S., Entrepreneurial Development, S.Chand & Co. Ltd., New Delhi. 2017
2. Raj Shankar., Essentials of Entrepreneurship, Vijay Nicole Imprints Private Ltd., Chennai.

2013.

3. Gupta. C.B. & Khanka S.S., Entrepreneurship and Small Business Management, Sultan Chand & Sons, 7th Revised Edition- 2017.

Reference Books:

1. Weihrich Heinz, Canice Mark V and Koontz Harold, Management – A Global and Entrepreneurial Perspective, Tata McGraw Hill Education Pvt. Ltd., 3rd Edition, 2011.
2. Desai Vasant, Entrepreneurial Development and Management, Himalaya Publishing House, 2007.
3. Bruce R. Barringer, R. Duane Ireland, Entrepreneurship – Successfully Launching New Ventures, Pearson Education, 2008.
4. Gupta C. B., Srinivasan N P, Entrepreneurial Development, Sultan Chand and Sons.
5. Barringer Bruce R., Ireland R. Duane, Entrepreneurship - Successfully Launching New Ventures, Pearson Education, 2008.

Course outcomes: At the end of the course, students would be able to:

1	recall the importance and role of entrepreneurship as an economic activity	K1
2	explain the various process of setting up a startup	K2
3	outline the various institutional services to entrepreneur	K2
4	analyze the various financial institution available to support entrepreneurs	K4
5	list the various subsidies and incentives available for entrepreneurs	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

COS	**POS**					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT55	BANKING THEORY, LAW AND PRACTICE	L	T	P	C
CORE-XII			5	-	-	4

Course Objectives:

The objectives of the course are

1. To gain an insight on the nature of current banking law and to know the practices of banking in India
2. To understand the Banking Regulations
3. To understand the various types of accounts

Unit 1: Banking Legislation

Banking Legislation – Provisions of Banking Regulations – Definition of Banker – Relationship between Banker and Customer – General Relationship between Banker and Customer – Obligations of Banker – Rights of Banker – Right of Appropriation Clay ton's Rule – Pass Book – Legal Implications of Entries in Pass Book.

Unit 2: Types of Bank Accounts

Types of Bank Accounts – Fixed Deposit Account – Savings – Current and Recurring Account – Features – Benefits - Account Opening Formalities - KYC Norms – Fixed Deposit Receipts – Non Residence Deposit Account – Currency (Domestic) Account – Senior Citizen Deposit Account – Flexi Deposit Account. Bank Customer: Bank Customer – Partnership Firm, Club – Joint Stock Company – Joint Hindu Family – Trust – Societies.

Unit 3: Negotiable Instruments

Definition of negotiable instruments – Essential Features – Types – Comparison Between Cheque, Bills and Pro Note – Cheque – Crossing – Types – Endorsement – Types of Endorsement – Holder in due Course Privileges – Holder for Value – Acceptance for Honour - Account – Reasons for Dishonour a Cheque**.**

Unit 4: Collection of Bank

Precaution before Paying a Cheque – Payment in Due Course – Statutory Protection to Paying Banker – Material Alterations - Closing of an Account – Collecting Bank – Statutory Profession to Collecting Banker – Negligence Liability of Collecting Banker – Duties of Collecting Banker.

Unit 5: Management of Finance and Advances

Principles of good Lending – Forms of Unsecured Advances and Secured Advances – Advance Against Securities like Stock Exchange Securities, Document of title to Goods, Trust Receipts , Life Policy, Supply Bills – Fixed Deposit Receipt Mortgage – Types of Mortgage – Hypothecation – Pledge - Non Performing Assets - Causes - Remedial Measures - Management of NPA - Debt Recovery Tribunal.

Note: Question Paper shall cover 100% Theory

Text Books:
1. Gorden Nataraj, 2016 Banking Himalaya Publication, New Delhi
2. Tannan, ML 2015 Banking Law & Practice in India, Indian Law House, New Delhi
3. Panikar, KK 2015 Banking –Theory System, S.Chand & Co., New Delhi.

Reference Books:
1. Radhaswami,M & Basudevan 2015 A Text Book of Banking, S.Chand & Co., New Delhi.
2. Khubchandran, BS 2015 Practice and Law of Banking, MacMillan Pub., New Delhi
3. Dr.S.Subba Rao and P.L Khanna 2015 Principles & Practice of Bank Management, Himalya Publishing House, Mumbai.
4. Gurusamy S 2017 Banking Theory Law & Practice, Tata McGraw Hill, Uttarpradesh
5. Murali S.and Subbakrishna , 2015 Bank and Credit Management, Himalaya Publishing House, New Delhi.

Course outcomes: At the end of the course, students would be able to:

1	understand the banking legislations and relationship between banker and customer.	K1, K2,K3
2	know the various types of bank accounts.	K1, K2,K3
3	gain knowledge of negotiable instruments used in banks.	K1, K2,K3
4	know the statutory provisions of the banker.	K1, K2,K3
5	know the principles and various forms of lending by the banks.	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	2	3	4	5	1	2	3	4	5	6	7	8	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE531	CHOICE -I	L	T	P	C
ELECTIVE –III		FUNDAMENTALS OF INVESTMENT	3	-	-	3

Course objectives:

The objectives of the course are

1. To familiarize the students with different investment alternatives introduce them to the framework of their analysis and valuation and highlight the role of investor protection.
2. To understand the various types of fixed income securities and various approaches of equity analysis
3. To understand the different types of portfolio analysis

Unit 1: Investment an Introduction

The investment decision process, Types of Investments – Commodities, Real Estate and Financial Assets, the Indian securities market, the market participants and trading of securities, security market indices, sources of financial information, Concept of return and risk, Impact of Taxes and Inflation on return.

Unit 2: Fixed Income Securities

Overview of Fixed Income Securities -Bond features, types of bonds, estimating bond yields, Bond Valuation types of bond risks, default risk and credit rating-Bond Values and the Passage of Time / Forward Contracts-Forward Rates / Contracts-Risk Measurement-Modeling Credit Risk, including the Merton Model- Illiquidity in Bond Markets

Unit 3: Approaches to Equity Analysis

Introductions to Fundamental Analysis, Technical Analysis -comparative analysis-and Efficient Market Hypothesis, dividend capitalization models, and price-earnings multiple approach to equity valuation.

Unit 4: Portfolio Analysis and Financial Derivatives

Portfolio and Diversification, Portfolio Risk and Return; Mutual Funds; Introduction to Financial Derivatives;- CAPM and the inputs required for applying CAPM and the limitations of this Model- CAPM and the inputs required for applying CAPM and the limitations of this Model- Financial Derivatives Markets in India

Unit 5: Investor Protection

Role of SEBI and stock exchanges in investor protection; Investor grievances and their redressal system, insider trading, investors' awareness and activism-Role of SEBI in investor Protection-Securities Ombudsman-Investors' Awareness-Investors' Activism.

Note: Question Paper shall cover 100% Theory

Text Book:

1. Prasanna Chandra, Investment Analysis and Portfolio Management, McGraw Hill Education

Reference Books:

1. C.P. Jones, Investments Analysis and Management, Wiley, 8th Edition
2. R.P. Rustogi, Fundamentals of Investment, Sultan Chand & Sons, New Delhi.
3. N.D. Vohra and B.R. Bagri, Futures and Options, McGraw Hill Education
4. Mayo, An Introduction to Investment, Cengage Learning.

Course outcomes: At the end of the course, students would be able to:

1	explain the basics of investment environment and different investment avenues available.	K1, K2,K3
2	analyse the types of fixed income securities	K1, K2,K3
3	assess the approaches to equity analysis	K1, K2,K3
4	apply the techniques portfolio analysis and financial derivatives.	K1, K2,K3
5	advise how to protect the investors.	K1, K2,K3

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create

Mapping- POs and PSOs

COS	**POS**					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE532	CHOICE -II	L	T	P	C
ELECTIVE –III		ARTIFICIAL INTELLIGENCE FOR BUSINESS	3	-	-	3

Course Objective:

This course aims

1. To equip the learners with the basic ideas and techniques underlying the usage of Artificial Intelligence in Business.

Unit 1: Artificial Intelligence-Concept

Introduction Artificial Intelligence: Concept, benefits, and scope. Differences between AI, Machine Learning (ML) and Deep Learning (DL) - AI applications, capabilities and competitive advantage; Industry drivers; AI strategy for the enterprise - Considerations for an AI strategy, AI & Startups. Internet of Things (IoT), Introduction to mobile computing and Cloud computing.

Unit 2: Strategic Interventions Algorithm

AI led strategic interventions Algorithm: New member in the boardroom, Accelerated decision making with real time analytics, AI in operational models in an organization, AI: future of AI in HR, Talent sciences, Algorithms & Talent Acquisitions (TA), AI & transformation in Finance & Accounting, CFO of tomorrow, Changing role of Chief Information Officer (CIO): Industry 4.0.

Unit 3: Banking & Insurance

AI in Banking & Insurance Redefined banking industry – adoption of Analytics, AI powered financial services, Fraud mitigation in banks with AI, Reorienting customer retention, Risk management with AI, AI driven transformation in Insurance, Digital based insurance model.

Unit 4: **AI interventions in Retail Outlets**

AI in Retail -AI interventions in Retail Outlets. Emergence of smart customers, ad content predictions, Evolution of smart retailers, Omni channel experience, AI in consumer packaged goods, Fluid supply chain transformation with AI. AI-Led marketing transformations, Data to Clusters - Ad content prediction - AI based Ad buy and CPC optimization, AI driven campaign management. AI for Sales: Data to Classes - Insides Sales Rep workflow automation - Improved Lead, Opportunity Ranking and Reminder.

Unit 5: **Exponential Technologies For Business**

Exponential Technologies Beating cyber-attacks with Analytics, AI in automotive industry: driverless cars and drones, IoT Analytics: extracting value and transforming business, Real time streaming analytics, Cryptocurrency Analytics, AI for customer service-data to scores, AI for Portfolio Management, Chatbots, Call center rep automation.

Note: Question Paper shall cover 100% Theory

Text Book:

1. Dhanrajani, S. (2018). AI & Analytics: Accelerating Business Decisions. New Jersey: Wiley.

Reference Books:

1. Russell, S. J., & Norvig, P. (2019). Artificial Intelligence: A Modern Approach, 3rd Edition. New Jersey: Prentice Hall.
2. Akerkar, R. (2018). Artificial Intelligence for Business. Basingstoke: Springer Nature
3. Altemeyer, B. (2019). Making the business case for AI in HR: two case studies. Strategic HR Review, 18(2), 66-70. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/SHR-12-2018-0101/full/html

Note: * Learners are advised to use web sources too.

Course outcomes: At the end of the course, students would be able to:

1	identify how the AI is being leveraged by start-ups as a success tool	K1, K2,K3
2	analyse and interpret the applicability of AI in HR functions	K1, K2,K3
3	explain how algorithms is changing the board room landscape	K1, K2,K3
4	discuss the customer services provided by various banks using AI	K1, K2,K3
5	demonstrate the role of AI in transforming the retail sector	K1, K2,K3

K1- Remembering **K2 –** Understanding **K3 –** Applying

Mapping- POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	2	3	4	5	1	2	3	4	5	6	7	8	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COS53	COMPANY LAW	L	T	P	C
SBE I			2	-	-	2

Course Objectives:

The main objectives of this course are to:

1. develop a strong foundation regarding corporate laws and provisions
2. enlighten the students on the Provisions governing the Company Law. (After 2013) and the recent amendments to Companies Act.

Unit 1: Company-Concept

Meaning of joint stock company - Kinds of Companies (Special Provisions with respect to Private Company, Public Company, One Person Company, Small Company, Dormant Company) - Formation - Memorandum of Association - Contents - Restriction on "Other Objects" - Doctrine of Ultra Vires - Articles of Association - Contents - Prospectus - Contents - Types (Statement in Lieu of Prospectus, shelf Prospectus, Red Herring Prospectus) - Underwriting - Book Building Process - Green Shoe Option - E-Filing - Dematerialization.

Unit 2: Kinds of Shares

Shares - Meaning, Types of Shares and Transfer of shares-Share Capital, Meaning, Kinds, Alternation, Reduction and Voting Rights-Debenture - Meaning, Types, Charge-Fixed and Floating, Crytalisation of Floating charge-Borrowing Powers - Effective of unauthorized borrwoings.

Unit 3: Directors In A Company

Appointment, Reappointment, Resignation, Removal and Varying Terms of Appointment/Re-appointment-Payment of Remuneration to Directors-Appointment, Resignation and Removal-Directors - Women Directors - Independent Directors - Director Identification Number - Other Key Managerial Personnel - Related Party Transactions**.**

Unit 4: Statutory Regulations

Meeting - Statutory Meeting - Annual General Meeting - Extraordinary General Meeting - Notice of Meeting - Quorum - Proxy - Board of Directors Meeting - Committee - Types of Committee - Audit Committee - Stake Holders Relationship Committee - Corporate Social Responsibility Committee. Resolutions - Ordinary Resolution - Special Resolution - Resolution requiring special notice**.**

Unit 5: Winding Up Of A Company

Modes of Winding up - Winding up by the Court - Voluntary Winding up - Types – Members. Voluntary Winding up - Creditors Voluntary Winding up. National Company Law Appellate Tribunal-Merger and Demerger of Company-Amalgamation, Compromise and Arrangement-Role of Official Liquidator, Court and National Company Law Tribunal.

Note: Question Paper shall cover 100% Theory

Text Books:
1. Avatar Singh, Company Law, Eastern Book Company
2. Shukla, M.C. & Gulshan, S.S., Principles of Company Law

Reference Books:
1. Badri Alam, S & Saravanavel, Company Law, Himalaya Publications
2. Gogna, P.P.S., Text Book of Company Law, S. Chand & Co.
3. Gaffor & Thothadri, Company Law, Vijay Nicole Imprints Pvt. Ltd. Chennai

E-Resources:
www.mca.gov.in
www.companyliquidator.gov.in
www.companyformationinindia.co.in
www.iepf.gov.in

Course outcomes: At the end of the course, students would be able to:

1.	know the basic concepts of joint stock companies	K1, K2,K3
2.	understand various types of shares of companies	K1, K2,K3
3.	know the provisions applicable to directors of a company	K1, K2,K3
4.	understand the various types of meetings conducted in a company	K1, K2,K3
5.	understand the provisions applicable for winding up of companies	K1, K2,K3

K1- Remembering **K2 –** Understanding **K3 –** Applying

Mapping- POs and PSOs

COS	**POS**					**PSOS**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

SEMESTER VI

COURSE CODE	U21COT61	CORPORATE ACCOUNTING	L	T	P	C
CORE-XIII			6	-	-	4

Course Objectives:

The main objectives of this course are :

1. To provide basic understanding about the accounts relating to shares and debentures
2. To analyze the final accounts of companies
3. To explore various methods for the valuation of goodwill
4. To assist preparation of books of Amalgamation and Absorption.

Unit 1: Accounting Procedure for Shares

Share Capital: Subdivision of Share Capital; Issue of Shares, Pricing of Public Issue – Fixed Price Offer Method, Book-building Method; Journal entries for Issue of Shares - when payable fully on application and when payable in installments - if shares are issued at par, at premium and at discount. Calls-in-arrears and Calls-in-advance. Forfeiture and Re-issue of Shares.

Unit 2: Meaning of Underwriting – SEBI regulations regarding underwriting;

Underwriting commission. Types of underwriting agreement – conditional and firm; Determination of Liability in respect of underwriting contract – when fully underwritten and partially underwritten – with and without firm underwriting.

Unit 3: Valuation of Assets

Valuation of Goodwill: Meaning – Circumstances of Valuation of Goodwill – Factors influencing the value of Goodwill – Methods of Valuation of Goodwill: Average Profit Method, Super Profit Method, Capitalization of average Profit Method, Capitalization of Super Profit Method, and Annuity Method - Problems. Valuation of Shares: Meaning – Need for Valuation – Factors Affecting Valuation – Methods of Valuation: Intrinsic Value Method, Fair Value Method and Yield Method - Problems.

Unit4: Acquisition of Business

Acquisition of business- Profit prior to incorporation –preparation of financial accounts-requirements as per schedule IV part I and II.-Accounting for Group companies – Holding Companies – Definition – Accounts Consolidation – Preparation of Consolidated Balance Sheet – Minority Interest – Pre-acquisition or Capital Profits – Cost of Control or Goodwill – Inter-company Balance – Unrealised Inter-company profits – Revaluation of assets and liabilities – Bonus Shares – Treatment of Dividend.

Unit 5: Amalgamation and Absorption

Purchase Consideration – Methods – Amalgamation in the Nature of Merger and Purchase – Polling-Interest Method-Purchase Method-Lumsum Method-Net Asset and payment Method-Intrinsic Value Method- Absorption – ASI4 – Alteration of Share Capital – Reduction of Share Capital (Scheme of Capital Reduction is Excluded) .

Note: Question Paper shall cover 25% Theory and 75% Problem

Text Book:

1. Advanced accountancy by R.L.Gupta & Radhaswamy, Sultan Chand &sons, Delhi. 13th Edition 2007
2. Corporate Accounting by T.S.Reddy & A.Murthy / Margham Publication, Chennai / 6th revised edition 2007, reprint 2010

Reference Book:

1. Corporate accountancy by R.L.Gupta & Radhaswamy .Sultan Chand &sons , Delhi. 13th Edition 2007
2. Advanced accounting by S.P.Jain & Narang ,Kalyani Publishers 17th Edition 2011./reprint 2005.
3. Corporate Accounting by S.N.Maheswari&S.K.Maheswari / Sultan Publisher/4th edition

Course outcomes: At the end of the course, students would be able to:

1	develop the skill of preparing entries for issue of shares	K1, K2,K3
2	know the accounting entries for underwriting of shares and redemption of preference shares	K1, K2,K3
3	knowledge in calculation and valuation of shares and goodwill of companies	K1, K2,K3
4	understand the provisions of acquisition of the business	K1, K2,K3
5	gain the knowledge in internal and external reconstruction in companies	K1, K2,K3

K1- Remembering **K2 –** Understanding **K3 –** Applying

Mapping- POs and PSOs

COS	POS					PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT62	BUSINESS TAXATION	L	T	P	C
CORE-XVI			6	-	-	4

Course Objectives:

The main objectives of this course are to:

1. understand the applicability of indirect taxes in India
2. familiarize with the calculation and execution of goods and service tax in India
3. understand the working of custom law in India

Unit 1 : Indirect Taxes Concept

Indirect taxes – Meaning and Nature - Special features of Indirect Taxes- Contribution to government revenues - Taxation under the Constitution - Advantages and Disadvantages of Indirect Taxes.

Unit 2: GST In Trade And Commerce

Good and Service Tax Introduction – Meaning - Need for GST - Advantages of GST - Structure of GST in India – Dual concepts - SGST-CGST-IGST-UTGST- Types of Rates under GST – Taxes subsumed under State Goods and Services Tax Act 2017- Taxes subsumed under Central Goods and Services Tax Act 2017. Meaning of important terms: Goods, services, supplier, business, manufacture, casual taxable person, aggregate turnover, input tax and output tax.

Unit 3: Concept of Supply under GST

Levy and Collection under SGST/CGST Acts - Concept of supply - Composite and Mixed supplies - Composition Levy - Time of supply of goods and services - Value of Taxable supply. Input Tax credit - Eligibility and conditions for taking input credit- Reverse charge under the GST- Registration procedure under GST- Concept of e-way Bill - Filing of Returns.

Unit4: Supply of Goods or Services under GST

Levy and Collection under The Integrated Goods and Services Tax Act 2017- Meaning of important terms: Integrated tax, intermediary, location of the recipient and supplier of services, output tax. Levy and Collection of Tax- Determination of nature of Supply- Inter-State supply and Intra- State supply Place of Supply of Goods or Services - zero-rated supply.

Unit 5: Customs Laws in India

Introduction to Customs Laws in India – The Customs Act 1962 - The Customs Tariff Act 1975- Levy and Exemption from Custom duty - Taxable event - Charge of Custom duty- Exemptions from duty – Customs procedures for import and export - Meaning of Classification of goods - Methods of valuation of imported goods - Abatement of duty in damaged or deteriorated goods - Remission on duty on lost, destroyed or abandoned goods - Customs duty draw back.

Note: Question Paper shall cover 100% Theory

Text Book

1. Indirect Taxes- V.S.Datey. Taxmann Publication(p) Ltd.New Delhi
2. Indirect Taxes:GST and Customs Laws - R.Parameswaran and P.Viswanathan -Kavin Publications-Coimbatore

Reference:

1. Glimpse of Goods and service tax -Sathpal Puliana
2. Handbook of GST -Law and practice-Gaurav Gupta
3. GST Law and Practice-SS Gupta 6. Indirect Taxation - V.Balachandran. Sultan Chand & Co. New Delhi

Course outcomes: At the end of the course, students would be able to:

1	recall various concepts relating to Indirect tax regime in India	K1
2	analyze the concept and applicability of GST in businesses	K4
3	compare the GST regime with other indirect tax laws prior to it	K2
4	illustrate GST system in own business and other prototypes	K2
5	examine the custom law and related duties and taxes	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

Course Outcomes COS	Programme Outcomes POS					Programme Specific Outcomes PSOS								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT63	FINANCIAL MARKETS AND INSTITUTIONS	L	T	P	C
CORE-XV			5	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the basic concepts of financial market
2. To analyze the working and components of corporate securities market
3. To evaluate the functioning of stock exchanges in India
4. To evaluate the role of banks and intermediaries in financial market
5. To provide insights about the new models and innovative trends in financing

Unit 1: Money Market -Concept

Overview of Financial systems In India – Structure, Regulation Role And Functions Of Financial Systems – Financial Instruments – Financial Markets – Capital Markets & Money Markets – Interlink Between Money Market & Capital Market – Characteristics Of Financial Markets – Introduction To Forex- Treasury Bills Market -Commercial Bills Market - Markets for Commercial paper and Certificates of Deposits - The Discount Market - Market for Financial Guarantee - Government (Gilt-edged) Securities Market.

Unit 2: New Issue Market

New Issue Market – Meaning and Advantages– General Guidelines for New Issue – Problems of New Issues Market – IPO's – Investor protection in primary market – Recent trends in primary market – SEBI measures for primary market-Methods of Floating – Players – Recent Trends- Primary market and Secondary Market – SEBI- IRDA, Financial Conglomerates.

Unit 3: Stock Exchanges and its Functions

Stock Exchanges - Features-Objectives-Functions – Role of Securities and Exchange Board of India – Reforms in Secondary Market – Efficient Market Theory- SEBI guidelines.

Unit 4: **Financial Institutions**

Financial Institutions Depository and non-depository institutions, Commercial banking- introduction, its role in project finance and working capital finance. Development Financial Institutions (DFIs)-An overview and role in Indian economy. Life and non-life insurance companies in India; Mutual Funds- Introduction and their role in capital market development.

Unit 5: Other Financial Institutions

Non-banking financial companies (NBFCs). Regional Rural Banks. Urban Cooperative Banks, Rural Cooperative Credit Institutions, Pension Fund Regulatory and Development Authority.

Note: Question Paper shall cover 100% Theory

Text Books:

1. BholeL.M2016Financial Institutions and Markets, , Tata McGraw Hill Publishing Company Limited, New Delhi.
2. NaliniPravaTripathy2015Financial Instruments and Services, , Prentice Hall of India, New Delhi.
3. Gurusamy S 2015 Financial Markets and Institutions, S. Vijay Nicole Imprints (P) Ltd Chennai.
4. Gordon and Natarajan, 2011 Financial Markets and Services, Himalaya Publishing House. Mumbai.

eference Books:

1. Jeff Madura, 2011 Financial Markets and Institutions, 5th Ed., SouthWestern College Publishing.
2. Khan, M.Y, 2012 Financial Services, Tata McGraw Hill. Publishing Company Limited, New Delhi.
3. Gupta S.P 2012 Statistical Methods, Sultan Chand Publication, New Delhi.
4. Kothari C.R2016 Research Methodology Methods and Techniques, New Age International Publications, New Delhi.

Course outcomes: At the end of the course, students would be able :

1	define the basic concepts of financial market	K1
2	analyze the working and components of corporate securities market	K4
3	explain the functioning of stock exchanges in India	K4
4	explain the role of banks and intermediaries in financial market	K4
5	apply various trends and new modes in financing	K3
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

Course Outcomes (COS)	Programme Outcomes (POS)					Programme Specific Outcomes (PSOS)								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	44/13=3.38
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	43/13=3.30
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.90/5=3.38**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT64	FINANCIAL MANAGEMENT	L	T	P	C
CORE- XVI			4	-	-	4

Course Objectives:

The main objectives of this course are :

1. To understand the various concept relating to finance
2. To familiarize with the basics of financial planning
3. To analyze various sources and forms of finance
4. To understand the various dimensions of capital market and their components
5. To provide knowledge about capitalization and related theories

Unit 1: Financial Management- Concept

Financial Management: Meaning and scope – Objectives: Profit maximization, Wealth maximization – Functions – Financial decisions – Time value of money: Present value and Compound value – Cost of capital – Cost of debt – Cost of preference share capital – Cost of Equity – Cost of retained earnings – Weighted average cost of capital.

Unit 2: Capital structure-Concept

Capital structure – Meaning and features – Factors determining capital structure – EBITEPS relationship – Indifference point of EBIT – Theories of capital structure: Net income approach, Net operating income approach, MM approach and Traditional approach.

Unit 3: Leverage And Dividend Policy

Leverage – Meaning, significance and types – Operating leverage - Financial leverage – Combined leverage – Dividend policy – Determinants of dividend policy – Theories: relevance and irrelevance with value of firm – Forms of dividend – Stock dividend – Bonus issue – Stable dividend.

Unit 4: Working capital management in Business

Working capital management – Determinants of working capital – Forecasting of working capital requirements – Cash management – Motives of holding cash – Stages in cash management: Cash planning, Collection and disbursement of cash, Optimum cash balance – Boumul model – Investment of surplus cash.

Unit 5: Receivables management

Receivables management – Objectives – Factors influencing size of receivables – Credit policy – Credit standard – Credit term – Collection policy – Incremental analysis – Inventory management – Meaning – Types of inventory – Purpose of holding inventory – Excess or inadequate inventory – EOQ – Levels of stock: reorder level, minimum level and maximum level – Techniques – ABC,

VED, FSN and HML analysis.

Note: Question Paper shall cover 25% Theory and 75% Problem

Commented [H1]: Text book?

Course outcomes: At the end of the course, students would be able to:

1	outline various concepts relating to finance	K2
2	list the various techniques of financial planning	K2
3	analyze various sources and forms of finance	K4
4	examine the various dimensions of capital market and their components	K4
5	list the capitalization concept and related theories for decision making	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

Course Outcomes (COS)	**Programme Outcomes (POS)**					**Programme Specific Outcomes (PSOS)**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COT65	FINANCIAL SERVICES	L	T	P	C
CORE- XVII			4	-	-	4

Course Objectives:

The objectives of the course are

1.To understand the nature and types of financial services.

2. To understand the various concepts of Hire Purchase system and Mutual Funds

3. To know the various process of Venture Capital Investment.

Unit :1 Financial services-Concept

Financial services – Meaning – Classification – Financial products and services – Challenges facing the financial service sector – Merchant banking– Meaning – Functions – SEBI Guidelines – Scope of merchant banking in India. NBFCs – RBI guidelines.

Unit 2: Hire purchase System

Hire purchase – Meaning – Features – Process – Hire purchase and credit sales – Hire purchase vs Instalment purchase – Banks and hire purchase business – Hire purchase and transport industry – Leasing – Concept – Steps involved in leasing – Lease vs Hire purchase – Types of lease – Problems and prospects of leasing in India.

Unit 3: Mutual funds and Concept

Mutual funds – Meaning – Types – Functions – Advantages – Institutions involved – UTI, LIC, Commercial banks – Entry of private sector – Growth of mutual funds in India – SEBI Guidelines – Asset Management Companies.

Unit 4: Venture Capital Investment Process

Venture capital – Meaning – Features – Methods of venture capital financing – Modes of venture financing – Venture capital investment process – Factors determining venture investment – Exit mechanism – Advantages of venture capital – Issues of Indian venture capital industry.

Unit 5: Factoring – Concepts

Factoring – Concepts – Significance – Types – Factoring mechanism – Factoring vs bills discounting – Factoring in India – Forfeiting – Meaning – Forfeiting vs Export factoring – Problems of Forfeiting/ factoring.

Text Books

1. Financial markets & services by E.Gordon and K.Natarajan – Himalaya publishing house, New Delhi.
2. Financial services by E.Dharmaraj – S.Chand & Co., New Delhi

Reference Books (Latest revised edition only)

1. Financial Services by S.Mohan and R.Elangovan – Deep and Deep Publications, New Delhi.
2. Financial Services by S. Gurusamy – Vijay Nicole Imprints (P) Ltd, Chennai.
3. Lease Financing and Hire Purchase by Vinod Kothari – Wadhaw and Co., Nagpur.

Mapping- POs and PSOs

Commented [H2]: Course outcome?

Course Outcomes (COS)	Programme Outcomes (POS)					Programme Specific Outcomes (PSOS)								Mean Scores of COS
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE641	CHOICE - I	L	T	P	C
ELECTIVE - IV		BUSINESS LAW	3	-	-	3

Course Objectives:

The main objectives of this course are :

1. To provide knowledge about basics of business contract
2. To create knowledge about the regulations of agency system
3. To understand the rules of indemnity and guarantee
4. To offer knowledge about the sale and transfer of goods and the applicable laws and regulations.

Unit 1: Contract -Concept

Indian Contract Act - Formation - Nature and Elements of Contract - Classification of Contracts - Contract Vs Agreement. Offer - Definition - Forms of Offer - Requirements of a Valid Offer. Acceptance – Meaning - Legal rules as to a Valid Acceptance.

Unit 2 : Consideration in Business Contract

Consideration - Definition - Types - Essentials. Capacity of Parties - Definition - Persons Competent to contract. Free consent – Coercion - Undue Influence - Fraud - Misrepresentation - Mistake. Legality of object - Void agreements - Unlawful Agreements

Unit 3 : Performance of Contracts

Performance of Contracts - Actual Performance - Attempted Performance - Tender. Quasi Contract - Definition and Essentials. Discharge of Contract - Modes of Discharge - Breach of Contract - Remedies available for Breach of Contract.

Unit 4 : Negotiable Instrument

Negotiable Instrument Act 1881; - Characteristics of negotiable instruments- Kinds of negotiable instruments- Promissory Note, Bill of Exchange and Cheque; Definition and Nature, Parties to a Negotiable instrument, material alterations- Meaning of Holder and Holder in Due Course, Rights and privileges of holder in due course- Transfer of Negotiable Instruments.

Unit 5 : Sale and Contract of Sale

Sale - Contract of Sale - Sale Vs Agreement to Sell - Meaning of Goods - Conditions and Warranty - Caveat Emptor - Exceptions of Caveat Emptor - Buyer and Seller of Goods - Unpaid Seller - Definition - Rights of an Unpaid Seller.

Note: Question Paper shall cover 100% Theory

Text Books:

1. Balachandran. V & Thothadri.S, Business Law, Vijay Nicole Imprints Pvt. Ltd. Chennai
2. Kapoor, N.D. Business Laws, Sultan Chand and Sons.

Reference Books:
1. Sreenivasan, M.R. Business Laws, Margam Publications.
2. Dhandapani, M.V. Business Laws, Sultan Chand and Sons.
3. Badre Alam, S. & Saravanavel, P. Mercantile Law
4. Pillai, R.S.N. & Chand, S, Business Law, S Chand & Co, Delhi
5. Ramaswamy, K.N., Business Law, S Chand & Co, Delhi 8. Shukla, M.C, Business Law, S. Chand & Co.

E-Resources:

www.cramerz.com
www.digitalbusinesslawgroup.com
http://swcu.libguides.com/buslaw
http://libguides.slu.edu/businesslaw

Course outcomes: At the end of the course, students would be able to:

1	assess the various elements related business law and contract	K5
2	interprete different type of contract and its features	K2
3	explain about the agency system related to creation and termination of agency	K5
4	compare between rights and duties of indemnity , guarantee	K5
5	examine the distinct between sale and agreement to sell and its features	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6** - Create		

Mapping- POs and PSOs

Course Outcomes (COS)	Programme Outcomes (POS)					Programme Specific Outcomes (PSOS)								Mean Scores of COS
	1	2	3	4	5	1	2	3	4	5	6	7	8	
CO-1	4	4	4	4	3	3	3	3	4	3	4	3	4	43/13=3.30
CO-2	4	3	4	3	3	3	3	4	4	3	3	3	4	44/13=3.38
CO-3	3	3	4	3	3	4	4	4	4	3	4	3	3	46/13=3.53
CO-4	4	3	4	3	4	4	3	4	3	4	3	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	3	3	4	3	4	45/13=3.46 **17.28/5=3.456**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COE642	CHOICE - II	L	T	P	C
ELLECTIVE - IV		CORPORATE GOVERNANCE	3	-	-	3

Course Objectives

The objectives of the course are

1. To provide knowledge of corporate governance, procedures, and techniques in accordance with current legal requirements and professional standards.
2. To understand the powers and duties of Directors and Shareholders.
3. To understand the framework of Corporate Governance
4. To know the concept of Business Ethics and the Corporate Social Responsibility

Unit 1: **Corporate Governance-Concept**

Introduction Corporate Governance - Meaning, significance and principles, Management and corporate governance; Theories and Models of corporate governance; Agency theory and separation of ownership and contract; ownership structure and firm performance; Whistle blowing, Class Action; Role of Institutional investors. Codes and Standards on Corporate Governance- Sir Adrian Cadbury Committee 1992 (UK), OECD Principles of Corporate Governance, and Sarbanes Oxley (SOX) Act, 2002 (USA).

Unit 2: Directors, Shareholders Powers and Duties

Directors and Shareholders Powers of directors; Duties of directors; Non-executive directors and their duties; Relationship between board and shareholder; Board structure and Independent director, board committees and their functions. Shareholder expectations; Regulatory requirements for shareholder involvement shareholder activism and proxy advisory firms. Role of rating agencies.

Unit 3: Corporate Governance Failures

Major Corporate Governance Failures and International Codes BCCI (UK), Maxwell Communication (UK), Enron (USA), World.Com (USA), Andersen, Worldwide (USA), Vivendi (France), Satyam Computer Services Ltd, Lehman Brothers, Kingfisher Airlines, PNB Heist and IL&FS Group Crisis; Common Governance Problems noticed in various Corporate Failures.

Unit 4: **Corporate Governance Framework**

Corporate Governance Framework in India Initiatives and reforms- Confederation of Indian Industry (CII) (1997), Kumar Mangalam Birla (1999), NR Narayana Murthy Committee (2005) and Uday Kotak Committee (2017). Regulatory framework: Relevant provisions of the Companies Act, 2013, SEBI: Listing Obligations and Disclosure Requirements Regulations (LODR), 2015. Corporate Governance in the public sector, banking, non- banking financial institutions.

Unit 5: **Business Ethics and Corporate Social Responsibility**

Business Ethics and Corporate Social Responsibility (CSR) Business Ethics and Values; Importance of Ethics; Corporate Governance and Ethics; Ethical theories; Code of Ethics and ethics committee. Concept of Corporate Social Responsibility; CSR and Corporate Sustainability, CSR and Business Ethics, CSR and Corporate Governance, CSR and Corporate Philanthropy; Environmental Aspect of CSR, Models and benefits of CSR, Drivers of CSR; CSR in India.

Note: Question Paper shall cover 100% Theory

Text Books

1. Gupta, K., & Arora, A. (2015). Fundamentals of Auditing. New Delhi: Tata Mc-Graw Hill Publishing Co. Ltd.
2. Kumar A., Gupta L., & Arora, R. J. (2016). Auditing and Corporate Governance. Delhi:

Taxmann Pvt. Ltd. Mallin, C. A. (2018). Corporate Governance. New Delhi: Oxford University Press.

Reference Books:

1. Rani, G. D., & Mishra, R. K. (2017). Corporate Governance-Theory and Practice. New Delhi: Excel Books.
2. Sharma, J. P. (2016). Corporate Governance, Business Ethics, and CSR. New Delhi: Ane Books Pvt. Ltd.
3. Tricker, B.(2015). Corporate Governance-Principles, Policies, and Practice (Indian Edition). NewDelhi: Oxford University Press.
4. Institute of Chartered Accountants of India, Auditing and Assurance Standards. New Delhi : ICAI. www.icai.org

Note: Latest edition of readings may be used.

Course outcomes: At the end of the course, students would be able to :

1	explain the concept and importance of corporate governance in a business setup;	K1, K2,K3
2	explain the concept of corporate governance in organisations and its essence for management;	K1, K2,K3
3	analyse the role of board of directors and shareholders in corporate management;	K1, K2,K3
4	assess the problems in corporate governance on the basis of major corporate governance failures;	K1, K2,K3
5	describe corporate governance framework in India;	K1, K2,K3

K1- Remembering **K2 –** Understanding **K3 –** Applying

Mapping- POs and PSOs

Course Outcomes (COS)	**Programme Outcomes (POS)**					**Programme Specific Outcomes (PSOS)**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	3	3	3	3	3	4	3	4	42/13=3.23
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.23
CO-3	3	3	4	3	3	3	4	3	4	3	4	3	3	44/13=3.38
CO-4	4	3	4	3	3	4	3	3	3	4	3	4	4	45/13=3.46
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **16.83/5=3.366**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

COURSE CODE	U21COS61	PERSONAL SELLING AND SALESMANSHIP	L	T	P	C
SBE - II			2	-	-	2

Course Objective:

The purpose of this course is to

- familiarize the students with the fundamentals of personal selling and the selling process.

Unit 1: Introduction to Personal Selling

Nature and importance of personal selling, Difference between Personal Selling, Salesmanship and Sales Management, Myths of selling, Relationship Marketing and Role of Personal Selling. Characteristics of a good salesman, Types of selling situations, Types of salespersons; Career opportunities in selling,Measures for making selling an attractive career.

Unit 2: Theories of Selling

Traditional and Modern: AIDAS Model of Selling, Problem Solving Approach, Right Set of Circumstances Theory and Modern Sales Approaches-Sales force objectives-Sales force strategy-Sales force Structure- Sales force size-Sales force compensation.

Unit 3: Buying Motives

Concept of motivation, Maslow's theory of need hierarchy; Right set of circumstances theory-Buying formula theory-Partnering-Team selling-Value added selling-Problem solving approach-Dynamic nature of motivation; Buyingmotives and their uses in personal selling.

Unit 4: Selling Process

Prospecting and qualifying; Pre-approach; Approach; Presentation and demonstration; handling of objections and complaints; Closing the sale; techniques for closing the sale; Customer Relations, Followup and Dealing customer concerns and complaints.

Unit 5: Sales Planning and Control

Recruiting and Training the Sales Force- Sales person personality and Motivation-Territory design and Routing-Sales Communication-Sales Forecasting, Sales Budget, Sales Territories, Sales quota, Ethical aspects of Selling.

Text Book :

1. Spiro, Stanton, and Rich, Management of the Sales force, McGraw Hill.
2. Rusell, F. A. Beach and Richard H. Buskirk, *Selling: Principles and Practices*, McGraw Hill
3. Futrell, Charles, *Sales Management: Behaviour, Practices and Cases,* The Dryden Press.

Reference :

1. Still, Richard R., Edward W. Cundiff and Norman A. P. Govoni, Sales Management: Decision Strategies and Cases, Prentice Hall of India Ltd., New Delhi,
2. Johnson, Kurtz and Schueing, Sales Management, McGraw Hill

3. Pedesson, Charles A. Wright, Milburn d. And Weitz, Barton A., Selling: Principles and Methods, Richard, Irvin.
4. Kapoor Neeru, Advertising and personal Selling, Pinnacle, New Delhi.

Note: Latest edition of text books may be used.

Course outcomes: At the end of the course, students would be able to :

1	explain the fundamental concepts Personal Selling :	K1, K2,K3
2	understand the concepts of theories of selling	K1, K2,K3
3	understand the various Concepts in buying motives	K1, K2,K3
4	have thorough Knowledge in selling process	K1, K2,K3
5	understand the Procedure in sales planning and control	K1, K2,K3

Mapping- POs and PSOs

Course Outcomes (COS)	**Programme Outcomes (POS)**					**Programme Specific Outcomes (PSOS)**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor   2 – Poor   3 – Moderate   4 – High   5 – Very High

NON MAJOR ELECTIVE

COURSE CODE	U21CON31	PERSONAL AND FINANCE PLANNING	L	T	P	C
SEMESTER - III			2	-	-	2

Course Objectives:

The course aims to

- familiarize learners with different aspects of financial planning like savings, investment, taxation, insurance, and retirement planning and
- develop the necessary knowledge and skills for effective financial planning.

Unit 1: Introduction to Financial Planning

Financial goals, Time value of money, steps in financial planning, personal finance/loans, education loan, car loan & home loan schemes. Introduction to savings, benefits of savings, management of spending & financial discipline, Net banking and UPI, digital wallets, security and precautions against Ponzi schemes and online frauds such as phishing, credit card cloning, skimming.

Unit 2: Investment Planning

Process and objectives of investment, Concept and measurement of return & risk for various assets class, Measurement of portfolio risk and return, Diversification & Portfolio formation. Gold Bond; Real estate; Investment in Greenfield and brownfield Projects; Investment in fixed income instruments- financial derivatives & Commodity market in India. Mutual fund schemes including SIP; International investment avenues.

Unit 3: Personal Tax Planning

Tax Structure in India for personal taxation, Scope of Personal tax planning, Exemptions and deductions available to individuals under different heads of income and gross total income, Special provision u/s 115BAC vis-à-vis General provisions of the Income-tax Act, 1961. Tax avoidance versus tax evasion.

Unit 4: Insurance Planning

Need for Protection planning. Risk of mortality, health, disability and property. Importance of Insurance: life and non-life insurance schemes. Deductions available under the Income-tax Act for premium paid for differentpolicies.

Unit 5: Retirement Benefits Planning

Retirement Planning Goals, Process of retirement planning, Pension plans available in India, Reverse mortgage, New Pension Scheme. Exemption available under the Income-tax Act, 1961 for retirement benefits.

Practical Exercises:

The learners are required to:

1. Perform electronic fund transfer though net-banking and UPI.
2. Identify certain Ponzi schemes in the market during last few selected years.
3. Prepare tax planning of a hypothetical individual.

Suggested Readings:

1. Indian Institute of Banking & Finance. (2017). Introduction to Financial Planning. New Delhi: TaxmannPublication.
2. Pandit, A. (2014). The Only Financial Planning Book that You Will Ever Need. Mumbai: Network 18 PublicationsLtd.
3. Sinha, M. (2008). Financial Planning: A Ready Reckoner. New York: McGraw Hill Education.
4. Halan, M. (2018). Let's Talk Money: You've Worked Hard for It, Now Make It Work for You. New York:HarperCollins Publishers.
5. Tripathi, V. (2017). Fundamentals of Investment. New Delhi: Taxmann Publication.

Note: Latest edition of text books may be used.

Course Outcomes: After completion of this course, learners will be able to:

1	explain the meaning and appreciate the relevance of Financial Planning;	K1, K2,K3
2	familiarize with regard to the concept of Investment Planning and its methods;	K1, K2,K3
3	examine the scope and ways of Personal Tax Planning;	K1, K2,K3
4	analyze Insurance Planning and its relevance;	K1, K2,K3
5	develop an insight in to retirement planning and its relevance.	K1, K2,K3

Mapping- POs and PSOs

Course Outcomes (COS)	**Programme Outcomes (POS)**					**Programme Specific Outcomes (PSOS)**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	3	4	3	3	3	4	4	3	3	4	4	46/13=3.53
CO-2	4	3	4	4	3	3	4	4	3	3	3	3	4	48/13=3.69
CO-3	4	3	4	4	4	4	4	4	4	3	4	4	3	49/13=3.76
CO-4	4	3	4	4	4	4	3	3	4	4	4	4	4	49/13=3.76
CO-5	4	4	3	3	4	4	4	3	3	4	3	4	3	46/13=3.53 **18.27/5=3.654**

Mapping Relation

1 – Very Poor   2 – Poor   3 – Moderate   4 – High   5 – Very High

<table>
<tr><td>COURSE CODE</td><td>U21CON42</td><td rowspan="2">COMMERCE (PRACTICAL)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SEMESTER – IV</td><td>-</td><td>-</td><td>2</td><td>2</td></tr>
</table>

Course Objectives

To objectives of the course are

- To Gain knowledge in e-banking transactions
- To Learn the principles of Co-operation for conducting general body meetings
- To Gain knowledge in computer billing and formation of MSME through SHGs

Unit 1 : Banking Practice

E-Banking- Steps in conversion of personal account into online Account- ATM operations -NEFT and RTGS transactions.

Unit 2: Taxation Practice

Income tax and GST- Preparation of E-Statements-E-Filing of Income Tax and GST.

Unit 3: Practice of Online Trading

Technical Analysis – Important Jargons in Online trading

Unit 4: Practice of Computer Application in Business

Computer Billing in a business organization(Recommended Departmental stores- Bakeries-Hotels)Purchasing goods online through any one Apps (Amazon or E-bay or Flipkart)

Unit 5:Entrepreneurial Practices

Formation of an MSME through Self Help Groups within a class-MOCK procedure for borrowings for MSME- Filling up of application for approval from District Industrial Centre for a new startup

Note: 100% practical

Practical Exercises:

Text Book :

1. Subramani, M. Murugesan, D. Anbalagan, V. Ganesan,E-Banking and E-Commerce: Emerging issues in India,978-81-89886-40-0.

Reference

1. Author: Dr. R.K. Jain,Taxation Theory & Practice With GST 25th Revised Edition (Paperback, Dr. R.K. Jain),Publisher: SBPD Publications.
2. Computer Applications in Business (CBCS) by Hem Chand Jain & H.N Tiwari Paperback – 1 January 2017

Course Outcomes: After completion of this course, learners will be able to:

1	explain the fundamental concepts of banking	K1, K2,K3
2	knowledge in taxation practice.	K1, K2,K3
3	knowledge in practice in online trading.	K1, K2,K3
4	practice of computer applications in business.	K1, K2,K3
5	knowledge in entrepreneurial practice.	K1, K2,K3

Mapping- POs and PSOs

Course Outcomes (COS)	**Programme Outcomes (POS)**					**Programme Specific Outcomes (PSOS)**								**Mean Scores of COS**
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO-1	4	4	4	4	3	4	3	4	3	3	4	4	4	48/13=3.69
CO-2	4	3	4	3	3	3	3	4	3	3	3	3	4	42/13=3.29
CO-3	4	3	4	4	4	3	4	4	4	3	4	4	3	48/13=3.69
CO-4	4	3	4	4	3	4	3	3	3	4	4	4	4	47/13=3.61
CO-5	3	4	3	4	3	4	4	3	4	3	4	3	4	46/13=3.53 **17.81/5=3.562**

Mapping Relation

1 – Very Poor 2 – Poor 3 – Moderate 4 – High 5 – Very High

VALUE ADDED COURSE

COURSE CODE	U21CBV51	PROJECT FINANCE	L	T	P	C
Value Added			2	-	-	2

Objectives:

To enable the students to understand concepts of Project Finance by taking them through all stages of a Project Finance transaction, so that they can apply the techniques of Project Finance

Unit I: Project Management and Planning

Introduction_ Project Management- Skill required by a project manager- The Project Cycle_ Project planning, Identifying strategic project variables, Strategy in project management, Planning cycle, Project Feasibility analysis

Unit II: Financing of Projects

Capital Structure –Equity capital - preference capital - internal accruals - Term loans – Debentures – Working Capital Advance – Miscellaneous Sources – Raising Venture capital - Raising capital in International Markets

Unit III Financial Estimate and Projections

Cost of Project, Means of Finance, Estimation of sales and Productions, Cost of Production, Working capital requirement and its financing. Estimation of Fixed capital, Profitability Projections, Projected cash flow statement, projected balance sheet, Multiyear Projections.

Unit IV Risk Analysis

Measures and Perspective of Risk – Single investment: Sensitivity Analysis, Scenario Analysis, Break Even Analysis, Decision Tree Analysis, Project Selection under risk and Risk analysis in Practice

Unit V Project Financing in India

Means of Finance - Norms and Policies of Financial Institutions- SEBI Guidelines - Sample Financing Plans Structure of Financial Institutions in India - Schemes of Assistance - Term loans Procedures – Project appraisal by financial Institutions

Text Books:

1. Prasana Chandra: Projects-Planning Analysis, Selection, Implementation &Review, Tata McGraw Hill, New Delhi
2. M C. Choudhury : Project Management, Tata McGraw Hill, New Delhi – 1995

Reference Books

1. Machiraju, HR Introduction to Project Finance, New Delhi, Vikas Publication-(2009)
2. Vasant Desai Project Management, New Delhi, Himalaya Publishing House. (2008)

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MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL-624102

M.COM (CHOICE BASED CREDIT SYSTEM)

(Full-time)

SYLLABUS, REGULATION AND SCHEME OF EVALUATION

(From 2021-2022 onwards)

PROGRAMME NAME: M.COM (Choice Based Credit System)

1. About theProgramme:

The Two-year Programme in Commerce is intended for students who have completed the first degree Programme at University level, to get specialized knowledge in the areas of commerce and accountancy. The Programme is based on Choice Based Credit System that offers a wide range of Courses for keeping the students abreast with current knowledge in the field and shaping them as holistic personalities. The core and allied courses of study are suitably designed to provide core knowledge in commerce and various specialized accounting systems and also to develop skills in application of computers in business for befitting the learners in better job positions.

2. Programme Educational Objectives (PEOs)

On completion of M.Com. Degree Programme, the students will be able to

PEO-1: become well versed and competent in the core concepts of the Programme.

PEO-2: be recognized for quantitative, qualitative, cognitive and analytical skills to identify, analyze, design and create business opportunities in a dynamic environment on the Global map.

PEO-3: become successful entrepreneurs and finance professionals in the field of Banking, Insurance, Manufacturing, Transport, Telecom, Service, Hospitality, IT and to pursue career in teaching and for advanced studies.

PEO-4: contribute to the creation, transmission and application of knowledge in the field of Commerce and other related fields adapting to a rapidly changing environment through lifelong learning.

PEO-5: become professional with integrity and humanitarian values to fulfill the societal needs at regional, state, national and global levels

3. Eligibility:

A candidate who has passed any one of the following degree Programmesof this University or any other University accepted by the syndicate as equivalent there subject to such conditions as may be prescribed therefore, will be eligible for admission to the M.Com Programme:

B.Com., B.Com. (CA), B.Com. (e-Commerce), B.Com.(Corporate Secretaryship), BCS, B.A. (Corporate Secretaryship), B.B.A., (Bachelor of Business Administration), B.B.M. (Bachelor of Business Management), B.B.M., (Bachelor of Bank Management) B.Com. (Cooperation) and B.A., (Cooperation).

4. General Guidelines for PG Programme

i. **Duration:** The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

- **Evaluation Pattern**

Evaluation Pattern	Theory		Practical	
	Min	Max	Min	Max
Internal	**13**	**25**	**13**	**25**
External	**38**	**75**	**38**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
		Total Marks	**75**

*** Minimum credits required to pass: 90**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
00-49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance less than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

9. Programme Outcomes(POs)

On completion of the Programme the students will be able to

PO1: acquire in-depth knowledge of Commerce discipline, with wider and global perspectives, with an ability to discriminate, evaluate, analyze and synthesize existing and new knowledge, and integrate the same for enhancement of knowledge. **(Academic result & International / global reach)**

PO2: analyze complex business problems critically; apply independent judgment for synthesizing information to make intellectual and/or creative advances for conducting research in a wider theoretical, practical and policy context. **(Research and Innovation)**

PO3: think laterally and originally, conceptualize and solve Business problems, evaluate a wide range of potential solutions for those problems and arrive at feasible, optimal solutions after considering public health and safety, cultural, societal and environmental factors in the core areas of expertise at the national and international levels. **(International / global reach)**

PO4: extract information pertinent to unfamiliar industry issues through literature survey and experiments, apply appropriate research methodologies, techniques and tools, design, conduct survey, analyze and interpret data, demonstrate higher order skill and view things in a broader perspective, submit a report about the study in commerce. **(Practical managerial analytical skills & Industry interaction)**

PO 5: demonstrate ability to understand Commerce in multifunctional areas like Banking and Finance, Auditing and taxation, Marketing & Entrepreneurship. Also they will be able to demonstrate ability to understand and derive meaningful inferences about organizational performance. **(Functional Specialization)**

PO6:adapt updated technology and appropriate resources required for establishment / expansion of business practice through self-paced and self-directed learning and apply professional ethics and engage with responsibility to the multicultural business stakeholders. (**Technology and Professional Ethics)**

PO 7: communicate ideas, write, and present reports with clarity and execute plans effectively at higher level research, business and professional career and function efficiently as an individual and as a member or leader in assorted teams and multidisciplinary settings. **(Presentation and Preparation of Reports and Execution of functions).**

10. Programme Specific Outcomes(PSOs)

PSOs:

On completion of the Programme the students will be able to

PSO 1: display knowledge and understanding of group dynamics, recognize opportunities and contribute positively to collaborative-multidisciplinary management research, demonstrate a capacity for self-management and teamwork, decision-making based on open-mindedness, themselves as well as others. **(Team Work)**

PSO 2: demonstrate knowledge and understanding of commerce principles and apply the same to one's own work, as a member and leader in a team, manage projects in the work environment efficiently in respective disciplines and multidisciplinary environments after considering the economic and financial factors. **(Industry interaction)**

PSO3: communicate with society at large, regarding complex managerial activities confidently and effectively, such as, being able to comprehend and write effective reports and design

PSO4: document by adhering to appropriate standards, make effective presentations, and give and receive clear instructions. Also they will demonstrate an ability to communicate effectively, both in writing and orally **(Speaking / Writing skills)**.

PSO5: recognize the need for, and have the preparation and ability to engage in life-long learning independently, with a high level of enthusiasm and commitment to improve knowledge and competence continuously. **(Continuing education awareness)**

PSO6: display commitment towards professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society. **(Values, ethics, professional integrity and contribution to society)**

PSO 7: observe and examine critically the outcomes of one's actions and make corrective measures subsequently, and learn from mistakes without depending on external feedback. **(Independent and Reflective Learning)**

PSO 8: identify a timely opportunity and use business innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large. **(Successful career, immediate employment & entrepreneurship).**

M.Com Programme Structure from the Academic Year 2021-2022 onwards

Sl.No	Course Code	Course Title	Credits	Hours T	Hours P	Continuous Internal Assessment (CIA)	End Semester Exam (ESE)	Total
Semester I								
1	P21COT11	Core I Marketing Management	4	5	-	25	75	100
2	P21COT12	Core II International Trade and Practice	4	5	-	25	75	100
3	P21COT13	Core III Advanced Financial Management	4	6	-	25	75	100
4	P21COT14	Core IV Management Accounting	4	6	-	25	75	100
5	P21COP11	Core V Computerized Accounting with Tally (Practical)	4	-	6	25	75	100
6	P21COS11	Supportive Course I– Employability Skills(Practical)- Soft Skill Development	2	2	-	25	75	100
		Total	**22**	**24**	**6**	**-**	**-**	**600**
Semester II								
7	P21COT21	Core VI Modern Banking and Insurance	4	4	-	25	75	100
8	P21COT22	Core VII Advanced Cost Accounting	4	5	-	25	75	100
9	P21COT23	Core VIII Business Research Methods	4	4	-	25	75	100
10	P21COT24	Core IX Quantitative	4	5	-	25	75	100

		Techniques for Business Decisions						
11	P21COT25	Core X Investment Analysis and Portfolio Management	4	4	-	25	75	100
12		NME-I	4	4	-	25	75	100
13	P21CSS22	Supportive Course II– Computer Skill for Web Designing and Video Editing	2	-	4	25	75	100
		Total	**26**	**26**	**4**	**-**	**-**	**700**
Semester III								
14	P21COT31	Core XI Indirect Taxation	4	5	-	25	75	100
15	P21COT32	Core XII Financial Markets and Services	4	5	-	25	75	100
16	P21COT33	Core XIII Advanced Corporate Accounting	4	5	-	25	75	100
17	P21COT34	Core XIV Strategic Management	4	4	-	25	75	100
18	P21COT35	Core XV Income Tax and Tax Planning	4	5	-	25	75	100
19	P21COT36	Core XVI Business Analytics	4	4	-	25	75	100
20	P21WSS33	Supportive Course III (Women Empowerment)	2	2	-	25	75	100
		Total	**26**	**30**	**-**			**700**
Semester IV								
21	P21COE411/ P21COE412	Elective I: 1.Managerial Economics	4	4		25	75	100

		2.Business Ethics						
22	P21COE421/ P21COE422	Elective II: 1.Business Environment 2.Organisational Behaviour	4	4		25	75	100
23	P21COR41	Project	8	22		25	75	100
		Total	**16**	**30**				**300**
Total			**90**	**120**	**-**			**2300**

Non Major Elective(NME)
1.**NME I - P21CON211**-Fundamentals of Marketing
2. **NMEII- P21CON212**-Fundamentals of Banking

Additional Credit Courses (Two Credit courses)

1. **P21COV11** - Value Added Program I-Two Credits (First Semester)- Excel Skills for Commerce
2. **P21COI21** - Internship/Industrial Training – Two Credits- (End of Second Semester)
3. **P21COO31** - Online Courses (MOOC Courses)-Two Credits- (Third Semester)
4. **P21COV42** - Value Added Program II-Two Credits (Fourth Semester) - Data Analysis Using SPSS: Inferential Analysis
    - Those who have CGPA 9 and want to do the project in industry/institution during 4thsemester, these two papers can be opted in third semester.
    - Students can take one 4 credit course in MOOC as elective or two 2 credit course in MOOC as elective with the approval of Departmental Committee.

Outside Class Hours

- Health, Yoga and Physical fitness.
- Library information access and utilisation
- Employability Training.

SEMESTER -I

COURSE CODE	P21COT11	MARKETING MANAGEMENT	L	T	P	C
CORE I			5	-	-	4

Course Objectives:
The objectives of the course are

- To understand the trends in, Marketing Management and to make aware of regulations of foreign trade practices in the era of globalization.
- To know the elements of Marketing Management
- To assess of buying behavior and consumer behavior.
- The student will understand the overview of Marketing Management

Unit I: Introduction to Marketing Management

Introduction to Marketing Management – nature and scope – Concepts of marketing – Functions and problems of marketing management – Traditional marketing – Modern Marketing – Responsibilities of marketing manager – Role of marketing management in Indian economy.

Unit II: Consumer Behaviour

Buyer behavior – Consumer behavior vs. business buying behavior – Factors affecting consumer behavior – Consumer research – Importance – Consumer research process – Consumer research design – Steps in consumer research.

Unit III: Promotion

Promotion – Tools of promotion – Communication process – Characteristics of promotion- Merits – Demerits – Designing a promotion campaign – Promotion – mix – Determinants – Promotion tools – Advertising – Sales promotion – Public relations.

Unit IV: Marketing organization and control

Marketing organization and control – Emerging trends and issues in marketing – Rural marketing – Social marketing – On – line marketing – Green marketing – network marketing.

Unit V: Customer satisfaction

Customer satisfaction – Difference between consumer and customer – Consumerism – Rights of consumers – Customer expectation – Changing perceptions of customer – Benchmarking – Total quality management.

Text Book

1. R.S.N. Pillai and Bagavathi, Modern Marketing – Principles and Practices, S.Chand& Co, 2010.

Books for Reference

1. V.S. Ramaswamy and S. Namakumari, Marketing Management: Global Perspective, Indian Context, Om Books publisher, 2009.
2. R.L. Varshney and B. Bhattacharya, International Marketing Management – An Indian perspective, Sultan Chand and Sons, 2015.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon completion of the course, the students will be able to

CO1: Explain the marketing concepts

CO2: Identify the strategies adopted for buyer's behavior.

CO3: Analyse the tools for promotion, sales promotion and Advertising.

CO4: Assess the marketing organization and control.

CO5: Assess Customer Satisfaction, Benchmarking and Quality Management.

Mapping Outcomes COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	9	9	87/15=5.8
CO2	9	3	3	3	3	3	9	3	3	3	3	3	3	3	9	63/15=4.2
CO3	9	3	9	9	3	3	9	3	9	9	3	3	9	3	9	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	3	3	3	3	87/15=5.8
CO5	9	9	9	9	3	9	9	9	3	9	3	9	3	9	3	105/15=7
Weightage																**29/5=5.8**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT12	INTERNATIONAL TRADE AND PRACTICE	L	T	P	C
CORE II			5	-	-	4

Course Objectives:

The objectives of the course are

- To understand the global trends in business, marketing and trade and to make aware of regulations of foreign trade practices in the era of globalization.
- To get awareness about International Business Environment.
- To know the foreign exchange and Foreign institutions.
- The student will get knowledge on Global Level Business.

Unit-I: International Business and BOP

International Business: Meaning, Nature, Objectives – Strategic decisions in International Business – Special Problems in International business – Reasons for firms for going international – Drivers and Restrainers of Globalization – Types of International Business activities – BOP: Components – Disequilibrium – Correction of Disequilibrium.

Unit-II: International Business Environment

International Business environment: Meaning – Significance – Political Environment – Economic Environment – Cultural Environment – Technological Environment.

Unit-III: International Marketing

International marketing – Introduction – Meaning – Definition – International Marketing Vs Domestic marketing - Problems – International marketing environment - Market Entry Strategies – Information requirements for international marketing – Sources of information – International marketing channels

Unit-IV: International Trade strategies

International trade – Trade strategies – Types of Trade barriers – GATT – WTO – GATS – TRIMs – TRIPs – IPRs – Patents – IMF – World Bank.

Unit-V: India's Trade performance

India's Trade Performance: Determinants of Exports and Imports - Major Exports and Imports - Direction of Trade - Trade in Services - Major Problems of India's Export Sector. Foreign exchange market: Meaning, Nature and Functions – Determination of exchange rates – Exchange Rate system – Foreign exchange risk – FEMA.

Text Book:

1. Francis Cherunilam, International Business, PHI Learning Pvt. Ltd., New Delhi, 2013.

Reference Books:

1. Francis Cherunilam, International Trade and Export Management, Himalaya Publishing house, 2019.
2. Varshney.R.L. and Bhattachariya.B, International Marketing Management- An Indian perspective, Sultan Chand and Sons, 2015.
3. SubbaRao, P, International Business, Himalaya Publishing House, New Delhi, 2014
4. Vershney, R.L. and Bhattacharya, B., International Marketing Management, Sultan Chand & Sons, New Delhi, 2012.
5. B.S.Rathor, B.M.Jani and J.S.Rathor, International Marketing, Himalaya Publishing, Mumbai, 2001

Note: Question paper shall cover 100% Theory

Course Outcomes:

Upon completion of the course, the students will be able to

CO 1: Understand the concepts of international marketing and environment.

CO 2:Analyze the determinants of market selection and market entry methods

CO 3: Evaluate the various determinants of international marketing channels

CO 4: Analyse the Export Procedure and Documentation

CO 5: Examinethe sources of Export Finance and Payment Terms.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	9	3	81/15=5.4
CO2	9	3	3	3	3	3	9	9	3	3	3	9	3	3	9	75/15=5
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	3	3	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	3	3	93/15=6.2
CO5	9	9	9	9	3	9	9	9	3	9	3	3	3	9	3	99/15=6.6
Weightage																**29.4/5=5.88**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's*(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT13	ADVANCED FINANCIAL MANAGEMENT	L	T	P	C
CORE III			6	-	-	4

Course Objectives:
The objectives of the course are

- To gain knowledge on the fundamental concepts on financial management.
- To know the valuation of securities
- To understand the theories of capital structure and working capital management
- The student will able to understand an overview of financial management

Unit-I: Introduction to Financial Management

Financial Management: Meaning, Scope, Objectives, Functions, Relationship with other areas of Management – Functions of Financial Manager – Sources of Finance – Short term and long term finance – Financial decisions – Concepts of valuation: Time value of money – Compounding and Discounting – Risk and Return trade off.

Unit-II: Valuation of Securities

Valuation of Securities: Valuation of Asset – Bond Valuation – Valuation of Preference shares, Equity valuation. Dividend Policy: Meaning, Objectives, Forms of Dividend, Different dividend theories – Factors determining Dividend Policy.

Unit-III: Capital Structure

Capital Structure: Patterns of capital structure – Factors affecting Capital Structure – Optimum Capital Structure - Theories of Capital Structure. Leverages: Meaning, Types – Financial, Operating and Combined.

Unit-IV: Cost of Capital

Cost of Capital: Meaning, Significance, Concepts, Cost of Debt, Equity, Preference and Retained Earnings – Weighted Average Cost of Capital. Capital Budgeting: Concept - Evaluation Techniques: Payback, Accounting Rate of Return, NPV, IRR, Profitability Index, Comparison of DCF Techniques.

Unit-V: Working Capital Management

Working Capital: Concept, Need, Types, Factors affecting Working Capital – Estimation of Working Capital – Components of Working Capital – Management of Working Capital Components – Cash, Inventories, Accounts Receivable and Accounts Payable – Working Capital Financing: Trade Credit, Bank finance & Commercial Papers.

Text Book:

1. S.N.Maheswari, Financial Management Principles and Practice, Sultan Chand & Sons, New Delhi, 2013.

Reference Books:

1. I.M.Pandey, Financial Management, Vikas Publishing House Pvt. ltd, New Delhi, 2016.
2. James C. Van Horne, John M.Wachowicz., Jr, Fundamentals of Financial Management, PHI Pvt. Ltd, New Delhi, 2008.
3. Prasanna Chandra, Financial Management Theory and Practice, Tata McGraw – Hill Publishing Company Ltd, New Delhi, 2017.
4. Preeti Singh, Fundamentals of Financial Management, Ane Books Pvt. Ltd, Bangalore, 2009.
5. P.V. Kulkarni& B.G. Sathyaprasad, Financial Management, Himalaya Publishing House, Mumbai, 2015.

Webliography:

a. http://icmai.in/studentswebsite/studymat.php
b. http://164.100.133.129:81/eCONTENT/Uploads/Advanced_Financial_Management.pdf
c. http://opentuition.com/acca/p4/acca-p4-lectures/
d. http://cma-classes.in/
e. sol.du.ac.in/mod/book/view.php?id=1546&chapterid=1530

Note: Question paper shall cover 40% Theory and 60% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Explain the various techniques of financial management and financial planning

CO2: Make use of the relevance of capital structure, cost of capital and dividend policy with the value of the firm

CO3: Analyze the financial plan, leverages, capital structure and cost of capital of a company

CO4: Determine the optimal capital structure and value of a firm

CO5: Estimate the cost of capital, optimum dividend and working capital requirements of business firms.

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	3	81/15=5.4
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	3	9	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	3	105/15=7
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	3	3	87/15=5.8
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**31.8/5=6.36**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT14	MANAGEMENT ACCOUNTING	L	T	P	C
CORE IV			6	-	-	4

Course Objectives:

The objectives of the course are

1. Develop an insight of principles and techniques of Management Accounting.
2. Familiarize the utilization of accounting information for planning, and decision-making
3. Effective control of business ventures.
4. The students will get the knowledge to prepare financial statements, other analysis and evaluations themselves.

Unit I: Introduction to Management Accounting

Management Accounting: Nature - Scope - Management accounting Vs Financial accounting. Management reporting system – Designing and installation – Types of reports.

Unit II: Financial Statement Analysis

Analysis of financial statement – Concept of funds – Importance – Preparation of Fund Flow Statement and Cash Flow Statement – Comparison of Fund Flow and Cash Flow Statement

Unit III: Standard Costing

Standard Costing – Introduction - Importance – Limitations- Material, Labour, Overhead, Sales and Profit.

Unit IV: CVP Analysis

Cost-Volume Profit analysis – Techniques – Break Even Analysis – Profit-Volume (P/V) analysis – Role and Limitations of CVP analysis.

Unit V: Capital Budgeting

Nature of Capital Budgeting – Importance of Capital Budgeting – Difficulties – Rationale – Evaluation techniques – Average rate of return – Pay back method – Discounted cash flow techniques – Net present value method - Internal rate of return method.

Text Book:

1. Pillai, R.S.N. and Bagavathi, Management Accounting, S.Chand& Co Ltd., 2010.

Reference Books:

1. Gupta, S.P., Management Accounting, SahityaBhavan Publications. Agra.
2. Khan M.Y. and Jain, P.K. 2007.Management Accounting. 4thEdn. Tata McGraw Hill Publishing Co. Ltd., New Delhi.
3. Maheswari, S.N. 2009. Management Accounting & Financial Control. Sultan Chand & Sons, Delhi.

4. Sharma,R.K. and Sashi,K. Gupta. 2007. Management Accounting. 15th Revised Edn. Kalyani Publishers, Ludhiana.
5. Vinayakam.N and. Sinha, I.B. 2005. Management Accounting – Tools & Techniques – Kalyani Publishers, Ludhiana.

Webliography:

- https://www.cpaaustralia.com.au/documents/study-manual-management-accounting.pdf
- http://management-accountant.com/
- www.learnerstv.com/Free-Management-Video-lectures-ltv638-Page1.htm
- http://www.wiley.com//college/managerialvideos/

Note: Question paper shall cover 20%Theory and 80% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Define financial statement, cash flow statement, marginal costing, budgetary control and capital budgeting.

CO2: Identify the types of ratios, cash flow activities, budgets, capital expenditure decisions

CO3:Analyse the financial position of a business, cash flow, cost / volume / profit, master budget and investment proposals

CO4: Interpret the results of ratios, cash flow activities, contribution, functional budget and capital budgeting

CO5: Solve the managerial problems by adapting the techniques of management Accounting

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	9	3	87/15=5.8
CO2	9	3	9	9	3	3	9	9	3	9	9	9	3	3	9	99/15=6.6
CO3	9	9	9	9	3	9	9	9	9	9	9	3	9	3	3	111/15=7.4
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	9	3	93/15=6.2
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	9	117/15=7.8
Weightage																**33.8/5=6.76**

Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COP11	COMPUTERIZED ACCOUNTING WITH TALLY	L	T	P	C
CORE V			-	-	6	4

Course Objectives:

The objectives of the course are

- To provide basic knowledge of computerized accounting to deserving students under self – learning mode.
- To know the preparation of budget and vouchers
- To prepare the final accounts and fund flow statement
- The student will get employment after learning the paper

Unit – I: Introduction to Tally

Introduction – Role of computer in Accounting – Extended enterprise features – Accounting and Inventory control features – sales and purchase order processing. To start tally – menus and options – Accounting with Tally – Pre defined groups of accounts – Golden rules of accounts – Double entry systems – ledger creation.

Unit – II: Groups

Groups: Accounts Information – Primary groups of capital nature – revenue nature – To create groups using single mode – Multiple mode – Types of Budget – type of vouchers – Restart numbering – Foreign Exchange Transactions – stock Group Creation– Inventory information – Single stock group creation – Multiple stock group creation – create stock category using single mode – Multiple mode – Configuration settings for inventory – costing method – FIFO – LIFO – create stock items in multiple mode – Trading Business.

Unit – III: Vouchers

Gateway of Tally – Voucher entry – Type of Voucher – Inventory allocations – Purchase and Sales order vouchers entry – Invoice entry – Optional and Regular Vouchers – Balance Sheet – Profit and Loss Account

Unit – IV: Accounting Statements

Trial Balance – Accounting Books and Statements – Inventory Reports and Statements – Cash Flow / Funds Flow Statement – Gateway of Tally – Multi Accounting Printing – Types of Printing - Configuration Options.

Unit – V: Financial statement analysis

Reconciliation of Bank Accounts and other Miscellaneous option – Stock Summary Ratio Analysis – Import and Export of Data – Backup and Restore of data – loading a company – creating a group company – Reconciliation of Bank accounts – Security control - Types of Security.

Text Book:

1. Implementing Tally ERP 9: A.K Nadhani and K.K Nadhani, BPB Publications, 2018

Reference Books:

1. MamrataAgrawal, Tally 9, Dream Tech Press, New Delhi, 2013
2. Tally Software Package – manual, 2019.
3. GarimaAgarwal, Computerised Accounting, Himalaya publications, 2018
4. A. Murali Krishna, Computerised Accounting, Vaagdevi publications, 2015
5. Dinesh Maidasani, Mastering Tally, Firewal Media, 2010
6. J.S. Arora, Tally ERP 9, Kalyani Publications, 2017

Note: Question paper shall cover 100% Practical

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Possess skills to create a company with accounting and inventory features.

CO2: Work with the well-known procedure for recording the transactions in accounting and inventory vouchers.

CO 3: Prepare Bank reconciliation statement and debtors, creditors management

CO4: Analyze the reports like Day Book, Trial Balance, Profit & Loss A/c, Income and Expenditure Account, Balance Sheet & Printing option

CO 5: Examine the legal aspects of GST and Income Tax calculations.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	3	3	75/15=5
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	3	3	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	3	3	93/15=6.2
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**29.8/5=5.96**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

<table>
<tr><td>COURSE CODE</td><td>P21COS11</td><td rowspan="2">EMPLOYABILITY SKILLS –SOFT SKILL DEVELOPMENT (PRACTICAL)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SUPPORTIVE COURSE I</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
</table>

Course Objectives
The objectives of the course are

- To enhance the employability skills.
- To develop interpersonal skills that provides good work environment.
- To effectively prepare and present in a job interview

Unit I: Etiquettes and Manners
Etiquette – Meaning & Importance, Etiquette Vs Manners, Business and Workplace Etiquette, Ways of introducing oneself, Handshakes, Telephone Etiquette, Email Etiquette

Unit II: Interpersonal skills
Understand Self – Different Categories; Diagnosis of Type of Self - Identifying own type of self, Positive character traits, Effect of Interpersonal Behaviour on Interpersonal Relationship, Formal Interpersonal skills, Emotional Intelligence

Unit III: Leadership skills
Leadership – Definition, Role & Functions of a Good Leader; Traits of Leadership, Leadership styles, Developing Leadership skills

Unit IV: Group Discussion
Group Discussion as a Selection process, Kinds of topics for discussion, Structure of GD, Initiation Techniques, Handling Questions, Outcome of GD, Preparation for GD

Unit V: Interview Skills
Types of Interview, Employment Interview, preparing for Face- to face interview, Interview Body language, Questions commonly asked during Interview

Text Books:

1. Alex K, Soft Skills, Sultan Chand Company, 2014
2. Gopalaswamy Ramesh, The Ace of Soft Skills: Attitude, Communication And Etiquette For Success, Pearson Education, First Edition, 2013

Reference Books:

1. K. RavikanthRao, Life Skills Education, Neelkamal, 2016
2. Neera Jain and ShomaMukherji, Effective Business Communication, Tata McGraw Hill Education Pvt. Ltd., 2013
3. M.S. Rao, Soft Skills: Enhancing Employability, I.K. International Publishing House Pvt. Ltd., 2011
4. UrmilaRai and S.M.Rai, Business Communication, Himalaya Publishing House, 2010
5. SarveshGulati, Corporate Soft Skills, Rupa Publications India Pvt. Ltd., 2007

Note: Question paper shall cover 100% Practical

Course Outcomes:

On completion of the course, student will be able to–

CO1: Effectively communicate through verbal/oral communication and improve the listening skills

CO2: Write precise briefs or reports and technical documents.

CO3: Actively participate in group discussion / meetings / interviews and prepare & deliver presentations.

CO4: Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.

CO5: Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								**Mean Score of COs**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	3	9	3	9	3	9	3	9	75/15=5
CO2	9	3	3	3	3	3	9	3	3	9	3	9	3	3	3	69/15=4.6
CO3	9	3	9	9	3	3	9	3	9	9	9	9	9	3	9	105/15=7
CO4	9	9	9	9	3	9	9	9	3	3	3	9	3	3	9	99/15=6.6
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**30.2/5=6.04**

Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

SEMESTER – II

COURSE CODE	P21COT21	MODERN BANKING AND INSURANCE	L	T	P	C
COREVI			4	-	-	4

Course Objectives

The objectives of the course are

- To enable the students to obtain knowledge on the important areas that help in Banking and its services
- To know the types of banking, e-banking and its services
- To understand the basic concept of insurance
- The student will able to operate online banking and to know the banking and operations

Unit – I: Modern Banking Services

Banking Services – Traditional Vs Modern – Mobile banking – Facilities in mobile banking — Internet Banking – Tele banking – Home banking – Corporate banking- Electronic Fund Transfer (EFT) – Evolution – Steps in EFT – Need and advantages of EFT – NEFT – Advantages – Electronic Clearing Services (ECS) – Advantages of ECS – Disadvantages – RTGS – Features – Security features of RTGS – Advantages – Disadvantages.

Unit – II: E-Banking

E-Banking – Facets of E-banking– E-banking transactions – Electronic delivery channels– Truncated cheque and electronic cheque – Models for E-banking – M - Cheque product – Electronic cheque - Advantage and constraints in E-banking – Security measures-Overview of Foreign Exchange-CIBIL Score.

Unit – III: Debit and Credit Cards

ATM – Features – Mechanism – Functions- Importance – Procedure for cash withdrawal – Debit cards – Concept – Mechanism – Dangers – Credit cards – Origin and history – Features – Classification – Validity and renewal — Credit card frauds - Benefits of credit card – Drawbacks – Indian Scenario – Future outlook.

Unit – IV: Principles of Insurance

General Insurance in India – Basic Principles of Insurance: Utmost good faith, Insurable Interest- Indemnity, Misrepresentation, Subrogation, Proximate cause -Role of Insurance Companies as financial intermediaries- Insurance schemes – Assessing risk- product pricing - promotion measures - claim valuation methods-Intermediaries in insurance business – agency.

Unit – V: General Insurance

Scope of general insurance covering theft, fire, vehicles, products, transport, travel, building and understanding the underlying conditions thereof- claims for compensation and procedure there of -Regulatory authorities and their functions

Text Book

1. Sundaram and Varshney, Banking Law Theory and Practice, Sultan Chand Co., 2019
2. S. Guruswamy, Banking Theory Law and Practice, 3rd Edition, Vijay Nicholes Imprint Pvt. Ltd., Chennai, 2020.

Reference books:

1. ShelaghHefferman, Modern Banking theory and practices, John wiley and sons, 2012
2. N.C.Majumdar, Fundamentals of modern banking, New central Book Agency, 2015
3. D.P.Gupta and R.K.Gupta, Modern banking in India, Asian Books, 2019
4. Indian Institute of Banking and Finance, Banking and insurance law and practice, Taxmann Publication Private Limited, 2018
5. B. Santhanam, Banking and Financial Systems, Margham Publishers, 2017
6. S.N. Maheswari, Banking Law Theory and Practice, Kalyani Publications, 2018.

Webliography:

1. www.hindustanuniv.ac.in/video_lecture_series
2. www.tcyonline.com/video-lectures
3. www.atozinbanking.com
4. www.higherbanking.com
5. www.rbi.org.in

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon Completion of the course, the students will be able to

CO1: Understand and remember the principles of lending, credit, cash and marketing management aspects of the banking sector

CO2: Identify the procedures for lending & recovery of loan and marketing risks

CO3: Analyse the causes for NPA, norms for credit appraisal and market segmentation

CO4: Assess the management practices of banks

CO5: Adapt the principles of credit, cash and risk management

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	3	9	3	9	3	9	3	3	69/15=4.6
CO2	9	3	3	3	3	3	9	3	3	9	3	9	3	3	9	75/15=5
CO3	9	3	9	9	3	3	9	3	9	9	9	3	9	3	9	99/15=6.6
CO4	9	9	9	9	3	9	9	3	9	9	9	9	3	3	9	111/15=7.4
CO5	9	9	9	9	3	9	9	3	3	9	9	3	3	9	3	99/15=6.6
Weightage																**30.2/5=6.04**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT22	ADVANCED COST ACCOUNTING	L	T	P	C
COREVII			5	-	-	4

Course Objectives

The objectives of the course are

- To enable the students to obtain knowledge on the important areas that help in decision making.
- To understand the basic concepts of cost accounting
- To know the elements of costing and types of costing
- The student will get an idea to prepare cost sheet and various types of costing.

Unit – I: Introduction to Cost Accounting

Cost Accounting – Meaning and Definition – Importance –Cost concept – Differences between Financial Accounting and Cost Accounting – Installation of an Ideal Costing System – Elements of cost – Classification of cost - Preparation of Cost Sheet including Tender.

Unit – II: Material Cost

Material cost control – Fixation of various stock levels – Economic Order Quantity – Purchase procedure – Issue of materials – Pricing of material issues – Inventory control and verification.

Unit – III: Labour Cost

Labour cost control – Time keeping – Wage payment and Incentive schemes – Idle Time and Overtime – Labour turnover.

Unit – IV: Overheads

Overheads – Meaning, Classification according to functions and variability – Apportionment and Reapportionment of Overheads – Absorption of Overheads – Machine hour rate – Reconciliation of cost and financial Profits.

Unit – V: Job costing

Job Costing – Contract Costing – Process Costing – Losses and Gains – Inter Process Transfer Pricing – Equivalent production – Joint and By Products Costing.

Text Book:

1. Maheshwari S.N., Cost Accounting, Sultan Chand & Sons, New Delhi, 2018.

Reference Books:

1. Jain &Narang, Cost Accounting, McGraw Hill, Noida, U.P, 2012.
2. Arora.M.N, Practical Costing, Himalaya Publishing, Mumbai, 2017.
3. Senthilkumar and Maruthamuthu, Advanced Cost Accounting, Vikas Publishing House, New Delhi (Revised Edition), 2018
4. Murthy and Gurusamy, Cost Accounting, Vijay Nicole Publication, Chennai, 2016.

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1. icmai.in/studentswebsite/studymat.php
2. http://www.icsi.in/
3. http://www.textbooksfree.org/Managerial%20Accounting%20Videos.htm
4. https://www.vutube.edu.pk/vu-lectures/viewcategory/19/cost-management-accounting-mgt402
   education.svtuition.org/2011/07/cost-accounting-video-lectures.html

Note: Question paper shall cover 20% Theory and 80% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Explain the concepts of activity based costing, target costing, life cycle costing, standard costing, value chain and value added

CO2: Apply the various cost management techniques

CO3: Analyse the techniques of cost management

CO4: Interpret the results arrived through the cost management techniques

CO5: Adapt the strategic areas of cost management system in a manufacturing concern.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	3	81/15=5.4
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	3	9	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	3	105/15=7
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	3	3	87/15=5.8
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**31.8/5=6.36**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT23	BUSINESS RESEARCH METHODS	L	T	P	C
COREVIII			4	-	-	4

Course Objectives:

The objectives of the course are

- To enable students to know the concept and process of research and the methods of presenting research report.
- To understand the concepts of various steps and techniques and procedures in Research.
- To enable the student to gain the knowledge of analysis and interpretation.
- The student will get an idea to prepare project report.

Unit – I: Types and Process of Research

Research: Introduction – Characteristics – Objectives – Scope – Importance – Qualities of good researcher – Types of research – Research Process – Identification, Selection and Formulation of research problems.

Unit – II: Research Design

Formulation of hypothesis – Research design – Types – Sampling: Methods and Techniques, Steps – Sample size – Sampling error – Advantages and limitations of sampling.

Unit – III: Data collection

Data collection methods: Techniques of data collection – Primary data and Secondary data– Interview Schedule, Questionnaire and Observation – Pretest – Pilot study – Secondary data sources.

Unit – IV: Data processing

Data processing: Editing – Coding - Classification and Tabulation – Attitude measurement – Scaling technique: L.L.Thurstone, RensisLikert, Emory S. Bogardus - Social distance - Rating and Ranking scales – Data analysis: Statistical tolls used in research – Measure of Central tendency – Standard Deviation – Correlation – regression models – Methods of least square – Multiple regressions. Test of significance – 'T' Test and 'F' test – ANOVA – Chi-Square test

Unit – V: Report writing

Report writing and presentation: Types of report – Contents – Format of report – Steps in drafting report - Presentation of report – Foot note – References – Bibliography - Research Ethics - Plagiarism.

Text Book

1. C.R.Kothari, "Research Methodology", New Age International Publishers, 2020.

Reference Books:

1. Devendra Thakur, Research Methodology in Social Science. Deep & Deep Publications. New Delhi, 2000.

2. Krishnasami, O.R. andRanganathan, M., Methodology of Research in Social Science, 2nd Edn. Himalaya Publishing House, Mumbai, 2014.
3. Michael. V.P., Research Methodology in Management, Kitib Mohan Publications, Alahabad, 2014
4. Ravilochanan, P., Research Methodology. Margham Publications, Chennai, 2007.
5. Saravanavel, P., Research Methodology, KitabMahal, Allahabad, 2008.

Webliography:

1. https://www.bcps.org/offices/lis/researchcourse/statistics_role.html
2. https://www.mheducation.co.uk/openup/chapters/9780335227242.pdf
3. onlinelibrary.wiley.com/doi/10.1002/0471477435.fmatter/pdf
4. www.statisticslectures.com/
5. http://www.textbooksfree.org/Statistics%20Video%20Lectures.html

Note: Question paper shall cover 80% Theory and 20% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Explain the conceptual framework of research design

CO2: Apply the suitable statistical tools for analyzing the problem and infer the results

CO3: Analyse the primary and secondary data

CO4: Assess the research problems

CO5: Design the research reports.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	3	3	9	9	9	9	9	87/15=5.8
CO2	9	3	3	3	3	3	9	9	3	9	3	9	9	3	9	87/15=5.8
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	3	9	99/15=6.6
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	9	3	99/15=6.6
CO5	9	9	9	9	3	9	9	9	3	9	9	3	9	9	3	111/15=7.4
Weightage																**32.2/5=6.44**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

<table>
<tr><td>COURSE CODE</td><td>P21COT24</td><td rowspan="2">QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">COREIX</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives:

The objectives of the course are

- To make the students to understand the various concepts in Quantitative techniques,
- To enable the students how various techniques of statistics used in business for taking decisions.
- To provide practical knowledge on quantitative techniques.
- The students will gain sound theory as well as practical knowledge in quantitative techniques.

Unit I: Introduction to Quantitative Techniques

Meaning of Quantitative Techniques – Role of Quantitative Techniques – Advantages and Limitations of Quantitative Techniques – Correlation Analysis – Simple – Partial and Multiple –Regression Analysis – Time Series.

Unit II: Probability

Probability – Problems applying Additional and Multiplication Theorem – Mathematical Expectations – Theoretical Distributions – Binomial – Poisson – Normal Distribution.

Unit III: Significance Tests

Significance Tests in Small Samples (t test) – Testing the significance of the mean of a random sample – Testing difference between means of two samples (Independent and Dependent Samples) – Chi-square test- Analysis of Variance (One way and two way classification).

Unit IV: LPP, Transportation and Assignment Problems

Linear Programming – Graphical Method – Simplex Method – Transportation Problems – Initial Basic Feasible Solution - Modi Method – Assignment Problems.

Unit V: Interpolation and Extrapolation

Interpolation and Extrapolation – Methods of Interpolation – Binomial Expansion Method – Newton's Method – Lagrange's Method – Parabolic Curve Method – Extrapolation – Vital Statistics – Life Tables

Text Books

1. C.R. Kothari, Quantitative Technique, Vikas Publishing House, 2015
2. S.P. Gupta, Business Statistics & Operation Research - Sultan Chand & Sons, 2012

Reference Books:

1. S.C. Gupta, Statistical Methods, Sultan Chand & Sons, 2014
2. S.P. Gupta, Statistical Methods, Sultan Chand & Sons, 2011
3. Richart I. Levin, and Rubin, Statistics for Management, Prentice Hall of India, 2017

4. PA. Navanitham, Business Statistics & Operation Research, Jai Publications, Trichy, 2016.
5. S.P. Rajagopalan& R. Sattanathan, Business Statistics & Operation Research, Vijay Nicole Publications, Chennai, 2011

Note: Question paper shall cover 20% Theory and 80% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Draw inferences from sample data regarding the relevant population.

CO2: Apply mathematical techniques to problem solving

CO3: Calculate and interpret the nature of correlation between variables

CO4: Apply appropriate mathematical tools to financial data including discounting and investment appraisal

CO5: Explain probability and be able to use a range of techniques to calculate probabilities

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	3	9	9	9	3	9	9	9	93/15=6.2
CO2	9	3	9	9	3	3	9	3	3	9	3	9	3	3	9	87/15=5.8
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	9	111/15=7.4
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	9	3	93/15=6.2
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**33/5=6.6**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT25	INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT	L	T	P	C
CORE X			4	-	-	4

Course Objectives

To provide knowledge about various investment avenues, methods of analyzing securities and portfolio management.

Unit – I: Investment Analysis

Investment Analysis: Nature – Scope – Elements of Investment – Risk and return – Objective of investment – Approaches to investment analysis – Securities – Types – Features – Bond Market.

Unit – II: Investment Alternatives

Investment alternative and strategies – Financial investment – Non financial investment – Valuation of fixed income securities and variable income securities (excluding Derivatives)

Unit – III: Fundamental Analysis

Fundamental analysis: Economic, Industry and Company analysis – Sources of information for analysis

Unit – IV: Technical Analysis

Technical Analysis – Types of charts – Dow Theory, Elliott wave theory, Odd-lot theory, Breadth of market, Relative strength analysis – Moving Average analysis – Efficient Market Hypothesis

Unit – V: Portfolio analysis and Management

Portfolio analysis and Management: Portfolio risk and return – Markovitz model – Sharpe model: Single Index Model – CAPM – Arbitrage Pricing Theory

Text Book

1. PunithavathyPandian, "Security Analysis and Portfolio Management", Vikas Publishing House Pvt. Ltd, 2011

Books for References:

1. Avadhani.V.A, "Security Analysis and Portfolio Management", Himalaya Publishing House Pvt. Ltd, 2010
2. Kevin.S, "Security Analysis and Portfolio Management", PHI Learning Pvt. Ltd, 2015
3. Donald E. Fischer and Ronald J. Jordan, "Security Analysis and Portfolio Management", Prentice Hall of India, 2018.
4. Prasanna Chandra, "Investment Analysis and Portfolio Management", Tata McGraw Hill International, 2019

Webliography :

1. https://irfanullah.co/cfa-1-free-2011-video-lectures/
2. www.bcci.bg/projects/latvia/pdf/8_IAPM_final.pdf
3. www.ctre.iastate.edu/gasb34/intropart1.pdf
4. https://www.garp.org/#!/frm/study-materials

Note: Question paper shall cover 75% Theory and 25% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Illustrate the various investment avenues, theories of security, derivatives and risk management and portfolio management

CO2: Apply the theories of securities analysis and portfolio management

CO3: Analyse the various investment alternatives and derivatives

CO4: Appraise the techniques of derivatives in minimizing the risk

CO5: Choose the best portfolio combination and derivatives

Mapping Outcomes COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	9	9	87/15=5.8
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	9	3	99/15=6.6
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	3	9	99/15=6.6
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**31.4/5=6.28**

Level of Correlation between CO's and PO's   1 – Low   3 – Medium   9 – High   0 – No Correlation
(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)

SEMESTER –III

COURSE CODE	P21COT31	INDIRECT TAXATION	L	T	P	C
CORE XI			5	-	-	4

Course Objectives

The objectives of the course are

- To make the students gain knowledge on indirect taxes and legal provisions
- To enable the students to understand theapplications of indirect taxes and its importance.
- To make the students to understand about Goods and Services Tax.
- The student will gain the knowledge about all types of indirect taxes which are levied by government.

Unit- I: Indirect Taxes

Indirect Taxes - Introduction - Features - Objectives of Taxation- Types of taxes- Direct and Indirect taxes - Indirect Tax structure - Merits and Demerits of Indirect Taxes - Recent Developments in Indirect Tax structure - Goods and Services Tax Act 2016 - Introduction – Features – Benefits of Goods and Service Tax.

Unit II: GST

Goods and Service Tax - Important Definitions - Taxable persons – Time of supply of goods and services – Administrative set up – Classes of officers under Central and State Goods and Services Tax Act - Appointment of officers – Powers of officers – Levy and Collection of GST – Powers to grant exemption from GST.

Unit III: Registration Procedures

Registration – Procedure for registration under Schedule III – Special provisions relating to casual taxable person and non-resident taxable person – Amendment of registration – Cancellation of registration – Revocation of cancellation of registration.

Unit IV: GST Assessment

Assessment of GST- Self-assessment – Provisional assessment – Scrutiny of returns – Assessment of non-filers of returns – Assessment of unregistered persons – Assessment in certain special cases – Tax Invoice – Credit and Debit Notes – Input Tax Credit-Payment of Tax – Tax Deducted at Source - Collection of Tax at source.

Unit V: Customs Duty

Customs Act 1962 – Important Definitions – Basics – Importance of Customs Duty – Constitutional authority for levy of Customs Duty – Types of Customs Duty – Prohibition of Importation and Exportation of goods – Valuation of goods for Customs Duty – Transaction Value – Assessable Value – Computation of Assessable Value and Customs Duty.

Text Books

1. National Academy Of Customs Excise and Narcotics, Background Material for Goods and Service Tax. July, 2016.
2. Mehrotra and Goyal. Indirect Taxes, 13th Edn. SahityaBhavan Publications, Agra, 2015.

Reference Books

1. Radhakrishnan, P., Indirect Taxation, 3rd Edn. Kalyani Publishers, New Delhi, 2011.
2. Balachandran, V., Indirect Taxation, 17th Edn. Sultan Chand & Sons, New Delhi, 2016.

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1. http://idtc.icai.org/gst-topic-wise-study-material-list.html
2. https://www.gstindia.com/gst-in-india-the-basic-study/
3. http://news.taxindiahindi.in/updated-study-material-on-model-gst-released-by-icai/
4. https://cleartax.in/s/gst-law-goods-and-services-tax
5. www.cbec.gov.in
6. www.gst.gov.in.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon completion of the course, the students will be able to

CO1: Explain the concepts of Goods and Services Tax Act and Customs Act

CO2: Apply the GSTN Portal in business

CO3: Categorize the transactions under CGST, SGST, IGST and UTGST

CO4: Appraise the mechanism of Goods and Services Tax System

CO5: Prepare the tax planning and tax management for payment of tax and filling of tax returns.

Mapping Outcomes COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	9	9	3	9	3	3	81/15=5.4
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	3	75/15=5
CO3	9	3	9	9	3	3	9	9	9	9	9	3	9	9	3	105/15=7
CO4	9	9	9	9	3	9	9	3	9	3	9	9	3	3	3	99/15=6.6
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**31/5=6.2**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT32	FINANCIAL MARKETS AND SERVICES	L	T	P	C
CORE XII			5	-	-	4

Course Objectives:

The objectives of the course are

- To enable the students to understand the concepts of Indian financial system.
- To provide knowledge on various financial services and financial markets.
- To familiarize the various functions of financial Markets.
- The students will gain thorough knowledge about financial markets and financial services.

Unit – I: Indian Financial System

Indian Financial System: Structure, Functions, Financial System and Economic Development – Financial Market: Meaning, Classification – Financial Services: Meaning, Significance, Features, Challenges in financial service sectors – Financial Products and Services – Emerging Scenario.

Unit – II: Money Market

Money Market – Call Money Market – Treasury Bills Market – Discount Market – Govt. Securities Market – Market for Commercial Paper and Certificates of Deposits.

Unit – III: Stock Market

Stock Market – Stock Exchange – Organization and Functions – Listing of Securities – Trading in Stock Exchanges – On-line Trading of Shares – E-Shares – New Issues Market – Types of New Issues – Problems of New Issue Market.

Unit – IV: Merchant Banking, Mutual funds and Venture capital

Merchant Banking – Meaning, Functions, Services – Guidelines of RBI and SEBI.Mutual Funds – Meaning, Types, Importance, Guidelines of RBI and SEBI.Venture Capital – Meaning, Features, Importance, Guidelines.

Unit – V: Factoring, Forfeiting and Depository system

Factoring - Meaning, Importance – Factoring in India –Factoring Vs. Discounting – Forfeiting – Meaning, Advantages and Limitations, Factoring Vs Forfeiting – Securitization of Debts – Securitization Vs Factoring, Depository System – Meaning, Functions – Advantages and Disadvantages, Depository Participants in India-Credit Rating Agency.

Text Book:

1. Gordon and Natarajan, Financial Markets and Services, Himalaya Publishing House, 2001.

Reference Books:

1. S. Gurusamy, Financial Markets and Institutions, recent edition.
2. Khan, M.Y. Financial Services, Tata McGraw Hill, 1998.
3. Sontomero and babble, Financial Markets, Instruments and Institutions, McGraw Hill, 1998.
4. Vasant Desai, The Indian Financial System, Himalaya Publishing House, 2010.
5. Varsheney, P.N., Indian Financial System, Sultan Chand & Sons, 2000.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon completion of the course, the students will be able to

CO1: Understand the role and function of the financial system in reference to the macro economy.

CO2: Demonstrate an awareness of the current structure and regulation of the Indian financial services sector.

CO3: Evaluate and create strategies to promote financial products and services.

CO4: Make an informed judgement about whether or to what extent a financial market satisfies the conditions of an efficient market

CO5: Identify the main factors that could detract from that efficiency.

Mapping Outcomes COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	3	81/15=5.4
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	3	9	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	3	105/15=7
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	3	3	87/15=5.8
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**31.8/5=6.36**

Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT33	ADVANCED CORPORATE ACCOUNTING	L	T	P	C
CORE XIII			5	-	-	4

Course Objectives

The objectives of the course are

- To impart knowledge on accounting methods
- To enable the students to understand the procedures of accounting.
- To enable them to develop skills in the preparation of accounting statements and their analysis.
- To gain the knowledge about Accounting standards and companies' accounts.

Unit – I: Holding Companies

Holding Companies (except inter-company holdings and chain holding).

Unit – II: Banking Companies

Banking Company Accounts – Schedules and Preparation of Balance Sheet.

Unit – III: Insurance Companies

Insurance Company Accounts – Life and Non-life - Schedules and Preparation of Final Accounts.

Unit – IV: Double Account System

Double Account System – Nature – Features – Receipts and Expenditure on Capital Accounts – General Balance Sheet – Revenue Account – Net Revenue Account - Accounts of Electricity Companies and Railways - Replacement and Renewals.

Unit – V: Accounting Standards

Accounting Standards – Indian and International Accounting Standards – Accounting Standards 1,3,6,10,14,21 and 29 - Application – Scope – Formulation – Advantages – Disadvantages – Challenges - Inflation Accounting (Theory only).

Text Book:

1. Reddy, T.S. and Murthy, A., Corporate Accounting. Revised Edn. Margham Publications, Chennai, 2015.

Reference Books:

1. Arulanandam, M.A. and Raman, K.S., Advanced Accounting. 6th Edn. Himalaya Publishing House, Mumbai, 2009.

2. Gupta R.L. and Radhaswamy, Advanced Accountancy. 13th Revised Edn. Sultan Chand & Sons, New Delhi, 2009.
3. Jain, S.P. and Narang, K.L., Advanced Accountancy. 20thEdn. Kalyani Publishers, Ludhiana, 2014
4. Pillai, R.S.N. andBagavthi, Advanced Accountancy. 5thEdn. Chand, S. & Co Ltd., New Delhi, 2012.
5. Rajasekaran, V. andLalitha, R., Advanced Accounts. 1stEdn. Pearson. New Delhi, 2011.

Webliography :

1. http://www.learnerstv.com/video/Free-video-Lecture-22744-Management.htm
2. http://www.businessbookmall.com/Accounting%20Videos.htm
3. http://www.freebookkeepinghelp.com/accounting-lectures.html

Note: Question paper shall cover 20% Theory and 80% Problems

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Outline the basic concepts of corporate accounting

CO2: Identify the accounting procedures of various forms of companies

CO3: Analyse the internal and external reconstruction, performing asset and non-performing asset

CO4: Determine the purchase consideration, capital and revenue profits and profit / loss of bank, insurance and electricity companies

CO5:Prepare financial statements for various companies.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	9	87/15=5.8
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	3	9	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	9	111/15=7.4
CO4	9	9	9	9	3	9	3	9	9	3	3	9	3	3	9	99/15=6.6
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	9	117/15=7.8
Weightage																**33.8/5=6.76**

Level of Correlation between CO's and PO's   1 – Low   3 – Medium   9 – High   0– No Correlation

(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)

COURSE CODE	P21COT34	STRATEGIC MANAGEMENT	L	T	P	C
CORE XIV			4	-	-	4

Course Objectives:

The objectives of the course are

- To make the students well aware about the concepts of strategic management.
- To help the students to understand the analysis and formulation of management strategies.
- To enable the students to know the procedures for implementation and evaluation of management strategies.
- The student will get the knowledge to identify the strengths and weakness of the firm.

Unit – I: Introduction to Strategic Management

Strategic Management – Definition – Scope – Benefits – Risks – Approaches – Models – Strategic change – Strategic Leadership and Decision making.

Unit –II: Situation Analysis

Situation Analysis – SWOT Analysis - Environmental Scanning and Industry analysis – Forecasting – Internal Scanning - Mission – objectives – Stakeholder Theory – Cyert and March's Behavioural Theory – Objectives of Non-Profit Organizations – Social Responsibility and Business Ethics.

Unit – III: Strategy Formulation

Strategy Formulation – Business Strategy – Corporate Strategy – Divertional Strategy – Portfolio Analysis – BCG Growth /Share matrix – Strategic choice – Development of policies – Strategic Alliances.

Unit – IV: Strategy Implementation

Strategy Implementation – Organization for action – Staffing – Leading – MBO –Total Quality Management – Functional Strategies – Growth Strategies – Diversification, Acquisition and Joint Venture – Recovery – Recession and Divestment Strategies – Management Buyout.

Unit – V: Strategic Control and Evaluation

Strategic Control and Evaluation – Establishing Strategic control – premise control – Implementation control – Strategic Surveillance – Special Alert Control – Evaluation Techniques – Managing change – Strategic issues in Managing Technology and Innovation – Strategic Effectiveness.

Text Book

1. R. M. Srivastava and ShubhraVerma, Strategic Management: Concepts, Skills and Practices, PHI Learning Pvt. Ltd., 2012

Books for References:

1. John A.Pearce II, Richard B.Robinson Jr., Strategic Management – Strategy Formulation and Implementation, A.I.T.B.S. Publishers, 2015.
2. John L.Thompson, Strategic Management – Awareness and change, Cheapman& Hall, 2014
3. J.David Hunger and Thomas L.Wheelen, Strategic Management, Pearson Publications, 2018.
4. Gregory G.Dess and Alex Miller, Strategic Management, Mcgraw-Hill Publications, 2020.
5. W.L.Charles and John Gareth, Strategic Management – An Integrated Approach, Cengage India, 2012
6. John H.Barnett and William D., Strategic Management, Atlantic Publishers and Distributors, New Delhi, 2018.
7. V.S.Ramaswamy and S.Nanakumari, Strategic Planning for Corporate Success, Macmillan Publications, 1994.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon the completion of the course, the students will be able to understand

CO1: The students will, by means of a large project report written in groups, obtain training in analysing the strategic situation of a real technology based company, and in developing suggestions for change and development of the company’s strategy. Thereby, the students will also acquire experience with working in groups as well as with writing reports for a company.

CO2: The students will, by means of lectures and a written exam, be encouraged to reflect on and combine key perspectives and frameworks within the field of strategic management.

CO3: The student will analyse a company strategic situation, with particular emphasis on strategic analyses on the business level, the corporate level, and the network level

CO4: The student will develop suggestions for change and development of a company’s strategy.

CO5: The student will understand specific knowledge of perspectives, frameworks and concepts within strategy formation, strategic change, and strategic innovation.

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	3	81/15=5.4
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	9	3	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	9	3	111/15=7.4
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	9	3	93/15=6.2
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**32.6/5=6.52**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT35	INCOME TAX AND TAX PLANNING	L	T	P	C
CORE XV			5	-	-	4

Course Objectives:

The objectives of the course are

- To provide understanding on Income Tax including Rules pertaining various aspects.
- To make understand the students about the procedures followed by the income tax authorities in concern with income tax.
- To enable the students to know the procedure of file Income Tax returns.
- The students will gain the knowledge on procedures of income tax, payment of tax, and tax planning.

Unit – I: Income Tax Authorities

Income Tax Authorities – Appointment and control – Powers of the Central Board of Direct Taxes – Assessing officer. Deduction of Tax at source – Meaning – Provisions related to TDS from salaries, Income from other sources – Computation of Tax payable and Tax deductible at source.

Unit - II: Advance Tax

Advance payment of Tax – Meaning – Liability for payment of advance tax – condition – Computation of Advance tax. Assessment procedure - Permanent Account Number – Assessment – Forms used for filing the return of income – Voluntary Return of income, Compulsory return, steps for e-filing of Income tax return.

Unit – III: Recovery and Refund of Tax

Recovery and Refund of Tax – Meaning – Modes of Recovery – Refund of Tax. Appeals and Revision – Procedure in appeal – Revision by the Principal Commissioner or Commissioner.

Unit – IV: Penalties

Penalties – Penalties imposable – General principles – Items of penalties – Power of principal Commissioner or Commissioner to waive penalty.

Unit – V: Tax planning

Tax planning for individuals – Tax Evasion – Tax planning – Objectives – Characteristics – Importance – Tax planning under Salaries, House property, Profits and Gains of Business or Profession, Capital gains, Income from other sources and Clubbing of income.

Text Book:

1. Reddy, T.S. and Hari Prasad Reddy, Y. Income Tax Theory. 11thEdn. Margham Publishers, Chennai. - Current year.

Reference Books:

1. Gaur, V.P. and Narang, D.B. Income tax Law and Practice. Kalyani Publishers, New Delhi. - Current year.
2. Murthy, A. Income tax Law and Practice. Vijay Nicole Imprints Private Limited, Chennai. – Current year.
3. Mehrotra, H.C. and Goyal, S.P. Income Tax Law & Accounts. SahityaBhawan Publications, Agra. - Current year.
4. Saha, R.G., Usha Devi, N. Income Tax (Direct Tax). Himalaya Publishing House, New Delhi – Current year.
5. Vinod, K. and Singania. Students Guide to Income Tax. Taxmann Publications, New Delhi. - Current year.

Note: Question paper shall cover 80% Theory and 20% Problems

Course Outcomes

Upon completion of the course, the students will be able to

CO1: Understand the basic concepts of Income Tax Act

CO2: Identify the exempted incomes from all heads of incomes

CO3: Analyse the procedures for computing taxable incomes from five heads.

CO4: Determine the taxable income of different heads of income

CO5: Prepare the statement of tax liability of an individual

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	3	81/15=5.4
CO2	9	3	9	9	3	3	9	9	3	9	3	9	3	3	9	93/15=6.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	3	105/15=7
CO4	9	9	9	9	3	9	3	3	9	3	3	9	3	3	3	87/15=5.8
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	3	111/15=7.4
Weightage																**31.8/5=6.36**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COT36	BUSINESS ANALYTICS	L	T	P	C
CORE XVI			4	-	-	4

Course Objectives:

The objectives of the course are

- To enable the students to gain basic knowledge of Electronic-Commerce in the area of Business and Financing decisions
- To provide knowledge about the concepts, tools, techniques, and relevance of digital marketing in the present changing scenario.
- To familiarize the applications and tools of Industry4.0

Unit I: Electronic Commerce

Electronic Commerce: Traditional vs. Electronic Business Applications - The Anatomy of E-Commerce Applications - Classification of Electronic Commerce – Applications of Electronic Commerce Technologies- Business Models- Architectural Framework.

Unit II: Digital Marketing

Digital Marketing: Introduction, Concept, scope, and importance - Traditional marketing versus digital marketing - Challenges and opportunities for digital marketing - Digital penetration in the Indian market - Benefits to the customer; Digital marketing landscape: an overview - Ethical issues and legal challenges in digital marketing - Regulatory framework for digital marketing in India - Digital technology and customer-relationship management.

Unit III: Online Marketing

Digital Marketing Presence: Concept and role of Internet in marketing - Online marketing domains - The P.O.E.M framework - Website design and Domain name branding - Search engine optimization: stages, types of traffic, tactics - Online advertising: types, formats, requisites of a good online advertisement - Buying models - Online public relation management - Direct marketing: scope and growth. Email marketing, Facebook marketing, YouTube and Video marketing, Twitter Marketing, Instagram Marketing: types and strategies.

Unit IV: Interactive Marketing

Interactive marketing: concept and options - Social media marketing: concept and tools - Online communities and social networks - Blogging: types and role - Video marketing: tools and techniques - Mobile marketing tools - PPC marketing - Payment options.

Unit V: Application of AI in Industry 4.0

Industrial Revolution: Industrial Revolution 1.0 to 4.0- meaning- Goals and Design Principles - Technologies of Industry 4.0 - Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality.

Artificial Intelligence in Marketing: Introduction of Artificial Intelligence in Marketing How does AI Work, Benefit of AI in Marketing Automation, Content creation with AI, AI Tools available for Digital marketing

Text Books:

1. Pineet Singh Bhatia, Fundamentals of Digital Marketing", Pearson Publishers, 2019.
2. Bharat Bhasker, “Electronic Commerce: Framework, Technologies and Applications”, Tata McGraw Hill Publishing Company Limited, Noida, UP, 2016
3. C.A.Rayudu, “E-Commerce & E-Business”, Himalaya Publishing House, Mumbai, 2013
4. P. Kaliraj, T. Devi, “Higher Education for Industry 4.0 and Transformation to Education 5.0, 2020.
5. Gilchrist Alasdair, Industry 4.0, A Press Publishing Company, New york, 2016

Reference Books:

1. Deiss, R&Henneberry, R, Digital marketing for dummies. John Wiley & Sons, 2020 - 21
2. Amir Manzoor, "E-Commerce", Amir Manzoor Publisher, 2014
3. Suresh T.Viswanathan, “The Indian Cyber Law”, Bharat Law House, New Delhi, 2015
4. Ustundag Alp,” Industry 4.0: Managing The Digital Transformation”, Springer International Publishing, Newyork, 2009

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: To gain introductory and application knowledge on ecommerce

CO2: Identify and assess the impact of digital technology in transforming the business environment and also the customer journey.

CO3: Explain the way marketers think, conceptualize, test continuously to optimize their product search on digital platforms.

CO4: Demonstrate their skills in digital marketing tools such as Social media, and Blogging for engaging the digital generation.

CO5: Introduction of AI in Digital Marketing

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	3	3	9	3	9	9	9	81/15=5.4
CO2	9	3	3	3	3	3	9	3	3	9	3	9	3	9	9	81/15=5.4
CO3	9	3	9	9	3	3	9	3	9	9	3	3	9	3	3	87/15=5.8
CO4	9	9	9	9	3	9	9	3	9	3	3	9	9	9	9	111/15=7.4
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**31/5=6.2**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

SEMESTER IV

COURSE CODE	P21COE411	MANAGERIAL ECONOMICS	L	T	P	C
ELECTIVE - I			4	-	-	4

Course Objectives

The objectives of the course are

- To develop managerial perspective to economic principle as an aid for decision making under given environmental constraints.
- To understand the concepts of demand analysis and cost of production analysis
- To know the types of competition, pricing decisions and profit management
- The student will understand the concepts of managerial economics

Unit – I: Managerial Economics

Managerial Economics: Nature and Scope, In relation with other disciplines - Role and Responsibilities of Managerial Economist - Goals of Corporate Enterprises: Maximization of profit – Value of enterprises.

Unit – II: Demand Analysis

Demand analysis: Demand determinations - Demand distinctions – Types of Elasticity of demand – Demand forecasting: For industrial goods – Consumer goods – Factors determining demand forecasting – Methods of demand forecasting.

Unit – III: Cost and production analysis

Cost and production analysis: Cost concepts, Classifications and Determinants – Cost and output relationship – Short run and Long run – Cost functions – Economics scale of production – Cost control – Cost reduction - Production functions – Break-even analysis

.

Unit – IV: Price and Output analysis

Pricing and output decisions indifferent market situations: Perfect competition – Monopoly and Monopsony – Monopolistic competition – Oligopoly and Oligopsony – Pricing policies – Pricing methods – Pricing forecasting.

Unit – V: Profit management

Profit management: Nature, Measurement – Profit policies – Profit planning and forecasting - Business cycles and Business policies – Economic forecasting – Input Output analysis - National income.

Text Book:

1. R.L. Varsheny ,C.L.Maheshwari, “Managerial Economics”, Sultan Chand & Sons, New Delhi, 2002

Reference Books:

1. Cauvery, SudhaNayak and Others - Managerial Economics - S. Chand and Sons, New Delhi, 2009.
2. Dwivedi D.N. - Managerial Economics - Vikas Publishing House P. Ltd, New Delhi, 2010.
3. Gupta G.S. – Managerial Economics – Tata McGraw Hill, New Delhi, 2014.
4. Mehta P.L. – Managerial Economics – Sultan Chand and Sons, New Delhi, 2015.
5. Mithani D.M. – Managerial Economics – Himalaya Publishing House, Mumbai, 2011.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Understand the roles of managers in firms

CO2: Understand the internal and external decisions to be made by managers

CO3: Analyze the demand and supply conditions and assess the position of a company

CO4: Design competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.

CO5: Analyze real-world business problems with a systematic theoretical framework.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	3	3	75/15=5
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	9	3	99/15=6.6
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	9	9	105/15=7
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**31/5=6.2**

Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO’s and PO’s *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix*

COURSE CODE	P21COE412	BUSINESS ETHICS	L	T	P	C
ELECTIVE - I			4	-	-	4

Course Objectives:

The objectives of the course are

- Promote understanding of the importance, for business and the community, of ethical conduct;
- Provide the skills with which to recognize and resolve ethical issues in business;
- Enhance awareness and critical self-examination of one's own values, and to appreciate the relevance of personal values in the business/workplace setting; and
- Encourage reflection on the ethical dimension of your own decision-making in workplace and other settings.

Unit –I: Business Ethics

Business Ethics – Meaning and definition – Importance – Nature and factors influencing business ethics – Scope and Objectives – Characteristics of Business ethics.

Unit –II: Ethical performance

Ethical performance – Ethics and Business – Types of Ethics – Need for Business Ethics.

Unit –III: Beliefs and Values

Values – Norms – Beliefs – Moral Standards – Beliefs and their role – Moral Standards Vs Standard Morality – Ethical codes.

Unit – IV: Corporate Governance

Corporate Governance – Meaning – Importance and Features and Corporate Social Responsibility.

Unit –V: Environmental ethics

Environmental Ethics – Workplace Ethics - Ethics in Marketing and Consumer protection.

Text Book

1. Murthy, G.S.V., Business Ethics. 1st Edn. Himalaya Publishing House, Mumbai, 2016.

Reference Books

1. Badi, R.V. and Badi, N.V., Business Ethics. 2nd Edn. Vrinda Publication (P) Ltd., Delhi, 2005.

2. Gene Burton. Manab Thakur. Management today – Principles and Practice. 9th Reprint. Tata McGraw Hill Publishing Company Ltd., Delhi, 2006
3. Jain V.K. and Omprakashbiyani. Business Ethics & Communication. 2nd Revised Edn. S.Chand& Co Ltd., New Delhi, 2008.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon successful completion of the requirements for this course, students will be able to:

CO1: Re-examine their knowledge of business and economic concepts from an ethical perspective;

CO2: Explain and illustrate the importance, for business and the community, of ethical conduct;

CO3: Recognise and resolve ethical issues in business;

CO4: Reflect on and critically examine their own values and the importance of the ethical dimension in business and workplace decision making; and,

CO5: Confidently apply systematic ethical reasoning to business dilemmas and communicate effectively in oral and written forms these, using the concepts, logic and rhetorical conventions of business ethics.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	9	9	9	3	9	3	9	3	9	87/15=5.8
CO2	9	3	9	9	3	3	9	9	3	9	3	9	9	3	9	99/15=6.6
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	9	111/15=7.4
CO4	9	9	9	9	3	9	3	3	9	3	3	9	9	3	9	99/15=6.6
CO5	9	9	9	9	9	9	9	9	3	9	9	3	9	9	3	117/15=7.8
Weightage																**34.2/5=6.84**

Level of Correlation 1 – Low 3 – Medium 9 – High 0– No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COE421	BUSINESS ENVIRONMENT	L	T	P	C
ELECTIVE - II			4	-	-	4

Course Objectives

The objectives of the course are

- To take business decisions in the situations of organizations which keep changing from time to time the Managers are expected to know about that he/she guess the situation and takes the wise Managerial decisions.
- To enable students to know the concept of Business Environment.
- To enable the student to understand the importance and significance of Business Environment.
- To equip knowledge about business environment at National and International level.

Unit I: Concept of Business Environment

Theoretical Framework of Business Environment: Concept, significance and nature of business environment; Elements of environment – internal and external; Changing dimensions of business environment; Techniques of environmental scanning and monitoring.

Unit II: Economic Environment

Economic Environment of Business: Significance and elements of economic environment; Economic systems and business environment; Economic planning in India; Government policies – industrial policy, fiscal policy, monetary policy, EXIM policy; Public Sector and economic development; Development banks and their relevance to Indian business; Economic reforms, liberalisation and structural adjustment programmes.

Unit III: Political and Legal Environment

Political and Legal Environment of Business: Critical elements of political environment; Government and business; Changing dimensions of legal environment in India, Competition Act, FEMA and licensing policy.

Unit IV: Socio-Cultural Environment

Socio-Cultural Environment: Critical elements of socio-cultural environment; social institutions and systems; Social values and attitudes; Social groups; Middle class; Dualism in Indian society and problems of uneven income distribution; Emerging rural sector in India; Indian business system; Social responsibility of business; consumerism in India, Consumer Protection Act.

Unit V: International and Technological Environment

International and Technological Environment: Multinational corporations; Foreign collaborations and Indian business; Non – resident Indians and corporate sector; International economic institutions – WTO, World Bank; IMF and their importance to India; Foreign trade policies; Impact of Rupee devaluation; Technological environment in India; Policy on research and development; Patent laws; Technology transfer.

Text Books

1. Francis Cherunilam: Business Environment Himalaya Publishing House, Bombay, 2018.
2. Raj Agrawal and ParagDiwan, Business Environment: Excel Books, New Delhi, 2010

Reference Books:

1. Adhikary, M: Economic Environment of Business, Sultan Chand & Sons, Delhi, 2016.
2. Ahluwalia. I.J: Industrial Growth in India, Oxford University Press, Delhi, 2016.
3. Alagh, Yoginder K: Indian Development Planning and Policy, Vikas Publication, New Delhi, 2013
4. Aswathappa, K. Legal Environment of Business, Himalaya Publication, New Delhi, 2016.
5. Chakravarty, S: Development Planning, Oxford University Press, Delhi, 2014.
6. Ghosh, Biswanath: Economic Environment of Business, Vikas Publication New Delhi Govt of India : Survey, Various issues.
7. Ramaswamy, V.S. and NamaKumari: Strategic Planning for Corporate Success, Macmillian, New Delhi, 2009.
8. Sengupta, N.K: Government and Business in India, Vikas Publication, New Delhi, 2008.

Note: Question paper shall cover 100% Theory

Course Outcomes

Upon completion of the course, the students will be able to
CO1: Understand the concepts of business, legal, cultural and global environments.
CO2: Make use of the provisions of business legislations
CO3: Analyse the internal, external, micro and macro business environments.
CO4: Assess the business competitions
CO5: Solve and manage the business related problems.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	3	3	75/15=5
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	3	3	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	3	3	93/15=6.2
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**29.8/5=5.96**

Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COE422	ORGANIZATIONAL BEHAVIOUR	L	T	P	C
ELECTIVE - II			4	-	-	4

Course Objectives

The Course objectives are

1. To enable the students to understand an organization and its behavior.
2. To enable the students to know the needs and ways of human beings at work.
3. To enable the students to understand the importance of organizational behavior and conflict and relationship management.
4. The students will gain the knowledge to survive in the changing organizational environment.

Unit I: Organizational Behavior

Organizational Behaviour (O.B) **-** Definition – Key elements – Nature and scope – Need for studying Organizational Behaviour – Disciplines contributing to organizational behavior - Organizational behavior process - Applying O.B. knowledge to Management Practices. Hawthorne experiments – O.B. Models.

Unit II: Personality, perception and learning

Individual perspective – Foundation of individual behavior – Personality – Concept – Types- Determinants - Theories – Perception - Perceptual process - Factors affecting perception – Perception and its applications in organizational behavior – Learning – Determinants-Principles – Theories - Learning and behavior.

Unit III: Group Dynamics

Meaning and origin of group dynamics – Concept of group – Types of groups – Formal and Informal groups – Theories of group formation – Group behavior – Group decision making.

Unit IV: Conflict

Concept of conflict – Conflict process – Inter-group conflict- Intra – Individual conflict – interpersonal conflict – Organizational conflicts – Conflict management – Negotiation – Resolution techniques. Organizational culture – Types – Functions of culture – Creating and sustaining and changing a culture – Learning and measuring culture – Communicating culture.

Unit V: Organizational Change

Goal of organizational change – Nature and factors in organizational change – Approaches to organizational change – Perspectives on change – Planned changes for development – Process of planned change – Response to change – Resistance to change – Overcoming resistance to change – Role of change agents.

Text Book

1. Prasad, L.M., Organisational Behaviour. 5th Revised Edn. Sultan Chand and Sons, New Delhi, 2014.

Reference Books

1. Aswathapa, K., OrganizationalBehaviour - Text and Cases. 12thEdn. Himalaya Publishing House, New Delhi, 2008.
2. Chandran, Jit.S.,OrganisationalBehaviour. 3rdEdn.Vikas Publishing House Pvt Ltd., New Delhi, 2008.
3. GvegoryMoorheed and Ricky W. Griftin, OrganisationalBehaviour, Jai Co Publishing House, Mumbai, 2005.
4. Khanka, S.S., OrganisationalBehaviour. 4thEdn. S.Chand& Co. Ltd., New Delhi, 2004.
5. Mishra, M.N., OrganisationalBehaviour. 1stEdn.Vikas Publishing House Pvt Ltd., New Delhi, 2005.

Note: Question paper shall cover 100% Theory

Course Outcomes

On completion of this course, the students will be able to

CO1: Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization.

CO2: Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization.

CO3: Analyze the complexities associated with management of the group behavior in the organization.

CO4: Demonstrate how the organizational behavior can integrate in understanding the motivation(why) behind behavior of people in the organization.

CO5: Synthesize related information and evaluate options for the most logical and optimal solution such that they would be able to predict and control human behavior and improve results.

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	3	3	9	9	9	3	9	81/15=5.4
CO2	9	3	3	3	3	3	9	3	3	3	3	9	9	3	9	75/15=5
CO3	9	3	9	9	3	3	9	9	9	3	3	3	9	3	9	93/15=6.2
CO4	9	9	9	9	3	9	9	9	9	3	3	9	9	3	9	111/15=7.4
CO5	9	9	9	9	3	9	9	9	3	3	3	3	3	9	3	93/15=6.2
Weightage																**30.2/5=6.04**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

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COURSE CODE	P21COR41	PROJECT	L	T	P	C
CORE-XVII			22	-	-	8

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Understand and identify the real life problem which needs the solution

CO2: Make the survey for the collection of the data required for the study

CO3: Test the hypothesis by applying the appropriate statistical tools, infer the results drawn and report the suggestions

CO4: Emerge as a leader by suggesting suitable solutions to the problems

CO5: Co-ordinate and execute research related work as a member of research team and apply ICT tools for research independently.

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	9	3	3	9	3	9	9	9	9	3	9	3	93/15=6.2
CO2	9	9	9	9	3	9	9	9	3	9	3	9	3	9	9	111/15=7.4
CO3	9	9	9	9	3	9	9	3	9	9	3	3	9	9	9	111/15=7.4
CO4	9	9	9	9	9	9	9	3	9	3	3	9	3	9	3	105/15=7
CO5	9	9	9	9	9	9	9	9	3	9	9	3	3	9	9	117/15=7.8
Weightage																**35.8/5=7.16**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

RULES GOVERNING THE EVALUATION OF PROJECT REPORT AND VIVA VOCE EXAM

1. **Selection of Topic:**
    a. Each student shall select a topic for her project in consultation with her Guide and the Head of the Department.
    b. The project report should contain a minimum of 40 pages in A4 format excluding bibliography and appendices.
2. Each student should submit four copies of her project report for evaluation.
3. **Last date for the submission of Project Report:**

The project report should be submitted to the Controller of Examinations (P.G. Courses) through the Guide and the Head of the Department **on or before the last working day** for the students of the University/Collegefor the academic year. If a student fails to submit the project report on or before the last working day, she will not be eligible for getting rank.

4. The project report will be valued for 80 marks by two Examiners, of whom, one will be the Guide and the other will be an External Examiner. The project report will be valued for 40 marks by each Examiner. The sum of marks awarded by both the examiners will be considered to be the final marks. For a pass in the project report, the student should secure a minimum of 50 marks. If a student fails to secure 50 marks in the evaluation of project report, she may be permitted to resubmit her project report once again after incorporating the necessary corrections, if any, as suggested by the Examiners within a period of three months from the date of publication of the results of the Examinations.
5. A student who has secured 40 marks or above in the evaluation of project report would be permitted to appear for the *viva voce*. The *viva voce* carries a maximum of 20 marks and will be conducted jointly by the External Examiner and the Guide. The student should secure a minimum of 10 marks in the *viva voce.* The student who fails to attend the *viva voce* or fails to secure 10 marks in the *viva voce* should reappear for the same after a month but within a period of three months from the date of publication of results. In any case, no student will be permitted to appear for the *viva voce* more than twice. If a student fails during her second appearance also in *viva voce*,she has to choose a new topic for her project and resubmit the Project report within three months after the publication of the results of the second*viva voce* Examination.
6. For resubmission of the project report or reappearance in the *viva voce*, the student has to pay a fee as prescribed by the University.
7. Any other unforeseen problems / situations, not mentioned above if arise regarding the project report and *viva voce*, will be placed in the Academic Committee of the University and suitably resolved.

<table>
<tr><td>COURSE CODE</td><td>P21CON211</td><td rowspan="2">FUNDAMENTAL OF MARKETING</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">(NME)</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
</table>

Course Objectives:

The objectives of the course are to understand

- Marketing and its related concepts
- Knowing the position of customer in the merchandising of a product
- Modern marketing concepts, theories on marketing research
- The concepts of marketing management
- Learn about marketing process for different types of products and services

Unit I: Marketing

Marketing: Introduction, Definition of and fundamental principles of marketing, importance of marketing, Marketing and Selling, Marketing and Distribution, Role of marketing in the organization, Marketing in the economic development

Unit II: Marketing Mix

Marketing Mix: Marketing Mix-The Traditional 4Ps, The Modern Components of the Mix- The Additional 3Ps, Developing an Effective Marketing Mix, Marketing Planning, Marketing Implementation and Control, Marketing system, Marketing process, Marketing Functions, Modern Marketing concept: factors, benefits, Social Marketing

Unit III: Customer Relationships

Customer Relationships: Customer needs, wants & demands, Products, services & experiences, Customer value & satisfaction, Target customer, Value proposition, Customer loyalty & retention, Market share & customer equity

Unit IV: Digital Marketing and Marketing ethics

Digital marketing, Marketing Ethics, Brief Overview of B to B marketing. Market Segmentation Marketing Strategies, A More in Depth Look at Targeting and Positioning, Competitive Advantage.

Unit V: Marketing Research

Marketing Research: Meaning, Types, users of marketing research. Advantages and limitations, marketing research process

Text Book:

1. R.S.N. Pillai and Bagavathi, Modern Marketing – Principles and Practices, S.Chand& Co, 2010.

Reference Books:

1. V.S. Ramaswamy and S. Namakumari, Marketing Management: Global Perspective, Indian Context, Om Books publisher, 2009.
2. R.L. Varshney and B. Bhattacharya, International Marketing Management – An Indian perspective, Sultan Chand and Sons, 2015.

Note: Question paper shall cover 100% Theory

Course Outcomes

CO1: Demonstrate understanding of marketing terminology and concepts.

CO2: Identify wants and environmental factors that shape marketing activities for certain target markets.

CO3: Demonstrate knowledge of the individual components of a marketing mix.

CO4: Demonstrate knowledge of key business communication strategies within the marketing field.

CO5: Identify the organizational processes involved in the planning, implementation and control of marketing activities.

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	9	9	3	9	9	3	87/15=5.8
CO2	9	3	3	3	3	3	9	3	3	9	3	9	3	9	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	3	9	3	3	9	3	9	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	9	9	3	9	105/15=7
CO5	9	9	9	9	3	9	9	9	3	9	9	3	9	9	3	111/15=7.4
Weightage																**31.8/5=6.36**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21CON212	FUNDAMENTALS OF BANKING	L	T	P	C
(NME)			4	-	-	4

Course Objectives:

To enable the students to

- Know the relationship between banker and customer
- Tell the instruments used for banking transactions, need for crossing
- Be familiar with the rules on loans and advances

Unit I: Banker and Customer

Meaning and Definitions of Banker and Customer – Types of Customers – General Relationship and Special Relationship between Banker and Customer – KYC Norms

Unit II: Banking Systems

Unit Banking, Branch Banking, Investment Banking – Innovations in banking – E-banking – Online and Offshore Banking, Internet Banking – Anywhere Banking – ATMs – RTGS

Unit III: Deposits

Deposits: Rules for opening accounts - Types of Bank Accounts – Fixed Deposit Account – Savings – Current and Recurring Account – Features – Benefits -Insurance linked savings bank deposits –Non Residence Deposit Account– Senior Citizen Deposit Account – Flexi Deposit Account - Loans and Advances- principles of sound lending, secured and unsecured advances

Unit III: Cheques

Definition of negotiable instruments – Essential Features – Types – Comparison Between Cheque and Bill of Exchange, Cheque Vs draft, Banker's Cheque – Cheque – meaning – definition – essentials.

Unit IV: Crossing of Cheques

Crossing- types, who can cross, endorsement- kinds, regularity of endorsement– Holder in due Course Privileges – Holder for Value – Acceptance for Honour - Account – Reasons for Dishonour a Cheque

TextBook:

1. Sundaram and Varshney, Banking Theory, Law & Practice, Sultan Chand Company, New Delhi, 2012

Reference Books

1. S.M. Sundaram, Banking Theory, Law & Practice, Sri Meenaksi Publications, Karaikudi, 2015
2. M.Kumar and Srinivasa, Banking, New Central Book Agency, 2010
3. M.S. Ramasamy, Banking Law & Practice in India, Sultan Chand Company, New Delhi, 2010.
4. E. Gorden and N. Natarajan, Banking Theory, Law & Practice, Himalaya Publication, 2020.
5. B.Santhanam, Banking Theory, Law &Practice, Margham Publications, Chennai, 2014

Note: Question paper shall cover 100% Theory

Course Outcomes:

C01 -Evaluate the performance of the banking industry.

C02 -Discuss bank lending policies and procedures.

C03 -To elucidate the broad functions of banks

C04 - To grasp the conduct of monetary policy and its effect on the interest rate, credit availability, prices, and the inflation rate

C05- To express opinions about banking in written and oral form, based on the basic knowledge and skills acquired

Mapping Outcomes- COs, POs and PSOs

	PO							**PSO**								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	3	3	3	3	9	9	9	9	3	9	9	3	87/15=5.8
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	3	9	3	9	3	9	9	3	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	9	3	9	3	9	9	111/15=7.4
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**31.8/5=6.36**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO’s and PO’s*(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

COURSE CODE	P21COV11	EXCEL SKILLS FOR COMMERCE	L	T	P	C
VAP-I				-	30	2

Course Objectives:

After completing this Course, the student will

- Be able to enhance their MS Excel skills through exercise and gaining hands-on experience in various techniques & Tools
- Learn financial modeling and the best utilization of Statistical tools in the areas of research and analysis
- Gain Excel Proficiency like Calculations, Functions, Formulas, Optimization and Statistical Tools and Excel Best Practices in Financial Modeling

Course Description:

Microsoft Excel is a spreadsheet application which the students can use to store, manipulate and present data. This course is taught through a mixture of demonstration and hands-on practice. This course is for experienced Microsoft Excel users and assumes the students already have a good working knowledge of Excel. Also it provides working of Excel for doing financial analysis and building financial models. It will help them to assist in their daily reporting and analysis functions in their job. The students of this course will gear up for campus placements and jobs.

Course Requirements

- Having basic knowledge of operating computer
- Having knowledge on finance formulas

Course Content

- Financial Functions and Applications Related to Excel
- Present and Future Values (PMT,PV, FV, RATE)
- Rate of Return (IRR, MIRR, XIRR)
- Net Present Value(NPV, XNPV)
- Depreciation of Asset
- Payment of a Loan (EMI)
- Coupons
- Price of Security
- Treasury Bills
- Cash Flow Identities (Cash flow Analysis from Financial Statements)
- Univariate Analysis
- Difference of Means and ANOVA
- Correlation and Regression (Multiple Regression - finding out parameters)

- FIND, SEARCH, REPLACE, SUBSTITUTE, CHAR, EXACT
- Introduction to array / CSE formulae
- How to enter an array formulae
- Basic array formulae – INDIRECT and TRANSPOSE

Learning Outcomes

After studying this course, students should be able to:

- Know the basics of Excel 2016
- Work with Cells and Sheets
- Know and use the Formulas and Functions
- Work with finance Data

COURSE CODE	P21COI21	INTERNSHIP TRAINING (For those admitted in June 2021 and later)	L	T	P	C
INT-I			-	-	30	2

Course Outcomes

Upon the completion of the course, the students will be able to

CO1: Extend knowledge in the field of commerce and business

CO2: Experiment practically with the operations of the business

CO3: Examine the policies, procedures and practices of the business

CO4: Adapt to the environment of the business / services and work together to achieve the common goal

CO5: Develop skills of team work, co-operation and knowledge of ICT on business through self-packed strategies.

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
CO1	9	3	3	9	3	3	9	9	9	3	9	3	9	3	3	87/15=5.8
CO2	9	9	9	9	3	9	9	9	9	9	3	9	9	9	9	123/15=8.2
CO3	9	9	9	9	3	9	9	9	9	9	3	3	9	3	3	105/15=7
CO4	9	9	9	9	9	9	9	3	9	3	3	9	3	9	9	111/15=7.4
CO5	9	9	9	9	9	9	9	9	3	9	9	3	9	9	3	117/15=7.8
Weightage																**36.2/5=7.24**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

Rules governing Internship Training

1. Each student should undergo 15 days practical training during the Second semester vacation. If a student fails to undergo the training programme on medical grounds / due to lack of attendance during the stipulated period, she should undergo the same during the third semester summer vacation, after getting prior permission from the Head of the Department. In such cases, the training report should be submitted within a month after the completion of the 'Internship Training' programme.

2. The students shall undergo the above mentioned ‘Internship Training’ in such of the Institutions approved by the Department. The list of institutions meant for ‘Internship Training’ will be prepared by the faculty covering entities such as Research Institutes, Organizations, Banks, Insurance Companies, Co-operative Organisations, Limited Companies, Commercial Outlets and such other organizations found to be worth for imparting training.

3. Each student has to submit TWO copies of the Internship Training report in not less than 20 typewritten pages in A4 format within a month of reopening of the college/University in the third semester, for the training undergone during the Second semester vacation. The training report should not have been submitted elsewhere for any other certificate, diploma or degree course.

4. In case of failure to submit the report within the above stipulated period, the date of submission shall be extended by another 15 days with a fine as prescribed by the /Head of the Department of the University/Principal.
5. If any student fails to submit the report within the stipulated time / within the extension period of 15 days (or) fails in the Internship Training she has to resubmit the report one week prior to the commencement of the ensuing even semester examinations after the completion of the course.

6. The training report will be valued for a maximum of 100 marks of which 40 marks will be awarded by the Internal Examiner or Guide and remaining 60 Marks will be awarded by the entity which host the student for the Internship Training and the student should secure a minimum of 50% marks put together to get a pass.

7. If any student indulges in malpractice while attending the training programme or fails to secure a minimum pass mark she has to undergo ‘Inservice Training’ programme once again for a period of 20 days at the end of the third semester and resubmit the training report within a period of one month after the completion of the training programme.

COURSE CODE	P21COV42	DATA ANALYSIS USING SPSS: INFERENTIAL ANALYSIS	L	T	P	C
VAP- II			-	-	30	2

Course Objectives:

In this course, student will

- gain proficiency in how to analyze a number of statistical procedures in SPSS
- learn how to interpret the output of a number of different statistical tests
- Learn how to write the results of statistical analyses

Mapping Outcomes- COs, POs and PSOs

	PO							PSO								Mean Score of COs
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	
CO1	9	3	3	3	3	3	3	9	9	3	9	3	9	3	3	75/15=5
CO2	9	3	3	3	3	3	9	9	3	9	3	9	3	3	9	81/15=5.4
CO3	9	3	9	9	3	3	9	9	9	9	3	3	9	3	3	93/15=6.2
CO4	9	9	9	9	3	9	9	3	9	3	3	9	3	3	3	93/15=6.2
CO5	9	9	9	9	3	9	9	9	3	9	9	3	3	9	3	105/15=7
Weightage																**29.8/5=5.96**

- Level of Correlation 1 – Low 3 – Medium 9 – High 0 – No Correlation between CO's and PO's *(Suggested by UGC as per Six Sigma Tool – Cause and Effect Matrix)*

Course Description:

This course provides an application-oriented introduction to the statistical component of IBM SPSS Statistics. Students will review several statistical techniques and discuss situations in which they would use each technique, how to set up the analysis, as well as how to interpret the results. This includes a broad range of techniques for exploring and summarizing data, as well as investigating and testing relationships. Students will gain an understanding of when and why to use these various techniques as well as how to apply them with confidence, interpret their output, and graphically display the results.

This introductory course is for Final Year students who do project and perform statistical analysis using SPSS software. The focus is to give widen understanding of basic concepts of statistics used in social science research and to develop competency in proper selection of statistical techniques while analyzing the data in social sciences research. The course will also develop competency in the use of SPSS for data analysis and develop skills in proper interpretation of the output of SPSS Software.

The course will cover t tests, ANOVA, correlations and linear regression, Factor analysis

Course Requirements

- Familiarity with basic concepts in statistics, such as measurement levels, mean, and standard deviation.
- Familiarity with the windows in IBM SPSS Statistics either by experience with SPSS Statistics (version 18 or later) or completion of the SPSS Statistics Essentials (V25) course

Course Content

- ❖ Data input and output
- ❖ Percentage Analysis
- ❖ One sample t test
- ❖ Independent sample t Test
- ❖ Dependent sample t test
- ❖ ANOVA
- ❖ Correlation and Regression
- ❖ Chi square
- ❖ Factor analysis

Learning Outcomes

After studying this course, students should be able to:

- ❖ understand how to start SPSS
- ❖ enter basic data into SPSS
- ❖ Introduction to statistical analysis
- ❖ Examine individual variables
- ❖ Test hypotheses about individual variables
- ❖ Test the relationship between categorical variables
- ❖ Test on the difference between two group means
- ❖ Test on differences between more than two group means
- ❖ Test the relationship between scale variables
- ❖ Predict a scale variable: Regression
- ❖ Introduction to Bayesian statistics
- ❖ Overview of multivariate procedures

Evaluation Pattern **10X10=100**

1. Creating a data file in the Data Editor
2. Running the Frequencies Procedure in the Data Editor
3. Creating New Variables, Transforming Variables & Adding Verbal Labels
4. Examining the relationship between Gender & dependent - Crosstabs

5. Correlations among variables
6. Using the t-test to Examine Gender Differences
7. Using Paired-Sample t-test
8. Using One-Way ANOVA:
9. Using Two-Way ANOVA
10. Using Two-Way Mixed-Model ANOVA

Department of Physics

DEPARTMENT OF PHYSICS

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M.Sc. PHYSICS

Programme outcomes (POs):

1. To acquire knowledge about the nature, concepts, methods, techniques and objectives in the core subjects
2. To cultivate scientific approach and culture of research aptitude.
3. To enhance the problem-solving skills of the students so that they will be able to tackle the national level competitive exams like NET, GATE and SET etc
4. To understand the links of Physics to other disciplines and also to the societal issues.
5. To train the students to develop their skill development, employability and entrepreneurship skills

Program specific outcomes:

1. To make the students in mastering in the field of materials science and astrophysics and prepare them for research
2. Understand and apply inter disciplinary concepts of Physics for understanding and describing the natural phenomenon
3. Provide basic foundations with a sound knowledge of underlying principles along with recent developments
4. Enable students to work with state-of-the art technologies
5. Ability to plan and execute their own innovative ideas in the form of projects, product design and development.
6. Know about the importance of research methodology in science by acquiring knowledge in the form of project, summer internship and field visit/industrial visit.

M.Sc Physics

PPHT11 MATHEMATICAL PHYSICS – I

Credit: 4 Hours/week: 4

OBJECTIVES:

- To develop knowledge in mathematical physics and its applications.
- To develop expertise in mathematical techniques required in physics.
- To enhance problem solving skills.
- To enable students to formulate, interpret and draw inferences from mathematical solutions.

Course Outcomes (CO):

CO1: Expose to solve vector analysis and vector space K2
CO2: Acquire sound knowledge on matrices and tensors K4
CO3: Evaluate complex variables K3
CO4: Grasp problem solving skills in group theory K4
CO5: Understand the physics concepts using mathematics K2

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	3	3	3	3	2	3	1	3
CO2	3	2	2	3	3	3	3	3	3	2	2
CO3	3	1	2	3	3	3	3	2	3	1	3
CO4	3	3	3	3	3	3	3	3	3	2	2
CO5	3	3	3	3	3	3	3	3	3	2	2

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT12 **CLASSICAL MECHANICS**
Credit: 4 Hours/week: 4

OBJECTIVES:

- To solve the equation of motion using Lagrangian, Hamiltonand Hamilton-Jacobi equations.
- To study the kinematics of the rigid body through Euler equation.
- To get knowledge in central force field and relativity.

Course Outcomes (CO):

CO1: Learn about the dynamics of system of particles using Hamiltonian, Lagrangian and Jacobi K1
CO2: Understand the planetary motion using Kepler's law K2
CO3: Get great exposure about kinematics of rigid motion K4
CO4: Solve small oscillations using Legendre transformations and Hamiltonian K3
CO5: Solve harmonic oscillator problem using canonical transformation and Hamiltonian Jacobi K5

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3	3	3	3	3	3

CO2	3	3	1	3	3	3	3	3	3	1	2
CO3	3	3	1	3	3	3	3	3	3	2	3
CO4	3	3	2	3	3	3	3	3	3	2	1
CO5	3	3	1	3	3	3	3	3	3	2	1

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT13 **ELECTRONICS**
Credit: 4 Hours/week: 4

Course Outcomes (CO):
CO1: To acquire basic knowledge of semiconductor diodes K1
CO2: Imbibe deep insight in fabrication and operation of optoelectronic K3
CO3: Understand the concept of OPAMP applications K2
CO4: Able to carry out experiments based on applications of OPAMP: K3
CO5: Know about theory and operation of Semiconductor memories: K2

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3	3	3	3	2	2
CO2	3	3	3	3	3	3	3	3	3	2	2
CO3	3	3	2	3	2	3	3	3	3	2	2
CO4	3	3	1	3	3	3	3	3	3	2	2
CO5	2	3	3	3	2	3	2	3	2	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT14 LASER PHYSICS AND NON-LINEAR OPTICS
Credit: 4 Hours/week: 4

OBJECTIVES:

- To comprise the basis for many important technologies and research tools.
- To know the basic principles of nonlinear optics
- To develops the underlying concepts from the perspectives of classical

COURSE OUTCOMES (CO)

CO1 : Know about laser fundamentals [K2]
CO2 : Understand the laser operation [K3]
CO3 : Infer the knowledge about laser characteristics. [K4]
CO4 : Develop a skill in laser focusing [K5]
CO5 : Understand non-linear optics [K5]
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	3	3	2	3	3	3
CO2	3	2	2	3	3	2	3	2	3	2	3
CO3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	2	3	3	3	2
CO5	3	2	3	3	3	3	3	2	3	2	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHP11 **ELECTRONICS PRACTICAL** I

Credit: 4 Hours/week: 4

Objectives:

This paper aims at providing an in- depth knowledge of the operational amplifier. The students will also get the opportunity to practically work out during the lab sessions.

Course Outcomes (CO):

On successful completion of this practical course the students will able to construct and understand the working principle of Po-Amp based circuits and circuits construct using different ICs.

PPHE11 ASTROPHYSICS

Credit: 4 Hours/week: 4

Objectives:

- Renewal of the concepts of coordinate system and stellar spectra and clear understanding of astronomical instruments, cosmology and concepts of stellar evolution

Course Outcomes (CO):
CO1: Grasp basic knowledge about celestial mechanics [K1]
CO2: Understand the usage of various astronomical instruments [K2]
CO3: Know the physical processes involved in solar systems [K3]
CO4: Gain deep insight on cosmology and Cosmic radiation[K3]
CO5: Acquire the fundamental concepts of Stellar Evolution, White dwarfs, Neutron Stars and Black Holes[K2]
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHE11 **NUMERICAL METHODS**
Credit: 4 Hours/week: 4

OBJECTIVES:

- To understand the numerical techniques to solve the physical problems.
- To understand various methods used to solve the physical problems.

COURSE OUTCOMES:
CO1: Estimating the data through interpolation method [K5]
CO2: Understand numerical differentiation and integration [K2]
CO3: Apply numerical methods of integration and differentiation to mathematical problems [K3]
CO4: Analyze ordinary differential equation and find numerical solution [K4]
CO5: Understanding numerical methods and their application [K3]
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	3	3	3	3	3	3	3	3	3	3

CO2	3	3	3	3	3	3	3	3	2	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	2	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHE11 MODERN OPTICS AND IMAGING

Credit: 4 Hours/week: 4

Course Outcomes (CO):

CO1: Learn the fundamentals of wave nature and Light PropagationsK1
CO2: Clear knowledge about Optical Engineering and Fourier Optics K2
CO3: Gain knowledge about the Nonlinear Optics K2
CO4: Learn the fundamentals of Holography K3
CO5: Get the Knowledge about different microscopy and image techniques K2

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	2	3	2	3	2	S
CO3	3	3	3	3	2	2	2	3	3	3	2
CO4	3	3	3	3	3	3	3	2	3	1	2
CO5	3	3	2	3	2	2	3	2	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT21 **MATHEMATICAL PHYSICS – II**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To develop knowledge in mathematical physics and its applications.
- To develop expertise in mathematical techniques required in physics.
- To enhance problem solving skills.

- To enable students to formulate, interpret and draw inferences from mathematical solutions.

Course Outcomes (CO):
CO1: Understand about differential equation K2
CO2: Solve physics problem using partial differential equations K3
CO3: Knowledge with special functions such as Gamma and Beta function, Legendre's differential equation and Bessel's differential equation K4
CO4: Evaluate physical problem using Laguerre and Hermite polynomials K4
CO5: Identify right transforms to solve problem in Physics. K5

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**
CO1	3	3	1	3	3	3	3	2	3	3	3
CO2	3	3	2	3	3	3	3	2	3	3	3
CO3	3	3	3	3	3	2	3	2	3	3	2
CO4	3	3	3	3	3	3	3	2	3	3	3
CO5	3	3	2	3	3	3	3	2	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT22 **QUANTUM MECHANICS – I**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To understand the basic concepts of wave mechanics.
- To apply the postulates of Quantum mechanics to simple systems.
- To study the stationary state and eigen spectrum of systems using time dependent
- Schrodinger equation.
- To solve the exactly soluble eigen value problems.
- To know the matrix formulation of quantum theory and how it can be used to understand the equation of motion.
- To understand the theory of identical particles and Angular momentum.

COURSE OUTCOME:
CO1: Gain the knowledge about the fundamentals of wave mechanics [K1]

CO2: Apply wave mechanics in three dimensions [K3]
CO3: Understand quantization of angular momentum[K2]
CO4: Evaluate the addition of two spin angular momenta [K5}
CO5: Understand scattering theory and the approximation methods employed in solving quantum mechanical problems [K3]

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3	2	3	3	2	3
CO2	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	2	3
CO4	2	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT23 **THERMODYNAMICSAND STATISTICAL MECHANICS**
Credit: 4 Hours/week: 4

OBJECTIVES:

- To provide a phenomenological introduction to thermodynamics through thermodynamics postulates, quantities and relations.
- Studying the micro and macroscopic properties of the mater through the statistical probability laws and distribution of particles.
- Understanding the classical and quantum distribution laws and their relations.
- Studying transport properties, different phases of maters, equilibrium and non-equilibrium process.

Course Outcomes (CO):

CO1: Learn basic concept of ensembles K2
CO2: Explore the different theories and functions related to properties of gases K3
CO3: To distinguish between Bose –Einstein and Fermi- Dirac statistics K4
CO4: Exposure about kinetic theory of gases K2
CO5: Get knowledge about the different fluctuations and noise problems in thermodynamics K2

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	2	3	3	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	2	3	2
CO4	3	2	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT24 **CONDENSED MATTER PHYSICS – I**
Credit: 4 Hours/week: 4

OBJECTIVES:

- To study about structure, composition, physical properties of crystalline materials.

Course Outcomes

On completion of this course, the learners are able to
CO1: understand about crystal structure and crystal binding [K1, K2]
CO2: calculate structure parameters of crystal and analyze reciprocal lattice of crystal [K2, K4]
CO3: analyze the defects in crystals [K4]
CO4: Understand the thermal parameters of crystal [K1, K2]
CO5: Calculate Hall coefficient and band gap for given Semiconductor. [K5]
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	2	2
CO3	3	3	3	2	3	3	3	2	3	3	3
CO4	3	2	3	3	3	3	3	3	3	2	2
CO5	3	3	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHP22 **GENERAL PRACTICAL II**

Credit: 4 Hours/week: 4

Objectives: The course aims at exposing the students to the intricacies of handling general equipment's and analysis of results. This laboratory session also aims the students to analysis the data given by Indian Institute of Astrophysics, Kodaikanal.

Course Outcomes:

On successful completion of this course the students will

- Understand the concept and get hands on training on instruments
- Give acquaintance to measure and determine various physics constant using various physics instruments
- Apply different physics concept to analyze the data
- Analysis the data obtain from Indian Institute of Astrophysics, Kodaikanal and get information about different astronomical objects

PPHT31 **ELECTROMAGNETIC THEORY**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To develop theoretical knowledge in electromagnetism.
- To develop skills on solving analytical problems in electromagnetism.
- To give basics of defining the complete electromagnetic response of complex systems.

Course Outcomes (CO):

CO1: Learn the fundamentals of electrostatics K1
CO2: Acquire the knowledge about magnetostatics K2
CO3: Gain knowledge about the Maxwell equation K2
CO4: Apply Maxwell equation and its application to wave propogation K3
CO5: Learn about electric dipoles and its theory K2

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	**PSO6**

CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	2	3	2	3
CO3	3	2	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	1	2
CO5	3	3	2	3	3	3	3	2	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

Dr.M. Umadevi
Head of the Department

Dr.K. Prabha
Course Designed by

PPHT32 **QUANTUM MECHANICS – II**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To study the effect of magnetic and electric field on quantum particles.
- To learn about the approximation methods for time independent and time dependent perturbation theory.
- To understand the kinematics of scattering process and partial wave analysis.
- To study the theory of relativistic quantum mechanics and field quantization.
- To study the quantum theory of atomic and molecular structures.

COURSE OUTCOMES:

CO1: Able to demonstrate the advanced knowledge in quantum mechanics [K1]
CO2: Understand the effect of magnetic and electric field on quantum particles. [K1]
CO3: Analyze Approximation methods for time independent problems and fortime dependent perturbation theory[K4]
CO4: Apply fundamental quantum mechanical methods such as variation method, WKB approximation to quantum particles[K3]
CO5: Discuss and analyze the theory of relativistic quantum mechanics [K4]

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	2	3	3	3	3
CO2	3	3	3	3	3	2	3	3	3	3	3
CO3	3	2	3	3	3	2	3	3	3	2	3

CO4	2	3	2	3	3	3	3	3	2	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT33 **CONDENSED MATTER PHYSICS – II**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To develop analytical thinking to understand the phenomenon that decide various properties of solids thereby equip students to pursue higher learning confidently.

Course Outcomes (CO)

On completion of this course, the learners are able to

CO1: understand about dipole moment, polarization, dielectric breakdown, dielectric loss, frequency and temperature effects on Polarization [K1]
CO2: Knowledge about ferroelectrics and piezoelectrics materials [K2]
CO3: analyze the different types of magnetic materials [K3]
CO4: evaluate different types of superconductors [K1]
CO5: understand about physics behind different nanosolids. [K6]

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	2	3
CO4	3	3	2	3	2	3	2	3	3	3	2
CO5	3	3	3	3	3	3	3	2	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT34 **NUCLEAR PHYSICS AND PARTICLE PHYSICS**

Credit: 4 Hours/week: 4

Objectives:

This paper aims to explore the understanding of nuclear models and various physical properties of nucleus.

1. Know about the properties of nuclei
2. Study the nuclear models
3. Understand the elementary particles
4. Thorough knowledge on nuclear reactions

Course Outcomes (CO):

CO1: Learn about nuclear forces K1

CO2: Acquire knowledge about different nuclear models K2

CO3: Understand what happen when charged particles and radiation passed through matter by various experimental procedure K2

CO4: Gain knowledge about Q-value and theories of nuclear reactions K4

CO5: Learn about different classification and properties of elementary particles.K4

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	3	3	2	3	3	3
CO2	3	2	2	3	3	2	3	2	3	2	2
CO3	3	3	2	3	3	3	3	3	3	3	2
CO4	3	3	3	3	2	3	2	3	3	3	3
CO5	3	2	3	3	3	3	3	2	3	2	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHP33 **PRACTICAL III**

Credit: 4 Hours/week: 4

Objectives:

The course aims at exposing the students to solve different numerical equation by C programming.

Course Outcomes (CO):

Upon successful completion of this course the students will able to write C program for different mathematical problems.

PPHE33 **INSTRUMENTAL METHODS OF ANALYSIS**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To study different analytical techniques to characterize the samples.

Course Outcomes

On completion of this course, the learners are able to

CO1: understand about error analysis technique in instrument [K1]
CO2: analyze different thermal parameters of the sample [K2]
CO3: analyze structural parameters and composition of the sample[K3]
CO4: analyze surface morphology and composition of the materials [K1]
CO5: analyze the electronic properties of the sample [K6]

K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	2	2	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHE33 **PHYSICS OF NON-CONVENTIONAL ENERGY RESOURCES**

Credit: 4 Hours/week: 4

OBJECTIVES:

- To develop the human recourse in non-conventional energy resources which is the need of the hour at present
- To create the people who will teach the science of non-conventional Energy resources, this will be also helpful for the promotion of Research in this field.
- To create several self-employment opportunities in renewable energy and energy

efficiency sectors for modestly-trained and self-trained human resources exist in all geographic locations of the country.
- It will help to develop the skills required in renewable energy and energy management fields.

Course Outcomes (CO):
CO1: Importance of nonconventional energy will be registered (K2)
CO2: various fields of nonconventional energy like solar, wind power and biomass introduced in detail (K3)
CO3: Gain important insight in the materials used to fabricate solar panels (k2)
CO4: Carry out productive research in these fields to serve mankind (K4)
CO5: Help in creating innovative devices using these principles (K5)
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

OUTCOME MAPPING

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	3	3	3	3	2	2	2	3
CO2	3	3	2	3	3	3	3	2	2	2	3
CO3	3	3	2	3	3	2	3	3	3	3	3
CO4	3	3	3	3	3	2	3	3	3	3	3
CO5	2	3	3	3	3	2	2	3	3	3	2

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHE33 **PHYSICS OF NANOMATERIALS**
Credit: 4 Hours/week: 4

OBJECTIVES:

Nano Sciences, the emerging area of science brings together physics, chemistry and biology to create a scientific discipline of almost infinite potential. Physics of nano materials is concerned with the study, creation, manipulation and applications of materials at nanometer scale.

Course Outcomes (CO):
CO1: Introducing the history and evolution of nanotechnology (K2)
CO2: Important features and unique properties of nanomaterials learnt along with emphasis on significant nanomaterials (K2)
CO3: Learn various synthesis techniques to prepare nanostructures for hi tech research applications
CO4: Expertise gained in handling characterization tools to analyze nanomaterials (K3)
CO5: Fabrication of novel nanomaterials for interdisciplinary applications (K3)
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

OUTCOME MAPPING

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	2	2	3	3	3	2	2	2	2
CO2	3	3	2	3	3	3	3	2	2	2	2
CO3	3	3	2	3	3	3	3	3	3	3	2
CO4	3	3	3	3	3	2	3	3	3	3	3
CO5	2	3	3	3	3	2	2	3	3	3	3

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHT41 SPECTROSCOPY

Credit: 4 Hours/week: 4

OBJECTIVES:
To give advanced knowledge about the interactions of EM radiation with matter and their applications in spectroscopy like IR, RAMAN, NMR, ESR, NQR and Mossbauer spectroscopy.

Course Outcomes (CO):

CO1: Understand about principle and concept of different spectroscopic techniques K2
CO2: Understand deeply about different instrumentation and working procedure of spectroscopic technique. K2
CO3: Identity the spectroscopic techniques to analyze different mechanism and properties of the Materials K3
CO4: Identify and analyze which spectroscopic tool is used for their research work K3
CO5: Can seek employability in industries K4
K1- Remember K2- Understand K3- Apply K4- Analyze K5-Evaluate

Outcome Mapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	3	3	2	3	3	3

CO2	3	2	2	3	3	2	3	2	3	2	3
CO3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	2	3	3	3	2
CO5	3	2	3	3	3	3	3	2	3	2	2

Strongly correlating (S) : 3 Marks
Moderately correlating (M): 2 Marks
Weekly correlating (W) : 1 Marks
No correlation (N) : 0 Marks

PPHP44 **PROJECT and VIVA-VOCE**

Credit: 8 Hours: 26

Each Candidate will submit a project report on a topic in Physics/ Material Science/ Astrophysics after carrying out the project work under the supervision of a guide. The project may be theoretical or experimental or even a compilation of literature on a current topic. The duration of the project will be roughly two months (including the vacation of one month) in the final semester.

The project report will be evaluated by an external examiner and viva voce will be conducted by a committee consisting of the external examiner, guide and the department faculty.

VALUE ADDED COURSES

Thermogravimetric Analysis (TGA)/ Differential Thermal Analysis (DTA) and Differential Scanning Calorimetry (DSC)

Credit: 2 Hours: 30

Objectives

- To understand how an TG/DSC/DTA instrument helps to analyse physical properties of material.

Infrared Spectroscopy, Fundamentals and Instrumentation

Credit: 2 Hours: 30

Objectives

- To understand how an infrared spectrum is obtained from a Fourier transform instrument.
- To recognize the different methods of sample preparation and sample handling techniques which are used for preparing samples in infrared spectroscopy.
- To understand the origins of reflectance techniques.
- To understand the origins of infrared microsampling techniques.

UV-VIS and Photoluminescence Spectroscopy

Credit: 2 Hours: 30

Objectives:

To understand the principle of ultra violet-visible and photoluminescence spectroscopy.

To explain the complete instrumentation and transitions of UV.

To recognize the absorption of compounds.

To give detailed explanation about photoluminescence, it’s intensity and polarization.

To know the application of UV and PL.

X-ray Diffractometer- Instrumentation and Analysis

Credit: 2 Hours: 30

Objective:

- To study X-ray diffractometer and how to determine structural properties of the samples.

NON-MAJOR ELECTIVE COURSES

ELEMENTS OF NANOSCIENCE AND NANOTECHNOLOGY

Credit: 4 Hours/week: 4

OBJECTIVES:

- To provide the basic Knowledge about basics nanoscience and technology
- To acquire the knowledge about synthesis methods and characterization techniques and its applications

HAM RADIO

Credit: 4 Hours/week: 4

OBJECTIVES:

- To provide the elementary knowledge about alternating current and thermonic values
- To acquire the knowledge about radio transmitter, receiver and aerials

SUPPORTIVE COURSES

How to Write Scientific Thesis

Credit: 2 Hours/week: 2

Objectives:

The main goal of this course is to equip PG, M.Phil and PhD students with a robust and structured method to conceive, plan, write, submit, revise, and publish scientific articles and their PhD thesis.

Data Analysis by Origin software

Credit: 2 Hours/week: 2

Objectives:

1.To develop deep understanding of the basics of Data analysis using Origin software.

2.To enhance practical skills to analyse data using Origin software.

MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL

DEPARTMENT OF PHYSICS

B.Sc. PHYSICS

SYLLABUS TO BE IMPLEMENTED FROM THE ACADEMIC YEAR 2021-2022

(CHOICE BASED CREDIT SYSTEM)

SEMESTER-I

COURSE CODE	U21PHT11	PROPERTIESOFMATTER ANDSOUND	L	T	P	C
CORE -I			5	-	-	4

Objective:
To exposestudents tothefundamentalpropertiesofmatterand sound.

1.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Evaluatemodulusofdifferentmaterials	K3
CO2	Acquireknowledgeon propertiesofliquids	K2
CO3	Understandthe physicsof soundand its applications	K2
CO4	Learn about differentmethods of producingUltrasonicwaves and its applications	K1
CO5	Applythetheoriesinbuildingacoustics	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	3	3	2
CO2	3	3	3	3	2	2	3	3	3	3	2
CO3	3	3	3	3	2	2	3	3	3	3	2
CO4	3	3	3	3	2	2	3	3	3	3	2
CO5	3	3	3	3	2	2	3	3	3	3	2

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHP11	PRACTICAL-I	L	T	P	C
CORE -II			-	-	6	4

Objective:
Itisaimedatexposingtheundergraduatestudentsofthephysicsdepartmenttothetechniquesof handlingequipment‘s, makingerror freemeasurements and error analysis.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	AbletoEstimateErrors	K3
CO2	Calculatethechange indimension of bar	K4
CO3	Determinefocallength ofdifferentlenses	K4
CO4	Determine co-efficient ofviscosityof liquids	K3
CO5	Compareand measurethepotentialdifference ofEMF	K4

K1-RememberK2- UnderstandK3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

SEMESTER-II

COURSE CODE	U21PHT21	MECHANICS	L	T	P	C
CORE -III			5	-	-	4

Objective:

Togivethestudentsfundamentalideasonconservationlaws,rotationalandvibrationalmotion ofrigid bodies,gravitationalfields and someideaabout fluid mechanics

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Learnabout lawsinvolved inmechanics	K1
CO2	Understandtheforcesimposedonadynamicrigidbody	K2
CO3	Determinegravitationalfieldandpotentialvalue	K3
CO4	Applyconservationlawsincollisionexperiments.	K3
CO5	Understandthe conceptsofstaticandhydrodynamics	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	3	3	2
CO2	3	3	3	3	2	2	3	3	3	3	2
CO3	3	3	3	3	2	2	3	3	3	3	2
CO4	3	3	3	3	2	2	3	3	3	3	2
CO5	3	3	3	3	2	2	3	3	3	3	2

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT22	HEATANDTHERMODYNAMICS	L	T	P	C
CORE -IV			5	-	-	4

Objective:
To understand the phenomena connected with various units of measurement of temperature,knowing the concept of specific heat capacities of matter, transmission of heat, concept of floweringthe temperature, liquefying gases and process of making heat to do mechanicalwork.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Understand the basics of thermodynamics and their applications	K2
CO2	Learn the basics of low temperature and how to construct a successful experiment using low temperature.	K2
CO3	Learn experimental Methods To Determine The transmission of heat.	K2
CO4	Understand the kinetic theory of gas	K2
CO5	Analyze the laws of thermodynamics and maxwell's Thermodynamical relations	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

SEMESTER-III

COURSE CODE	U21PHT31	OPTICSANDSPECTROSCOPY	L	T	P	C
CORE -V			5	-	-	4

Objective:
To understand the basics of Spectroscopy, interference, Michelson‘s Interferometer andphenomenon like interference, diffraction, polarization through wave nature of light and itsapplicationsand to gainknowledgeinspectroscopy.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Learnaboutvarious lens andits aberrations	K1
CO2	Acquireknowledgeabout interferenceand interferometers	K2
CO3	Understandabout thediffractionphenomenonandresolving powerinopticalinstruments	K3
CO4	Studyabout polarization	K2
CO5	Applydifferentspectroscopictechniquetoobtain informationaboutthemolecule	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE311	CHOICE I	L	T	P	C
ELECTIVE-I		ENERGYPHYSICS	4	-	-	3

Objective:
Toprovideanunderstandingofthepresentenergycrisisandvariousavailableenergysources.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Know about conventional and non-conventional sourcesofenergy	K1
CO2	Understandaboutsolarenergyandits appliances	K3
CO3	KnowaboutPhotovoltaicSystemsandPointoutthe typesofsolarcellsanditsapplications	K2
CO4	UnderstandaboutBiomass	K2
CO5	Examine thedifferent windenergysources	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	3	3	3	2	3	3	3
CO2	3	2	2	3	3	3	3	2	3	3	3
CO3	3	2	2	3	3	3	3	2	3	3	3
CO4	3	2	2	3	3	3	3	2	3	3	3
CO5	3	2	2	3	3	3	3	2	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE312	CHOICE II	L	T	P	C
ELECTIVE-I		WAVES AND OSCILLATIONS	4	-	-	3

Objectives:

To impart knowledge about waves and oscillations and sound. To make themunderstandtheprinciplesand methods of findingthe properties.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	UnderstandtheconceptofSHM	K2
CO2	Analyzethedifferent typesofvibration	K4
CO3	Acquirethe knowledgeof wave motion	K3
CO4	Know theproperties ofsound	K3
CO5	Applytheknowledgetoultrasonic waves	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	1	1	3	3	3	2	2
CO2	3	3	3	3	1	1	3	3	3	2	2
CO3	3	3	3	3	1	1	3	3	3	2	2
CO4	3	3	3	3	1	1	3	3	3	2	2
CO5	3	3	3	3	1	1	3	3	3	2	2

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weaklycorrelating(W)	1
No correlating (N)	0

SEMESTER- IV

COURSE CODE	U21PHT41	ELECTRICITY ANDELECTROMAGNETISM	L	T	P	C
CORE - VI			4	-	-	4

Objectives:

- ToprovidecomprehensiveknowledgeandunderstandingofthebasicsofElectricityandMagnetism.
- To exposethe studentsto theapplications ofElectricityandMagnetism.

CourseOutcomes (CO):

CO	Learningoutcome	Remarks
CO1	Studyabout magnetic field producedinelectriccircuits	K1
CO2	Learnaboutcapacitor anditstype	K1
CO3	Acquireknowledgeabout electromagnetic induction	K2
CO4	Analysesandsolveselectricalcircuitswithdcandacsource	K4
CO5	Gainknowledge aboutMaxwell Equation	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHP42	PRACTICAL-II	L	T	P	C
CORE - VII			-	-	4	4

Objective:
It is aimed at exposing the under graduate students to the technique of handling simplemeasuringinstrumentsandalsomakethemmeasurecertainmechanicalandopticalpropertie sofmatter.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Abletocharacterize diodes	K3
CO2	Determine dispersiveandresolvingpowerof prism	K4
CO3	Determinewavelengthof Sodiumvaporlight	K4
CO4	Analyzeworkingof differentflipflop	K3
CO5	VerifybridgesandLCRconnections	K4

K1-RememberK2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE431	CHOICE -I	L	T	P	C
ELECTIVE-II		MEDICALPHYSICS	3	-	-	3

Objective:
Tounderstandthebasicsaboutthebiologicalsystemsinourbody,theirbehaviorandthediagnosticdevices.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Understands Basic AnatomicalTerminology	K2
CO2	Appliesmedicalphysicstoknowthedifferentaspects ofthebody	K3
CO3	Analyzetheperformanceoftransducer	K4
CO4	LearnaboutElectroCardioGraph(ECG)andits application	K3
CO5	Studyabout EEGand EMGand itsapplication	K3

K1-Remember K2- Understand K3-Apply K4- Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	3	3	3	3	3	3	3
CO2	3	2	2	3	3	3	3	3	3	3	3
CO3	3	2	2	3	3	3	3	3	3	3	3
CO4	3	2	2	3	3	3	3	3	3	3	3
CO5	3	2	2	3	3	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE432	CHOICE –II	L	T	P	C
ELECTIVE-II		MATERIALS SCIENCE	3	-	-	3

Objective: The objective of this course is to predict and control material properties throughanunderstandingof atomic,molecular,crystalline,andmicroscopic structuresof materials

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Classifythe materials basedon their bonding	K2
CO2	Learnphasediagramtounderstandmaterialphasetra nsformation	K2
CO3	Understandtheconducting, semiconducting,superconducting, dielectric, ferro-electric and piezoelectricbehaviorof material	K2
CO4	Gain knowledge on vacuum technology for application inmaterialsynthesis	K3
CO5	Characterize materials usingnondestructive testing	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weaklycorrelating(W)	1
No correlating (N)	0

SEMESTER-V

COURSE CODE	U21PHT51	ATOMIC ANDNUCLEARPHYSICS	L	T	P	C
CORE - VIII			5	-	-	4

Objective:

- To providean introductoryaccountabout theatomic structure
- Toacquireknowledgeonstaticpropertiesofnucleianditsstability.
- To know about different modes of decay and interaction of nuclearradiations withmatter

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Acquireknowledgeon the fundamental principles governingthe structure of theatom	K1
CO2	Gainknowledge in atomicphysics tofollow courses atthe Advancedlevel.	K2
CO3	Obtainknowledge aboutfinestructureof spectrallines	K2
CO4	Understandingon the basics ofnuclear physicsthat treats atomicnucleiasself-bound many-bodyquantumsystems	K2
CO5	Learn about nuclearreactionand radioactivity	K1

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT52	CLASSICAL AND STATISTICALMECHANICS	L	T	P	C
CORE - IX			5	-	-	4

Objective:

- Tounderstand the mechanics ofsystems of particlesand their equations ofmotion
- To studytheconcept ofstatisticsofmolecules.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Knowledge about mechanics oftheparticles	K1
CO2	DifferentiateLagrangianequationofsystemsfor conservative andnon-conservativesystems	K3
CO3	ApplyHamiltonianfunction forvariousapplication	K3
CO4	Understandaboutclassicalandquantumstatistics	K1
CO5	Acquire knowledge to apply the principles of statisticalmechanicstoselectedproblems.	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	1	1	3	3	2	2	2
CO2	3	3	3	3	1	1	3	3	2	2	2
CO3	3	3	3	3	1	1	3	3	2	2	2
CO4	3	3	3	3	1	1	3	3	2	2	2
CO5	3	3	3	3	1	1	3	3	2	2	2

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT53	BASICS OF DATA COMMUNICATIONANDPROGRAMMI NGIN C	L	T	P	C
CORE - X			5	-	-	4

Objective:
Tointroduceto datacommunicationand Programmingin C

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Gainsknowledgeaboutnetworkandtransmission mode	K1
CO2	Understandaboutseriesandparalleltransmission	K2
CO3	Differentiateanaloganddigitalnetwork	K4
CO4	Studyaboutbasic structureof C Programming	K2
CO5	UnderstandaboutstatementandcommandsusedinC programming	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3	2	3	2	3	3	3
CO2	3	3	2	2	3	2	3	2	3	3	3
CO3	3	3	2	2	3	2	3	2	3	3	3
CO4	3	3	2	2	3	2	3	2	3	3	3
CO5	3	3	2	2	3	2	3	2	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT54	BASIC ELECTRONICS ANDCOMMUNICATION	L	T	P	C
CORE - XI			5	-	-	4

Objectives:

1. Toenablethestudentstounderstandtheaspectsofanalogelectronicsin a lucid andcomprehensivemanner.
2. Tounderstandthefundamentalconceptsoflogic gates,counters ,registers, fibreOptics etc.
3. Todevelop skillto buildand troubleshootcombinational digitalcircuits.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Acquireknowledgeon transistorand its applications	K2
CO2	Studyaboutlinearcircuittheorems anddiode	K1
CO3	Studyabout different numbersystems and basics oflogicgates	K1
CO4	Understandtheoperationofsequentiallogiccircuits	K2
CO5	Design communicationsystemwithdifferentmodulation	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHP53	PRACTICAL-III	L	T	P	C
CORE - XII			-	-	5	4

Objective:
It is aimed at exposing the under graduate students to the technique of handling simplemeasuringinstrumentsandalsomakethemmeasurecertainmechanical,electricalandoptical propertiesofmatter.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Abletofabricatebridgesandmeasureinductance	K3
CO2	CompareEMFvalueusingpotentiometer	K4
CO3	Determinewavelengthsofvisible light	K4
CO4	Comparevoltmeterandchargesensitivityusingspot galvanometer	K3
CO5	DetermineCauchy's constant	K4

K1-Remember K2-Understand K3-ApplyK4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE531	CHOICE -I	L	T	P	C
ELECTIVE-III		NUMERICALMETHODS	3	-	-	3

Objectives:
Tounderstandvariousapproximationmethodstofindsolutiontoproblemswhich don‘t haveexactsolutions.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	UnderstandbasicsofErrorsandRootof Equations	K2
CO2	SolveproblemusingMatrixandLinearEquations	K3
CO3	InterpretsNumericalDifferentiationandIntegration	K3
CO4	AbletoapplyDifferentialEquationsfordifferent problems	K4
CO5	EnhanceproblemsolvingskillusingInterpolationand Approximation	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	2	2	1
CO2	3	3	3	3	2	2	3	3	2	2	1
CO3	3	3	3	3	2	2	3	3	2	2	1
CO4	3	3	3	3	2	2	3	3	2	2	1
CO5	3	3	3	3	2	2	3	3	2	2	1

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE532	CHOICE -II	L	T	P	C
ELECTIVE-III		BASICINSTRUMENTATION	3	-	-	3

Objective

To make students skilled in using basic laboratory instruments to carry out their practicalandprojectin efficientmanner.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Understand CRO as aversatile measuringdevice	K2
CO2	Learntotracecircuits ofelectronicequipment‘s	K2
CO3	UseDigital multimeter/VTVMtomeasurevoltages	K3
CO4	Applyknowledge to troubleshoot the circuit	K3
CO5	Skilledinwindingacoil /transformer	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	3	3	3	3	3	3	3
CO2	3	3	2	2	3	3	3	3	3	3	3
CO3	3	3	2	2	3	3	3	3	3	3	3
CO4	3	3	2	2	3	3	3	3	3	3	3
CO5	3	3	2	2	3	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weaklycorrelating(W)	1
No correlating (N)	0

COURSE CODE	U21PHS531	CHOICE -I	L	T	P	C
SKILLBASED ELECTIVE-III		MICROPROCESSORFUNDAMENTALS	2	-	-	2

Objective:
Thiscoursedealswiththebasicconceptsofmicroprocessor,programminginstructionsandinterfacingconcepts.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Knowthebasicideasonmicroprocessor,memoryand I/Odevices	K2
CO2	Familiarwiththebasicconceptsofmicroprocessorarchitectureand interfacing	K2
CO3	Acquireskillsintheprogramminginstructionsetsof microprocessors	K4
CO4	Acquireskills in interrupts	K2
CO5	Applytheprogramminginstructionstoperformsimpleprograms usingmicroprocessor	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	3	2	1	3	3	3	3	3
CO2	3	3	2	3	2	1	3	3	3	3	3
CO3	3	3	2	3	2	1	3	3	3	3	3
CO4	3	3	2	3	2	1	3	3	3	3	3
CO5	3	3	2	3	2	1	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHS532	CHOICE -II	L	T	P	C
SKILLBASED ELECTIVE-III		TELEVISION TRANSMISSION &RECEIVER	2	-	-	2

Objective

Thecoursedealswiththeoreticalandpracticalknowledgeon TVfunctioninganditsservicingskillar e incorporated.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Learnaboutcomponentspresent inTVsystem	K1
CO2	DifferentiateAMandFMChannelband	K3
CO3	GainknowledgeaboutdifferenttypesofCamera	K2
CO4	Acquireknowledgeabout colour television	K3
CO5	Analyzethe transmissionofTV usingdifferentmedia	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	2	3	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	2	3	3	3	3	3	3	3	3
CO5	3	3	2	3	3	3	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

SEMESTER-VI

COURSE CODE	U21PHT61	RELATIVITY AND QUANTUMMECHANICS	L	T	P	C
CORE - XIII			5	-	-	4

Objectives:
The aim of this course is to acquire sufficient knowledge in the concept ofRelativity, dualnature of matter waves,Evolution of Quantummechanics,Schrodinger equation and itsapplicationsand Operator formalism

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Gainknowledge in theconceptsofspecial and theoryof relativity	K1
CO2	Evolve ideasabout dualnature ofmatter	K2
CO3	UnderstandaboutSchrodinger equation	K2
CO4	Learnaboutdifferentoperatormechanism	K2
CO5	ApplyofSchrödinger‘sequationto micro system	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	3	3	2
CO2	3	3	3	3	2	2	3	3	3	3	2
CO3	3	3	3	3	2	2	3	3	3	3	2
CO4	3	3	3	3	2	2	3	3	3	3	2
CO5	3	3	3	3	2	2	3	3	3	3	2

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT62	SOLIDSTATE PHYSICS	L	T	P	C
CORE - XIV			5	-	-	4

Objective:

- To understand the different types of bondingin solids
- Tounderstandthemagneticanddielectricproperties ofcrystallinestructures.
- To acquire knowledge on the basics of magnetic phenomena on materials and varioustypesof magnetizations.
- Toknow the propertiesof superconducting materials.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Understandabout different crystal structure	K1
CO2	Analyzestructureofdifferentcrystallinematerialand defects	K4
CO3	Abletoknowabouttheinteratomicforcesandbonds betweensolids	K2
CO4	Analyzethevariouskindsofmagnetic materials	K4
CO5	Understandthedielectricpropertiesofcrystalline structures.	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	3	2	2	3	3	3	3	3
CO5	3	3	3	3	2	2	3	3	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT63	MATHEMATICAL PHYSICS	L	T	P	C
CORE - XV			5	-	-	4

Objective:
Tounderstand the various mathematicalmethods used in Physics.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Abletoapplyvectorandscalaroperatorindifferent applications	K3
CO2	Understanddifferent orders ofdifferential equation	K2
CO3	AbletoapplyMatrixandfunctionsofmatricesin differentproblems.	K4
CO4	Enhanceproblem solving skillusing Laplace transform	K3
CO5	SolvedifferentproblemsusingPartialDifferential equations	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	3	3	3	2
CO2	3	3	3	3	2	2	3	3	3	3	2
CO3	3	3	3	3	2	2	3	3	3	3	2
CO4	3	3	3	3	2	2	3	3	3	3	2
CO5	3	3	3	3	2	2	3	3	3	3	2

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHT64	NANOPHYSICS	L	T	P	C
CORE - XVI			5	-	-	4

Objectives:

- To create thebasicknowledgeinnano materials.
- Tounderstand the scientificperspectiveof nanomaterials.
- Toidentifythetechniquessuitablefornanomaterial synthesis.
- Toknow the significanceofnanomaterials.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Identify the Nanoparticles andapplyphysicsconceptstothenano–scaleandnanocontinuumdomain.	K4
CO2	IdentifytheQuantumheterostructureandacquirethe knowledgein applicationof Quantumdots	K4
CO3	Understandsabout Nanotubes, Allotropes and its structureand synthesis	K2
CO4	Acquiresknowledgeaboutthe Nanocrystallinesoftmaterials, Super-paramagnetism, Quantum cellular automata	K2
CO5	ApplyNanotechnologyin differentfields	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	3	3	3	2	3	3	3
CO2	3	2	2	3	3	3	3	2	3	3	3
CO3	3	2	2	3	3	3	3	2	3	3	3
CO4	3	2	2	3	3	3	3	2	3	3	3
CO5	3	2	2	3	3	3	3	2	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHP64	PRACTICAL-IV	L	T	P	C
CORE-XVII			-	-	5	4

Objective:
Provideopportunityforstudentstolearnaboutbasicconceptsofelectronicsthroughpracticalsettingse.g.testconductors,insulatorsandsemiconductorsfortheirvariouspropertiesandcharacteristics.

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	DesignHalfand Fullsubtractor	K3
CO2	Studythecharacteristicsofdiodeand transistor	K4
CO3	Analyzearithmeticaloperation usingOP-Amp	K4
CO4	Constructoscillatorandmultivibratoranddetermine itsfrequency.	K3
CO5	VerifyDemorgan‘s theorem	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE641	CHOICE -I	L	T	P	C
ELECTIVE-IV		ASTROPHYSICS	3	-	-	3

Objective:
Tounderstand the basicsabout the universal bodiesand other objectin the universe.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Assessthedesignofphysicalnatureofcelestialbodiesthrough co-ordinates ofspaceandtime	K2
CO2	Applyvariousopticalinstrumentsandexploretheobservable universe	K3
CO3	UnderstandaboutStructureandpropertiesofSunandEarth.	K2
CO4	Relate to the stellar observations, the properties, theirenvironmentandeventhepresenceofplanetswithappropriate theories.	K3
CO5	Evaluatethestructureofmilkywaygalaxyandallitscontents withcosmologyforthestudyofthecharacter andevolutionoftheuniverse.	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping:

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	3	2	3	3	3	3	3	3
CO2	3	3	1	3	2	3	3	3	3	3	3
CO3	3	3	1	3	2	3	3	3	3	3	3
CO4	3	3	1	3	2	3	3	3	3	3	3
CO5	3	3	1	3	2	3	3	3	3	3	3

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHE642	CHOICE -II	L	T	P	C
ELECTIVE-IV		ATMOSPHERIC PHYSICS	3	-	-	3

Objective:

This paper aims to describe the characteristics of earth's atmosphere and also its dynamics.Atmospheric waves along with the basic concepts of atmospheric Radar andLidar arediscussedin detail.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Understandthecharacteristicofearth‘satmosphere	K2
CO2	Studyabout thefundamentalforcesandconservation laws governingthe earth	K2
CO3	Acquireknowledgeabout atmosphericwaves	K2
CO4	Usetheradartheoryindataanalysisandtool techniques	K4
CO5	Evaluatetheapplicationofaerosols	K5

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	3	2	3	3	2	3	3	2
CO2	3	2	2	3	2	3	3	2	3	3	2
CO3	3	2	2	3	2	3	3	2	3	3	2
CO4	3	2	2	3	2	3	3	2	3	3	2
CO5	3	2	2	3	2	3	3	2	3	3	2

Correlating	**Marks**
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weaklycorrelating(W)	1
No correlating (N)	0

COURSE CODE	U21PHS641	CHOICE -I	L	T	P	C
SKILLBASED ELECTIVE-IV		PROBLEMS SOLVING SKILLS INPHYSICS	2	-	-	2

Objective:
Mainobjectiveofthiscourseistomakethestudenttosolveproblemsincorephysics.Minimumof20 problems based on variousprinciples of Physics arerequired ineach unit.

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	Developproblem solving skill in mechanics	K3
CO2	Applythermodynamicsprincipletosolveentropy relatedproblem	K3
CO3	Determineelectrostatic quantitiesusingtheorem	K4
CO4	Developproblemsolvingin QuantumMechanics	K3
CO5	To appear for research oriented competitive examinations	K3

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2	2	3	2	3	3	2
CO2	3	3	3	3	2	2	3	2	3	3	2
CO3	3	3	3	3	2	2	3	2	3	3	2
CO4	3	3	3	3	2	2	3	2	3	3	2
CO5	3	3	3	3	2	2	3	2	3	3	2

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

COURSE CODE	U21PHS642	CHOICE -II	L	T	P	C
SKILLBASED ELECTIVE-IV		WEATHERFORECASTING	2	-	-	2

Objective:
The aim of this course is to impart theoretical knowledge and develop an awareness andunderstanding regarding the causes and effects of different weather phenomenon and basicforecastingtechniques

CourseOutcomes(CO):

CO	Learning outcome	Remarks
CO1	Learn elementary ideas about atmosphere i.e., temperature,cycloneetc.	K1
CO2	Understandaboutweathermeasurement	K2
CO3	GainKnowledgeaboutclimaticchange	K2
CO4	Acquireideas aboutweathersystem	K2
CO5	Analysisonweatherforecasting	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

OutcomeMapping

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	3	2	3	3	2	3	3	3
CO2	3	3	1	3	2	3	3	2	3	3	3
CO3	3	3	1	3	2	3	3	2	3	3	3
CO4	3	3	1	3	2	3	3	2	3	3	3
CO5	3	3	1	3	2	3	3	2	3	3	3

Correlating	Marks
Stronglycorrelating(S)	3
Moderatelycorrelating(M)	2
Weeklycorrelating(W)	1
Nocorrelation(N)	0

NON-MAJORELECTIVE(NME)

OURSE CODE	U21PHN311	CHOICE -I	L	T	P	C
SEMESTERIII		HOUSEHOLDAPPLIANCES	2	-	-	2

OBJECTIVE

To understand the working principles of different household domestic appliances and torepairtheelectricalappliances for thegeneraltroubleshoots and wiring faults.

COURSE CODE	U21PHN311	CHOICE -II	L	T	P	C
SEMESTER III		HOW THINGS WORK	2	-	-	2

OBJECTIVES

The Course aims to give the basic function of domestic Appliance, Music Instruments ,Aircraft&Camera.

COURSE CODE	U21PHN421	CHOICE -I	L	T	P	C
SEMESTER IV		DIGITALPHOTOGRAPHY	2	-	-	2

Objective:

Tounderstandthefunctionandbasicconceptofdigitalcamera,Photographyandediting.

COURSE CODE	U21PHN422	CHOICE -II	L	T	P	C
SEMESTER IV		PHYSICSINMUSICALINSTRUMENT	2	-	-	2

Objectives:
Thecourse aimsto relate applicationsofPhysics concepts onvarious musicalphenomena.

VALUE ADDED PROGRAMME

COURSE CODE	U21PHV51	SOLARENERGYTECHNOLOGY	L	T	P	C
SEMESTER - V			30			2

OBJECTIVES

Giveknowledgeabout RenewableEnergy.

COURSE CODE	U21MAA11	SEMESTER-I	L	T	P	C
B.Sc.Physics /Chemistry		**ANCILLARYMATHEMATICSI**	**5**	**-**	**-**	**4**

Objectives:

- The learnerwillbecomeproficientin expansionand summationoffunction
- Thelearnerwillacquireknowledgeof solvingproblems in matrices
- Thelearnerwillcapableofsolvingthe interpolationproblems.
- Thelearnerwillgain knowledgeoftrigonometricfunctionsandrelatedproblems
- Thelearnerwillbecomeproficient invarioustypesofhyperbolic functions

CourseOutcome:

Onthe successfulcoursecompletion, studentswillbeableto:		Cognitive Level
CO1	Remember numbers,sequences,series,basicsummaries frompartialfraction, equations, matrices	K1
CO2	UnderstandtrigonometricvaluesandInterpolations	K2
CO3	Solveproblemsbyusingtheorems.	K3
CO4	Analyzehomogeneous and non-homogeneous linearequations.	K4
CO5	AnalyzeandEvaluate inversefunctions.	K4,K5

K1-Remember;K2-Understand; K3-Apply;K4- Analyse; K5-Evaluate;K6-Create

COURSE CODE	U21MAA22	SEMESTER-II	L	T	P	C
B.Sc.Physics /Chemistry		**ANCILLARYMATHEMATICSII**	**5**	**-**	**-**	**4**

Objectives:

- Tolearn methodsof integrationand properties andits solvingrelated problems.
- Understandthebasic conceptsof firstorderdifferentialequationand its applications.
- Find solutions byapplyingLaplacetransform methods.
- Vectorsand its productand its integrations.

CourseOutcome:

Onthe successfulcoursecompletion, studentswillbeableto:		Cognitive Level
CO1	UnderstandtheIandIIintegrals	K2
CO2	Understandpropertiesof integrals,Laplacetransform.	K2
CO3	Understandfirstorderdifferentialequations.	K2
CO4	AnalysisTheorems andproves.	K3,K4
CO5	Evaluate the importance of shiftingproperties.	K3,K4

K1-Remember:K2- Understand:K3-Apply, K4- Analyse,K5-Evaluate;K6-create

COURSE CODE	U21PHA33	SEMESTER III	L	T	P	C
ALLIED-3		ALLIED CHEMISTRY THEORY PHYSICALSCIENCES	5	-	-	4

Objectives

1. Tounderstandthehandlingofchemicalsanderrorsinchemicalanalysis
2. To get knowledge in chemicalbondingand hybridization
3. Toacquireknowledgeinvolumetricanalysis
4. To understand the basicconceptofchemistryof Thermodynamics and Kinetics

CO	Courseoutcomes	Remarks
CO1	Studentscangaintheknowledgeonthehandlingofchemicalsand errorsin chemicalanalysis.	K2, K3
CO2	LearnChemical Bonding and Hybridization	K2
CO3	Learnthe calculationsofpreparingstandard solutions	K2, K3
CO4	Understand and appreciate the advanced conceptsand rate equationsinchemicalkinetics.	K2
CO5	Calculatechangein thermodynamic properties, equilibrium constants, partialmolarquantities,chemicalpotential	K2

K1-Remember **K2**-Understand **K3**- Apply **K4**-Analyze K5-Evaluate

COURSE CODE	U21PHA44	SEMESTER IV	L	T	P	C
ALLIED-4		ALLIEDCHEMISTRYPRACTICAL-PHYSICALSCIENCES	4	-	-	4

Objectives

1. Toenable thestudents toacquireknowledgeinOrganicEstimation
2. Tounderstandbasicsandgainknowledgeinorganicanalysis
3. Attheendofthecourse,thestudentsshouldbeabletoplanexperimentalprojectsandexecutethem.

CO	Courseoutcomes	Remarks
CO1	Learnthe conceptofTitrationmethods and variousTitrations	K2
CO2	Understand the Acidimetryandalkalimetrytitrations	K2
CO3	Thepreparationofstandardsolutionsandmethodsofanalyzethe varioussalts	K2, K4
CO4	Understandthecalculationsofmolarity,molalityandNormalityofthe solutions	K2
CO5	UnderstandtheconceptofIodometrytitrations	K2

K1-Remember **K2**-Understand **K3**- Apply **K4**-Analyze **K5**-Evaluate

ALLIEDPHYSICS(forB.ScMathematics/B.ScChemistry)

Objective:

To impart preliminary knowledge on basic concepts of physics to chemistry and mathematicstudents to makethem understand thefundamentalsofcorephysics.

CourseOutcomes(CO):

CO	Learningoutcome	Remarks
CO1	Analyze centerofgravity	K4
CO2	Learnaboutmodulus,viscosityandsurfacetensionof materials	K2
CO3	Studythe characteristicsof diode and transistor	K1
CO4	Understandaboutaberrationanddifferentproperties of lenses	K2
CO5	Gainknowledge about atomic model and basic nuclearproperties	K2

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

ALLIED PRACTICALS

Objective:

It is aimed at exposing the non-physics under graduate students to the technique of handlingsimple measuring instruments and also makes them measure certain mechanical, electricaland opticalproperties ofmatter

CourseOutcomes (CO):

CO	Learning outcome	Remarks
CO1	AbletoEstimateErrors	K3
CO2	Analyzedimensional change of bar	K4
CO3	Determineviscosityofliquid	K4
CO4	Studythecharacteristicsofdiode andICs	K3
CO5	Determine surfacetensionof liquid	K4

K1-Remember K2-Understand K3-Apply K4-Analyze K5-Evaluate

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Department of Chemistry

ANNEXURE VII

CRITERION 2.6.1

DEPARTMENT OF CHEMISTRY

Syllabus (2018-2021)

B.Sc. CHEMISTRY

PO – Programme Outcomes:

Upon completion of B.Sc. Degree Programme, the students will be able to

- ❖ Gain sound theoretical and practical knowledge in fundamental aspects of all Disciplines of Chemistry.
- ❖ Acquire basic knowledge in the specialized areas like Polymer Chemistry, Environmental Chemistry, Nano chemistry, Pharmaceutical Chemistry etc.
- ❖ Understand the basics and gain knowledge on laboratory reagents and their uses in estimation and analysis.
- ❖ Get motivation and interest to continue higher studies in chemistry.
- ❖ Attain skills for getting employment in educational institutions and various Chemical industries.

M.Sc. CHEMISTRY

PO – Programme Outcomes:

Upon completion of M.Sc. Degree Programme, the students will be able to

- ➢ Gain complete knowledge in fundamental aspects of all branches of chemistry.
- ➢ Understand, solve and demonstrate the major concepts in all disciplines of chemistry clearly.
- ➢ Obtain the scientific knowledge to design, carry out, record and analyse the results of all chemical experiments.
- ➢ Acquire sound knowledge about the laboratory practices and safety.
- ➢ Procure research oriented skills and innovative scientific and teaching skills for getting employment in reputed institutions and research institutes.

B.Sc. CHEMISTRY

SEMESTER – I

Course Code	U21CHT11	GENERAL CHEMISTRY –I	L	T	P	C
CORE –I			5	-	-	4
Learning Objectives	The course aims to 1. understand the basics of organic reactions, to know the chemistry ofHydro carbons. 2. know the basic principles of cleavage of bonds 3. understand the periodic properties 4. know the critical phenomena of gases					

Course Code	U21CHP11	ORGANIC ANALYSIS AND ESTIMATION (Practical)	L	T	P	C
COR -II			-	-	6	4
Learning Objectives	The course aims to 1. enable the students to develop analytical skills in organic qualitativeanalysis and preparative skills in organic preparations. 2. enable the students to check the purity of organic compounds by determining the melting or boiling points. 3. know the titration methods 4. plan the experimental projects and execute them.					

SEMESTER II

Course Code	U21CHT21	GENERAL CHEMISTRY – II	L	T	P	C
CORE-III			5	-	-	4
Learning Objectives	1. To understand the substitution and elimination reactions 2. To understand the nature of bonding in inorganic compounds 3. To know the concept of phase equilibria					

Course Code	U21CHP22	VOLUMETRIC ANALYSIS (Practical)	L	T	P	C
PRACTICAL-II			-	-	5	4
Learning Objectives	1. To understand basics and gain knowledge on laboratory reagentsand their uses in Volumetric analysis. 2. To enable the students to acquire knowledge in preparation ofstandard solutions 3. At the end of the course, the students should be able to plan experimental projects and execute them					

SEMESTER III

UCHT31 ORGANIC CHEMISTRY – PAPER I 5hours/4credits

Course Outcomes

1. Understand the chemistry of stereoisomerism of organic molecules based on the spatial orientation of constituent atoms or group.
2. Understand the chemistry of aromatic compounds and substitution reaction and mechanism.
3. Understand the chemistry of carbonyl compounds
4. Understand the chemistry of polynuclear aromatic compounds and dyes.

UCHA32 ANCILLARY CHEMISTRY –BOTANY/ZOOLOGY 5hours/4credits

Course Outcomes

1. Understand the handling of chemicals and errors in chemical analysis
2. Get knowledge in chemical bonding and hybridization
3. Acquire knowledge in volumetric analysis
4. Understand the basic concept of chemistry of biomolecules

UCHA32 ANCILLARY CHEMISTRY –PHYSICS 5hours/4credits

Course Outcomes

1. Understand the handling of chemicals and errors in chemical analysis
2. Get knowledge in chemical bonding and hybridization
3. Acquire knowledge in volumetric analysis
4. Understand the basic concept of chemistry of thermodynamics

ELECTIVE PAPER – I

UCHE31 BIOCHEMISTRY 4hours/3credits

Course Outcomes

1. Enable the student to develop a sound knowledge of fundamental concepts in biochemistry.
2. Emphasis on the various aspects of lipids and proteins
3. Understand the classification and properties of nucleic acid, amino acid and hormones.
4. Emphasis on the various aspects of metabolism and interrelationship of metabolic events.

SEMESTER -III

APPLIED CHEMISTRY – PAPER I

UCHN31 **NON – MAJOR ELECTIVE** **2hours/2credits**

Course Outcomes

1. Understand the preparation and properties of Rubber and Fibers
2. Understand the preparation and properties of Plastics and Resins.
3. Know the classification and importance of Fertilizers
4. Understand the use of chemicals in improvement of agricultural crops

SKILL BASED SUBJECT– PAPER I

UCHS31 **WATER TREATMENT** **2hours/2credits**

Course Outcomes

1. Give an in-depth understanding of water quality parameters, ground water and surface water pollution and its control measures.
2. In addition, the students will also learn the water treatment methods, sewage and industrial effluent treatment methods and water resources management.
3. Understand the pollutants and their effect on environment and on human health
4. Know the basic information of water treatment methods for domestic and industrial purposes

SEMESTER IV

UCHT41 **INORGANIC CHEMISTRY PAPER – I** **4hours/4credits**

Course Outcomes

1. Know the arrangement of elements in the periodic table group 15 and group 17
2. Identify the nature of chemical bond in a given inorganic compound.
3. Know the existence of special types of compounds through weak chemical forces.
4. Know the concept of solid state structure and metallurgy

PRACTICAL PAPER II

UCHP42 **INORGANIC QUALITATIVE ANALYSIS** **4hours/4credits**

Course Outcomes

1. Enable the students to develop analytical skills in inorganic qualitative analysis.
2. Appreciate the various colored chemical reactions of metal ions.
3. Acquire skills in inorganic quantitative estimation methods
4. Get trained in quantitative estimation methods, and to gain knowledge in the preparation of some inorganic complexes

VOLUMETRIC ANALYSIS

UCHA42 ANCILLARY CHEMISTRY –BOTANY/PHYSICS 5hours/4credits

Course Outcomes

1. Understand basics and gain knowledge on laboratory reagents and their uses in volumetric analysis.
2. Enable the students to acquire knowledge in Organic Estimation
3. Understand basics and gain knowledge in organic analysis
4. At the end of the course, the students should be able to plan experimental projects and execute them.

ELECTIVE PAPER – II

UCHE42 MEDICINAL CHEMISTRY 3hours/3credits

Course Outcomes

1. Understand the basic concepts and strategies in drug design and synthesis.
2. Provide preliminary introduction to vitamins and their classification
3. Provide preliminary introduction to sulpha drugs and antimalarial activity.
4. Provide preliminary knowledge on Anesthetics drugs, antibiotics and their synthesis.

APPLIED CHEMISTRY - PAPER II

UCHN42 NON-MAJOR ELECTIVE 2hours/2credits

Course Outcomes

1. The generation of energy from various types of fuels.
2. To gain knowledge in silicate industry, match industry
3. Pollution occurring from various sources and resulting toxic effects
4. Acquire basic knowledge in Explosives

SKILL BASED SUBJECT– PAPER II

UCHS42 CLINICAL CHEMISTRY 2hours/2credits

Course Outcomes

1. Understand the basics of blood and composition
2. Impart knowledge on clinical biochemistry and laboratory practices.
3. Understand the normal and abnormal constituents of urine
4. Gain the clinical demonstration of Blood grouping, Rh factor, Blood Glucose and Hb content

SEMESTER V

UCHT51 ORGANIC CHEMISTRY – PAPER II 5hours/4credits

Course Outcomes

1. Develop an understanding the chemistry of carbohydrates.
2. Understand the chemistry of aliphatic acids, aromatic acids, nitrogen compounds and their derivatives.
3. Understand the chemistry of carboxylic acid and their derivatives
4. Develop an understanding the chemistry of amines and quaternary ammonium salt.

UCHT52 INORGANIC CHEMISTRY PAPER II 5hours/4credits

Course Outcomes

1. Understand the nature of bonding in coordination compounds.
2. Understand the importance and application of coordination compounds in industry and in medicine.
3. Understand the active roles played by metal ions and coordination compounds in biological systems.
4. Understand the concept of nuclear chemistry and radiation chemistry

UCHT53 PHYSICAL CHEMISTRY PAPER –I 5hours/4credits

Course Outcomes

1. Understand basic principles of thermodynamics
2. Understand the application of thermodynamics
3. Impart the knowledge of understand and application of first, second and third law of thermodynamics.
4. Understand the basic principle of chemical kinetics and its applications

UCHT54 ANALYTICAL CHEMISTRY 5hours/4credits

Course Outcomes

1. Understand laboratory safety measures and error analysis
2. Emphasize the basic principles of different electroanalytical techniques,
3. Learn the basic principles, instrumentation and applications of spectrochemical, thermal and techniques
4. Know the basic principles and applications of separation techniques

UCHT55 **SPECTROSCOPY** **5hours/4credits**

Course Outcomes

1. Gain the basic knowledge of microwave spectroscopy
2. Impart the knowledg of UV-vis spectroscopy, to familiarize with the calculation of absorption maximum.
3. Impart knowledge of infrared and Raman spectroscopies, to gain expertise of assigning experimental values to the different vibrations.
4. Understand the basis of NMR spectroscopy and solving simple organic molecules, to impart basic knowledge of mass spectrometry

ELECTIVE PAPER – III

UCHE53 **POLYMER CHEMISTRY** **3hours/3credits**

Course Outcomes

1. Understand the importance of polymers and an exposure to polymer chemistry
2. Understand various polymer and characterization of polymers
3. Enable a student to understand polymer structures and properties
4. Know the basic importance of molecular weight determination of polymer

SKILL BASED SUBJECT – III

UCHS53 **EVERYDAY CHEMISTRY** **2hours/2credits**

Course Outcomes

1. Understand the basic knowledge in Food Chemistry and modern trends in the industry.
2. Create awareness among the undergraduate students about the role of chemistry in day-to- day life
3. Know more about the cosmetics and other chemicals that they uses
4. Obtain adequate knowledge and scientific information regarding basic principles of everyday chemistry.

SEMESTER VI

UCHT61 **ORGANIC CHEMISTRY PAPER – III** **5hours/4credits**

Course Outcomes

1. Understand the basic concept of organic spectroscopy
2. Understand the concept of tautomerism and free radicals
3. Learn and practice the molecular rearrangements and the reaction mechanisms.
4. Learn the basic aspects of heterocyclic compounds and natural products

UCHT62 **PHYSICAL CHEMISTRY PAPER – II** **5hours/4credits**

Course Outcomes

1. Understand and theory of photochemistry
2. Understand basic terminologies of electrochemistry,
3. Know the theories of strong electrolytes, to be familiar with the fundamentals of different types of electrochemical cells
4. Understand the basic of primary and secondary cells

UCHT63 **INDUSTRIAL CHEMISTRY** **5hours/4credits**

Course Outcomes

1. The generation of energy from various types of fuels.
2. Use of chemicals in improvement of agricultural crops
3. Gain knowledge in silicate industry, match industry
4. Acquire basic knowledge in corrosion and prevention

PHYSICAL CHEMISTRY EXPERIMENTS

UCHP63 **PRACTICAL PAPER – IV** **5hours/4credits**

Course Outcomes

1. Enable the students to acquire knowledge in physical chemistry experiments
2. Learn the applications of colligative properties, to carry out experiments based on phase rule,
3. Acquire skills based on chemical kinetics experiments and to understand electrochemistry through experiments.
4. Learn the titration between acid and base

PRACTICAL PAPER –V

UCHP64 **GRAVIMETRIC ANALYSIS AND ORGANIC PREPARATION** **5hours/4credits**

Course Outcomes

1. Enable the students to acquire the quantitative skills in gravimetric analysis and preparative skills in inorganic preparations
2. Acquire practical knowledge of estimation of inorganic compounds
3. Develop skill in single stage preparation of organic compounds
4. Understand the basic concept of preparation of solutions

ELECTIVE PAPER IV

UCHE64 NANO SCIENCE AND TECHNOLOGY 3hours/3credits

Course Outcomes

1. Introduce some of the fundamentals and current state-of-the-art in nanotechnology.
2. Get familiarized with the synthesis, characterization and applications of nanomaterials.
3. Understand the basic concept of preparation of nanotubes
4. Acquire knowledge in importance of nanomaterials in medicine

TEXTILE CHEMISTRY

UCHS64 SKILL BASED SUBSJECT PAPER – IV 2hours/2credits

Course Outcomes

1. Facilitate the students to learn about the pre-treatments of various kinds of textile materials involved in textile wet processing industries.
2. Acquire knowledge of natural fibres
3. Get basic importance of dying process
4. Understand the basic concept of printing methods

M.Sc. CHEMISTRY

SEMESTER – I

P21CHT11 ORGANIC CHEMISTRY – I 5 hours/4 credits

Course Outcomes

Upon completing the course, the students will be able to

1. identify the different types of reactive intermediates and appreciate their importance inorganic reactions
2. analyze the various mechanisms of organic reactions
3. understand and apply the concepts of stereochemistry
4. identify aromatic, non-aromatic and anti-aromatic compounds

P21CHT12 INORGANIC CHEMISTRY – I 5 hours/4 credits

Course Outcomes

1. Provide knowledge of basic and advanced concepts in bonding and enable the students to identify the structure and bonding of simple molecules.
2. Enable students, understand of the various types of solid-state packing and the types of chemical forces
3. Impart knowledge of the structure and bonding of main group elements and their compounds
4. Provide knowledge of polymeric inorganic compounds.

P21CHT13 PHYSICAL CHEMISTRY – I 5 hours/4 credits

Course Outcomes

1. Enable the students to understand concept and laws of thermodynamics
2. Understand and appreciate the advanced concepts and rate equations in chemical kinetics.
3. Provide knowledge on the concepts and laws of electrochemistry and photochemistry
4. Enable the students to apply the knowledge gained in the above concepts

P21CHT14 MEDICINAL CHEMISTRY AND DRUG DESIGN 5 hours/4 credits

Course Outcomes

1. Provide knowledge of the various stages of drug development and computer aided drug design.
2. Enable students, appreciate and understand the importance of bio-inorganic compounds and bio- inorganic compounds in medicine
3. Provide knowledge about the structure and function of important vitamins
4. Enable students, understand the structure and mechanism of action of drugs.

P21CHP11 ORGANIC CHEMISTRY PRACTICALS 5 hours/4 credits

Course Outcomes

1. Develop understanding in basic chromatographic methods.
2. Learn simple extraction techniques
3. Develop skill in simple organic synthesis
4. Understand and develop the principles of quantitative and qualitative analysis of organic compounds.

P21CSS11 2 hours/4 credits

SUPPORTIVE COURSE– I (SKILL) COMPUTER SKILLS FORWEB DESIGNING AND VIDEO EDITING

Course Outcomes

1. Prepare student develop an effective web page using HTML
2. Create a table within a web
3. Insert heading levels within a webpage
4. Insert ordered and unordered lists within a webpage
5. Publish a webpage
6. Learn how to combine basic design principles in video editing
7. Generate a video by applying her knowledge
8. Present the edited video
9. Record short clips by using camera

VALUE ADDED PROGRAMME

P21CHV42 WATER TREATMENT 5 hours/4 credits

Course Outcomes

At the end of the course, students will be able to

1. Understand and protect different sources of water
2. Identify water pollutants and their effect on environment and human health
3. Describe the analytical methods to determine water quality parameter
4. Propose water treatment methods for domestic and industrial purpose

SEMESTER – III

PCHT31 ORGANIC CHEMISTRY – III 5 hours/5 credits

Course Outcomes

1. Provide understanding of the basic concepts of photochemistry and various organic photochemical reactions.
2. Provide understanding of the pericyclic reactions.
3. Enable the student to analyze organic compounds using various spectroscopic techniques.
4. Enable the students to apply the knowledge gained in the above concepts

PCHT32 INORGANIC CHEMISTRY – III 5 hours/5 credits

Course Outcomes

1. Enable the students to analyze the inorganic compounds using various spectroscopic techniques.
2. Appreciate and understand the importance of nuclear reaction
3. Familiarize the important inorganic photochemical reactions.
4. Enable the students to apply the knowledge gained in the above concepts.

PCHT33 PHYSICAL CHEMISTRY – III 5 hours/ 5 credits

Course Outcomes

1. Provide a sound knowledge and understanding of the concepts and applications of group theory.
2. Familiarize the theories behind various spectroscopic techniques
3. Provide knowledge and understanding of statistical thermodynamics and its applications.
4. Enable the students to apply the knowledge gained in the above concepts.

PCHP33 PHYSICAL CHEMISTRY PRACTICALS 5 hours/5 credits

Course Outcomes

1. Develop skill in carrying out kinetics experiments
2. Develop skill in carrying out experiments related to distribution law and study phase diagrams.
3. Impart skill in analysis through conductometry.
4. Develop skill analysis through potentiometry

ENVIRONMENTAL CHEMISTRY AND GREEN CHEMISTRY

PCHE33 **5 hours/5 credits**

Course Outcomes

1. Provide knowledge and understanding of the various types and ways to eradicate pollution.
2. Familiarize the various methods of water treatment..
3. Enable the students to appreciate the concepts of green chemistry.
4. Impart concern over the environment and insist to adopt eco-friendly methods

SEMESTER – IV

CHEMISTRY OF NATURAL PRODUCTS AND BIOINORGANIC CHEMISTRY

PCHT41 **5 hours/5 credits**

Course Outcomes

1. Enable the students to understand the structure of organic natural products.
2. Provide knowledge of the structures of metalloproteins and metalloenzymes.
3. Familiarize the importance of natural product and bio-inorganic compounds.
4. Enable the students to know and appreciate the importance of chemistry in nature

PCHT42 **NANOCHEMISTRY AND SUPRAMOLECULAR CHEMISTRY** **5 hours/5 credits**

Course Outcomes

1. Enable students to understand and appreciate the importance of Nanoscience and Technology.
2. Impart knowledge in the synthesis and applications of Nanomaterials.
3. Provide knowledge and understanding of the concepts of Supramolecular chemistry
4. Enable the students to apply the knowledge gained in the above concepts.

Department of Zoology

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL - 624 101
Tamil Nadu.

Curriculum Framework and Syllabus for

B.Sc. ZOOLOGY

(For the candidates to be admitted from the academic year 2021-2022 onwards)

(UNDER CHOICE BASED CREDIT SYSTEM- CBCS)

Mother Teresa Women's University, Kodaikanal
Department of Biotechnology
Choice Based Credit System (CBCS)
(2021-2022 onwards)
B.Sc. Zoology

1. About the Programme

B.Sc Zoology is a 3-year undergraduate programme which deals with the study of animals. The syllabus covers the basic understanding of Invertebrates, Chordates, Physiological process, Ecology, Developmental and Cell Biology etc. This undergraduate programme is generally, divided into six semesters. The programme incorporates core papers, electives and practicals. The delivery methods involve theoretical classes, lab work and hands-on practical training, outdoor tours etc. The students completing this programme generally go for higher education to build a career in academics, public and private sectors.

2. Programme Educational Objectives (PEOs)

PEO1	To provide quality education in a branch of Biological science i.e, Zoology and encourage the students for self employment in applied branches of Zoology
PEO2	To facilitate higher education and research in Zoology
PEO3	To take appropriate steps towards conservation of resources, endemic and endangered animal species
PEO4	To apply knowledge to solve the issues related to animal sciences and provide consultancy
PEO5	To develop the ability for the upliftment of society

3. Eligibility:

i. Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Examination, Govt. of Tamil Nadu or any other Examination accepted by the syndicate as equivalent there to with at least one of the following subject Biology/Zoology

ii. Candidate should have secured atleast 55% in the above subject and above in the aggregate.

4. General Guidelines for UG Programme

i. **Duration:** The programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

Evaluation Pattern	Theory		Practical	
	Min	**Max**	**Min**	**Max**
Internal	**10**	**25**	**10**	**25**
External	**30**	**75**	**30**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	**Part**	**Type**	**Marks**
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 156**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade

(Performance in a Course/ Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance less than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

B.Sc- ZOOLOGY CURRICULUM

Sl. No.	Course Code	Title of the Course	Credits	Hours		Maximum Marks		
				L	P	INT	EXT	Total
I-SEMESTER								
1.	U21LTA11	Part-I-Tamil- I	3	6	-	25	75	100
2.	U21LEN11	Part-II -English –I	3	6	-	25	75	100
3.	U21ZOT11	Core- I- Invertebrata – I	4	5	-	25	75	100
4.	U21ZOP12	Core- II– Practical - Invertebrate –I	4	-	6	25	75	100
5.	U21BOA11	**Allied- I** – Botany	4	5	-	25	75	100
6.	U21EVS11	Environmental Studies	2	2	-	25	75	100
7.	U21PEPS11	Professional English –I	4	6	-	25	75	100
		Total	**24**	**36**		**-**	**-**	**700**
II- SEMESTER								
8.	U21LTA22	Part-I-Tamil- II	3	6	-	25	75	100
9.	U2LEN22	Part-II -English –II	3	6	-	25	75	100
10.	U21ZOT21	Core- III- Invertebrata II	4	5	-	25	75	100
11.	U21ZOP22	Core – IV- Practical - Invertebrata II	4	-	5	25	75	100
12.	U21BOA22	**Allied- II** –Practical- Botany	4	-	5	25	75	100
13.	U21VAE21	Value Education	3	3	-	25	75	100
14.	U21PEPS22	Professional English- II	4	6	-	25	75	100
		Total	**25**	**30**		**-**	**-**	**700**
III- SEMESTER								
15.	U21LTA33	Part I-Tamil III	3	6	-	25	75	100
16.	U21LEN33	Part-II -English III	3	6	-	25	75	100
17.	U21ZOT31	Core- V- Basics of Cell and Molecular Biology	4	5	-	25	75	100
18.	U21CHA33	**Allied III-** Chemistry	4	5	-	25	75	100
19.	U21ZOE311/ U21ZOE312	**Elective-I-**Wildlife Biology/ Animal Behaviour	3	4	-	25	75	100
20.	U21MSS31	**Skill Based Elective-I-**Managerial Skill	2	2	-	25	75	100
21.		**Non-Major Elective-I**	2	2	-	25	75	100
22.	U21PEPS33	Professional English- III	4	6	-	25	75	100
		Total	**25**	**31**	**5**	**-**	**-**	**800**
IV- SEMESTER								
23.	U21LTA44	Part-I-Tamil IV	3	6	-	25	75	100
24.	U21LEN44	Part-II -English IV	3	6	-	25	75	100
25.	U21ZOT41	Core-VI- Chordata	4	4	-	25	75	100
26.	U21ZOP42	Core-VII-Practical - Chordata	4	-	4	25	75	100

27.	U21CHA44	**Allied- IV-** Practical- Chemistry	4	-	4	25	75	100
28.	U21ZOE411/ U21ZOE412	**Elective-II-**Animal Handling & Guidelines/Insect Vectors and Disease	3	3	-	25	75	100
29.	U21CSS421	**Skill Based Elective-II-**Computer skills for Office management	2	2	-	25	75	100
30.		**Non -Major Elective II**	2	2	-	25	75	100
31.	U21PEPS44	Professional English- IV	4	6	-	25	75	100
		Total	**29**	**37**		**-**	**-**	**900**
V- SEMESTER								
32.	U21ZOT51	Core -VIII –Fundamental of Animal physiology	4	5	-	25	75	100
33.	U21ZOT52	Core -IX– Genetics and Biostatistics	4	5	-	25	75	100
34.	U21ZOT53	Core-X- Basics Biochemistry	4	5	-	25	75	100
35.	U21ZOT54	Core-XI- Fundamental concepts of Developmental Biology	4	5	-	25	75	100
36.	U21ZOP55	Core -XII – Practical - Animal physiology, Developmental Biology, Genetics and Biostatistics, Biochemistry	4	-	5	25	75	100
37.	U21ZOE521/ U21ZOE522	**Elective-III** – Cancer Biology/ Parasitology	3	3	-	25	75	100
38.	U21ZOS531/ U21ZOS532	**Skill Based Elective-III-** Poultry Farming/ Sericulture	2	2	-	25	75	100
		Total	**25**	**30**		**-**	**-**	**700**
	VI- SEMESTER							
39.	U21ZOT61	Core XIII –Genetic Engineering and Biotechnology	4	5	-	25	75	100
40.	U21ZOT62	Core XIV – Microbiology and Immunology	4	5	-	25	75	100
41.	U21ZOT63	Core-XV- Evolution	4	5	-	25	75	100
42.	U21ZOT64	Core XVI – Environmental Biology	4	5	-	25	75	100
43.	U21ZOP65	Core-XVII – Practical - Environmental Biology, Microbiology & Immunology Genetic Engineering& Biotechnology	4	-	5	25	75	100
44.	U21ZOE641/ U21ZOE642	**Elective –IV** – Bioinformatics / Geoinformatics	3	3	-	25	75	100
45.	U21ZOE641/ U21ZOE642	**Skill Based Elective –IV** – Aquaculture/ Ornithology	2	2	-	25	75	100
46.	U21EAS61	Extension Activities (NSS/NCC/RRC/YRC/Physical Education)	3	-	-	100		100
		Total	**28**	**30**		**-**	**-**	**800**
		Grand Total	**156**	**205**				**4600**

Non Major Elective - NME

The candidates, who have joined the UG programme, can also undergo Non Major Elective offered by other Departments.

NME	Code	Title
NME I	U21ZON311/U21ZON312	Public Health and Hygiene /Ornamental fish culture
NME II	U21ZON421/ U21ZON422	Vermicomposting/Apiculture

Additional Credit Courses (Two credit courses)

1. **U21ZOO31**: Online Course – III Semester
2. **U21ZOI41**: Internship – IV Semester
3. **U21ZOV51** : Value added course – V Semester (First Aid and Safety Methods)

Programme Outcomes (POs)

On completion of B.Sc., Zoology Programme, the students will be able

PO1	to understand the broad essential information about animals especially classification, structure, development, adaptations and evolution.
PO2	to get an exposure to the advanced field like genetic engineering, biotechnology and bioinformatics and analyze the relationship between organisms and environment.
PO3	to acquire the anatomical and functional knowledge about microbes, animals and human.
PO4	to develop practical and applied knowledge of lab techniques in different spheres of zoology.
PO5	to produce intellectually sound in life science for accomplishing scientific transformation.
PO6	to involve in scientific research activities for the betterment of Society.
PO7	to analyze and apply the acquired knowledge of biological science in different fields by integrating the functional levels for progressive growth.
PO8	to mould in self employment skills in order to develop entrepreneurship for their future well being.

Programme Specific Outcomes (PSOs)

Upon completion of B.Sc., Zoology Degree Programme the graduates will be able to

PSO1	understand the Physiology, Developmental biology , Evolution of animals and their adaptive importance.
PSO2	acquire the functional knowledge about Cell, Microbial Pathology, Genetic interaction there by realizing the role of health, immunity and vaccines.
PSO3	gain knowledge about the applications in Sericulture, Aquaculture, Apiculture, Vermiculture, Poultry farming, there by imparting skills for source of income and self employment.
PSO4	expose to the Practical's in Zoology and learn to apply in day today life with statistical tools.
PSO5	develop knowledge on biological domain and make awareness in the society.

SEMESTER – I

Course Code	**U21ZOT11**	**INVERTEBRATA – I**	**L**	**T**	**P**	**C**
CORE	**I**		**5**	**-**	**-**	**4**

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning Objective	➢ To know the various forms of invertebrate animals present in the world. ➢ To distinguish various animals of invertebrates ➢ To acquire knowledge on classification, structural and functional aspects of invertebrates ➢ To learn the general rules on animal classification. ➢ To gain an overall understanding of the origin of life, diverse forms of organisms to which the taxon classified.
Unit I	**Introduction to principles of Taxonomy:**
Protozoa, Metazoa, Radiata, Bilateria, Acoelomata, Pseudocoelomata and coelomata. General characters and classification upto class level with Few examples. Protozoa**:** Type study: Paramecium – General organization, Cyclosis, contractile vacuoles and reproduction. General Topic: Life history, Pathogenicity and control Measures of Entamoeba and Plasmodium.	
Unit II	**Porifera:**
Type Study: Sycon – Histology, Spicules, Gemmules, Parenchymula larva. General Topic: Canal system in sponges.	
Unit III	**Colenterata**
Type Study: Obelia – general organization and Metagenesis. General Topic: Corals and Coral Reef	
Unit IV	**Platyhelminthes**
Type Study: Fasciola hepatica – external morphology, digestive, Excretory and reproductive systems and Life history General Topic: Parasitic adaptation – Platyhelminth Worms	
Unit V	**Aschelminthes**
Type Study: Ascaris – Sexual dimormphism – reproductive systems and Life cycle. General Topic: Human nematode parasites – Ancylostoma, Enterobius, Wuchereria	
Textbook	1. Agarwal, V.K. Invertebrate Zoology. S. Chand & Co. New Delhi. 2013. 2. Arumugam, Invertebrate Zoology Saras publication, 2014.

References	1. P.S. Dhami and J.K. Dhami. Invertebrate Zoology –R.Cahnd & Co. New Delhi. (2010) 2. Jordan, E.K. and P.S.Verma. Invertebrate Zoology, 12th Edition.S.Chand & Co.Ltd. Ram Nagar, New Delhi 2011. 3. Kotpal, R.I., Protozoa, Porifera, Coelenterata, Annelida, Arthropoda, Mollusca, Echinodermata, Rastogi Publications, Meerut,2005.		
E-references	1. https://biologydictionary.net/invertebrate 2. http://rcastilho.pt/DA/ewExternalFiles/Invertebrates_Cap_33_Cambell.pdf 3. file:///C:/Users/ACER/Downloads/invertebrates_3-4_unit_guide%20(1).pdf		
Course Outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the principles of Taxonomy and apply the knowledge for classification of animals	**K3**
	CO2	acquired the functional knowledge about Porifera and canal system in sponges	**K2**
	CO3	understand the Colenterata , Corals and Coral Reef	**K2**
	CO4	learn about the platyhelminthes and parasitic adaptation – platyhelminth worms	**K1**
	CO5	get knowledge on life cycle of Ascaris and Human nematode parasites	**K3**

Mapping of COs with POs & PSOs:

CO	**PO**					**PSO**						
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CO1	S	S	M	M	M	S	S	M	N	N	M	M
CO2	S	S	M	M	M	S	M	M	M	S	S	M
CO3	S	S	M	M	M	S	S	M	M	M	M	M
CO4	S	S	M	M	M	S	M	M	M	M	S	S
CO5	S	M	M	S	S	S	M	M	S	M	M	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOP12</td><td rowspan="2">INVERTEBRATA
(Practical)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>CORE</td><td>II</td><td>-</td><td>-</td><td>6</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply K5:Analyse</td></tr>
<tr><td>Learning Objective</td><td colspan="6">➢ To learn the taxonomy and general characters of animal kingdom
➢ To develop knowledge about morphology and anatomy of higher invertebrates
➢ To get familiar with scientific method of identifying the organisms
➢ To dissect and explain the internal anatomy of selected animals
➢ To analyze the importance of mouth parts of various insects</td></tr>
<tr><td></td><td colspan="6">I. Mounting & identification
• Paramecium
• Examination of pond water collected from different places for diversity in protista
• Study of whole mount of Euglena, Amoeba and Paramecium, Classify giving reasons up to order, salient features and its biological significance
• Entamoeba , Volvox, Plasmodium life cycle, Trypanosome, Leishmania, Noctulica
• Sycon , Hyalonema, Euplectella, Spongilla, Cliona
• Obelia, Physalia, Millepora, Aurelia, Metridium,
• Ctenoplana – Pleurobranchia, Velamen
• Fasciola hepatica, Taenia solium and their life cycles, Planarian, Schistosoma
• Ascaris lumbricoides male , female and its life stages , Enterobius, Wuchereria, Dracunculus, Trichinella

Relate structure and functions
• Sponge – Spicules
• Sponge – Gemmule
• Taenia – Scolex

Draw labelled sketch -
Sycon (T.S), T.S.of Planaria, T.S. of Fasciola hepatica, T.S of Taenia solium, T.S of Ascaris (Male & Female)

To submit a Project Report on any related topics on life cycles/coral/ coral reefs.</td></tr>
<tr><td>Textbook</td><td colspan="6">1. Lal, S.S , A Text Book of Practical Zoology: Rastogi, Meerut.2014.
2. Verma, PS. A Manual of Practical Zoology-Invertebrares, S Chand Publications, New Delhi, (2010).</td></tr>
</table>

References Book	1. Kotpal, R.L., Agarwal, S,K. and Khetarpal, R.P.R., Modern Text Book of Zoology, 2. Rastogi Publications, Meerut, 2005.		
E.Refernces	1. https://www.uou.ac.in/sites/default/files/slm/BSCZO-104.pdf 2. http://www.zoologyresources.com/uploadfiles/books/dc64b77d8769325515d17c945e461b45.pdf (Invertebrates and chordatas)		
Course Outcome	**Upon completion of this course, the students will be**		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	to know the mounting of Euglena, Amoeba and Paramecium	**K2**
	CO2	compare and distinguish the morphological features of invertebrates	**K2**
	CO3	identify the organisms	**K3**
	CO4	gain knowledge about internal structure of organisms	**K2**
	CO5	Analyze the life cycles of invertebrates	**K5**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	M	S	S	S	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	M	S	S	S	S	S	M	S
CO4	M	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M
CO5	S	S	S	S	S	S	S	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

Course Code	U21BOA11	BOTANY	L	T	P	C
Allied	I		5	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning Objective	➢ To understand the taxonomy aspects of plants ➢ To learn the structure, reproduction & classification of lower plants ➢ To identify the plants as either monocotyledons or dicotyledons ➢ To gain knowledge for water absorption mechanism and photosynthesis
Unit I	**Characteristics of Algae and Fungi:**
Classification of Algae, Structure and Reproduction of Algae- Oscillatoria, *Sargassum*. Economic importance of Algae. General characters of fungi, life cycle of Puccinia, Economic importance of Fungi .	
Unit II	**Cryptogams and phanerogams:**
Structure and life cycle of Bryophyte - *Funaria* Structure and life cycle of Pteridophyte -*Lycopodium* Structure and life cycle of Gymnosperm- *Gnetum*	
Unit III	**Plant anatomy:**
Types of tissues and Meristems. Primary structure, of Dicot and monocot stem, root . Structure of mature Anther and ovule, Fertilization and Dicot embryo.	
Unit IV	
General Outline of Benthem &Hooker's classification, Merits & Demerits. Floral Characters and Economic importance of Rubiaceae, Caesalpinaceae, Asclepidaceae and Poaceae.	
Unit V	**Plant physiology:**
Absorption of water and minerals, Transpiration- movement and loss of water in plants; Stomatal physiology, Photosynthesis; Photosynthetic pigments, light and Dark reaction(C3 cycle only). Photorespiration.	
Text Books	1. Pandey, P.B. College Botany - 1: Including Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. Chand Publishing, New Delhi. 2014. 2. Bilgrami, K.S. A Textbook of Algae. CBS Publisher & Distributors, New Delhi, ISBN: 978-8123900490. 2010.
Reference Books	1. Sharma, P. D. Microbiology, Rastogi& Co., Meerut. 2011. 2. Alexopoulos, C.J., C.M. Mims and M. BlackMell. Introductory Mycology. IV Edition. Miley India (P) Ltd., Daryaganj, New Delhi. 2007. 3. Vashishta, Sinha A.K, Adarsh Kumar.Bryophytes, S.Chand & Company ltd., New Delhi. 2011.

E-References	1. http://herba.msu.ru/shipunov/school/biol_154/textbook/intro_botany.pdf 2. http://www.survivorlibrary.com/library/strasburgers_text-book_of_botany_1921.pdf 3. https://biolympiads.com/wp-content/uploads/2018/09/1-Botany Basics.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	acquire knowledge of classification of algae and fungi and its economic importance.	**K1**
	CO2	know the lifecycle of bryophtes, pteridophytes and gymnossperm.	**K2**
	CO3	compare and differentiate the dicot and monocot plants	**K3**
	CO4	identify the Rubiaceae, Caesalpinaceae, Asclepidaceae and Poaceae family by using floral characters	**K3**
	CO5	understand the transpiration, water absorption and photosynthesis	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	S	S	M	S	M	M	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	M	S	S	S	S	S	M	S
CO4	S	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

SEMESTER-II

<table>
<tr><td>Course Code</td><td>U21ZOT21</td><td rowspan="2">INVERTEBRATA - II</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>CORE</td><td>III</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To understand the systemic and morphological features of invertebrates animals
➢ To identify the simple features of invertebrates
➢ To understand the evolutionary sequence of invertebrates
➢ To acquire knowledge on the general characteristics and classification up to classes of each phylum:.
➢ To acquire knowledge regarding the economic value, affinities of invertebrates</td></tr>
<tr><td>Unit I</td><td colspan="6">Annelida:</td></tr>
<tr><td colspan="7">Type Study: Nereis – External morphology, digestive system, Nephridia, Nervous and reproductive system.
General topic: Metamerism in Annelids</td></tr>
<tr><td>Unit II</td><td colspan="6">Arthropoda:</td></tr>
<tr><td colspan="7">Type Study: Prawn – Penaeus – External Morphology, appendages, digestive system, Excretory system, reproductive system and Development</td></tr>
<tr><td>Unit III</td><td colspan="6">Peripatus:</td></tr>
<tr><td colspan="7">General Topic: Social life of beneficial insects Peripatus and its affinities</td></tr>
<tr><td>Unit IV</td><td colspan="6">Mollusca:</td></tr>
<tr><td colspan="7">Type Study: Pila – External morphology, Digestive System, Respiratory system, Osphradium and Reproductive system. General Topic: Torsion in Gastropoda, Economic importance of Mollusca</td></tr>
<tr><td>Unit V</td><td colspan="6">Echinodermata:</td></tr>
<tr><td colspan="7">Type Study: Starfish – External morphology, Digestive System, nervous system and Reproductive system and development. Pedicellaria, Water vascular system
General Topic: Larval forms in Echinodermata</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Ekambaranatha Ayyar M and Ananthakrishnan.T.N,Manual of Zoology vol.I, S.Viswanathan pvt.Ltd.,Madras, (2001).
2. Agarwal, V.K. ,Invertebrate Zoology. S. Chand & Co. New Delhi, (2010).</td></tr>
</table>

Reference Books	1. P.S. Dhami and J.K. Dhami,R.Chand & Co. Invertebrate Zoology – New Delhi, (2003). 2. Jordan, E.K. and P.S.Verma. Invertebrate Zoology, 12th Edition.S.Chand & Co.Ltd., Ram Nagar, New Delhi, 2010. 3. Kotpal, R.I., Protozoa, Porifera, Coelenterata, Annelida, Arthropoda, Mollusca, Echinodermata, Rastogi Publications, Meerut ,2005. 4. Manual of Zoology Vol. I (Invertibrata). Parts I & II. Ayyar, E.K. and T.N. Ananthakrishnan, S. Viswanathan (Printers and Publishers) Pvt Ltd. Madras. 1992.		
E-References link	https://nptel.ac.in/courses/102/106/102106035/		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the morphological features of invertebrates animals	K1
	CO2	learn about the external features, digestive system, excretory system, reproductive system of the invertebrates	K2
	CO3	learn the social life of beneficial insects and able to apply apiculture, sericulture etc	K3
	CO4	understand the morphology, digestive system, respiratory system, osphradium and reproductive system of mollusca	K2
	CO5	gain knowledge on morphology, digestive system, nervous system and reproductive system and development of echinodermata	K2

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	S	S	S	S	M	S	S
CO2	S	M	S	S	S	M	S	S	S	M	S	S	S
CO3	S	S	S	S	M	S	S	S	S	S	S	M	M
CO4	S	S	S	S	M	S	M	S	S	S	M	S	S
CO5	S	S	M	S	S	S	S	M	S	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOP22</td><td rowspan="2">INVERTEBRATA – II (Practical)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>CORE</td><td>IV</td><td>-</td><td>-</td><td>5</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To understand the structural organization of setae and appendages
➢ To correlate the mouth parts of insects to their feeding habit
➢ To mount the important parts of Invertebrate animals.
➢ To analyze the structural organization of the different systems in Earthworm, Prawn, Pila and Starfish.
➢ To apply the knowledge of classification for the identification of specimens of biological importance</td></tr>
<tr><td></td><td colspan="6">Mounting & identification
• Earthworm - Body and Penial setae
• Honey bee / Mosquito mouth parts
• Appendages of prawn
• Earthworm –digestive system
• Earthworm-Nervous system.
• .Cockroach:
• Salivary apparatus and trachea of cockroach
• Digestive system
• Nervous system
• Male Reproductive system
• Female Reproductive system
• Pila - Digestive system, Radula
• Starfish- Water vascular system.

• Relate structure and function:
• Neanthes – Parapodium
• Penaeus – Petasma
• Pila -Osphradium
• Starfish - Tube feet

Classify giving reasons up to order, salient features and its biological significance

• Annelids - Aphrodite, Nereis, Chaetopterus, Arenicola, Hirudinaria
• Arthropods - Limulus, Palaemon, Balanus, Eupagurus, Scolopendra, Peripatus, Silkworm – Life History Stages,
• Termite and Honey bee – members and castes of colony
• Molluscs – Pila, Dentalium, Patella, Chiton, Solen Sepia, Octopus, Nautilus.
• Echinoderms - Asterias, Ophiura, Clypeaster, Echinus, Cucumaria and Antedon</td></tr>
</table>

Text books	1. Arumugam, Practical Zoology-Invertebrares, Saras publications. 2015 2. Verma, PS..A Manual of Practical Zoology-Invertebrares, S Chand Publications, New Delhi. 2010. 3. Lal, S.S , A Text Book of Practical Zoology: Rastogi, Meerut.2014.		
Reference books	1. Kotpal, R.L., Agarwal, S,K. and Khetarpal, R.P.R., Modern Text Book of Zoology, Rastogi Publications, Meerut. 2005,		
E-references	1. http://assets.vmou.ac.in/MBO10.pdf 2. http://www.agrifs.ir/sites/default/files/A%20text%20book%20of%20practical%20botany%201%20%7BAshok%20Bendre%7D%20%5B8171339239%5D%20%281984%29.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	mount the important parts of invertebrate animals.	K2
	CO2	demonstrate the internal anatomy of Invertebrate animals.	K2
	CO3	examine the various characteristic features and adaptations of higher invertebrates.	K3
	CO4	understand the functional features of higher invertebrates.	K2
	CO5	learn the biological significance of mollusca and echinoderms	K2

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	M	S	S	M	S	S	S	S	M
CO2	S	S	S	S	M	S	M	S	M	S	M	S	S
CO3	S	S	S	S	S	M	S	S	S	S	S	M	M
CO4	M	S	S	S	S	S	S	M	S	M	S	S	S
CO5	S	S	S	S	S	S	S	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><th>Course Code</th><th>U21BOA22</th><th rowspan="2">BOTANY
(PRACTICAL)</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><th>ALLIED</th><th>II</th><th>-</th><th>-</th><th>5</th><th>4</th></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To learn sectioning and mounting skills
➢ To observe the morphological feature for understanding the taxonomy
➢ To know the structure, reproduction & classification of lower plants
➢ To identify the plants as either monocotyledons or dicotyledons
➢ To gain knowledge on internal structure of plants by sectioning</td></tr>
<tr><td></td><td colspan="6">Algae
Oscillatoria (Harmogonia)
Sargassum (Morphology)
<u>Fungi</u> - Puccinia (T.S of Wheat leaf uredospore Teleutospore)
<u>Bryophytes</u> - Funnaria (Habit)
<u>Pteridophyte –</u> Lycopodium (Morphology,T.s of Stem, L.S. of cone)
<u>Gymnosperm</u> - Gentum (morphology, T.S. of Stem showing secondary growth, Gentum , male cone, Female cone.
Taxonomy
Identification and description of the families those are included in the theory
1. Rubiaceae
2. Caesalpinaceae
3. Asclepidaceae &
4. Poaceae

Anatomy
Study of Apical meristem (shoot apex)
Tissues - Parenchyma, Collenchymas, Sclerenchyma, T.S of Dicot stem
Embryology
T.S of mature Anther, structure of Dicot Embryo, Structure of Ovule
Plant physiology
Experiments to demonstrate
i. Osmosis -Thistle funnel experiment
ii. Evolution of oxygen during photosynthesis
iii. Ganongs's light screen experiment.</td></tr>
</table>

Reference Books	1. Sivakumar, K. Algae- A Practical Approach. MJP Publishers, Chennai, India. 2016. 2. Gupta, V.K., Tuohy, M.G., Ayyachamy, M., Turner, K.M. and O'Donovan, A. Laboratory Protocols in Fungal Biology: Current Methods in Fungal Biology. Springer, London, UK. 2013. 3. Chmielewski, J. G. and Krayesky, D. General Botany laboratory Manual. AuthorHouse, Bloomington, USA. 2013. 4. Bendre, A. M. A Text Book Of Practical Botany – Rastogi Publications, Meerut, India. 2010.		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	identify and differentiate algae, Fungi, Bryophytes and Pteridophytes	**K3**
	CO2	identify and classify the rubiaceae, caesalpinaceae , asclepidaceae & poaceae family plants	**K3**
	CO3	Observe the various plant tissues and differentiate Monocot and Dicot plants through sectioning	**K2**
	CO4	understand the parts of plant embryo	**K2**
	CO5	get practical knowledge on thistle funnel experiment and other physiological experiments	**K1**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	M	S	S	M	S	S	S	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	M
CO3	S	S	S	S	S	M	S	M	S	S	S	M	S
CO4	S	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M
CO5	S	M	M	S	S	S	S	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

SEMESTER-III

Course Code	U21ZOT31	BASICS OF CELL AND MOLECULAR BIOLOGY	L	T	P	C
CORE	V		5	-	-	4
Cognitive Level	K1:Recall K2:Understand K3:Apply K5: Analyse					
Learning objective	➢ To learn the ultra structure and functions of cells and cellular organelles and the molecular mechanisms involved in various cellular processes. ➢ To remember and understand the structural and functional aspects of nuclear components and cell cycle events ➢ To analyze the structure, replications and transcriptions of DNA ➢ To know the different molecular and biologic techniques ➢ To differentiate prokaryotic and eukaryotic protein synthesis mechanism.					
Unit I	**Introduction to Cell:**					
Cell type – prokaryotic and eukaryotic Microscopy: Detailed study of Compound, X – ray diffraction, Phase contrast microscope. Polarsing microscope, Cytological Techniques: Fixation- processing- staining methods of DNA, RNA, Protein, Lipids and Polysaccharides-Ultracentrifugation.						
Unit II	**Structure and functions of cell organelles:**					
Ultra structure and functions of plasma membrane. Mitochondria, Golgi apparatus, Endoplasmic reticulum and Ribosomes. Lysosomes, Centrioles, nucleus and nucleolus, Chromosomes – Structure and types. Cell Divisions – mitosis and mitotic apparatus, meiosis and Synaptonemal complex.						
Unit III	**Molecular Genetics:**					
DNA as genetic material – Transformations – Conjugations – Transductions - DNA Structure, DNA repair mechanisms – direct reversal, Excisions repair, SOS repair, recombination's, types and replications Fine structure of gene - cistrons, recons and muton Mutations – Physical and Chemical Stages - Molecular basis of mutations. Sickle cell anemia, Inborn errors of Metabolisms: Phenylketonuria – Alkaptonuria – Albinism.						
Unit IV	**Central dogma of Molecular Biology:**					
Central dogma of Molecular Biology - Protein biosynthesis – Transcriptions - Types of DNA, Different types of RNA – sRNA, tRNA, rRNA, Processing of the precursor of SRNA, Processing of RNA Molecules						
Unit V	**Proteins synthesis:**					
Genetic code, Proteins synthesis - Transcriptions is prokaryotes,Translations, Ribosome, Polyribosome, Steps in proteins synthesis. The lac operon; Positive and Negative control. PCR- Sanger's DNA Sequencing Method. Gene bank and libraries. Human Genome Project.						

Text Books	1. Powar, C.B., Cell Biology, Himalayas Publishing House, Bombay.2011 2. Berry .A.K. A Text book of Cell Biology, Emkay-Publications,Delhi,2012 3. Arumugam.N.Cell Biology. Saras Publication, (2014).		
Reference Books	1. Gupta, M.L. and Jangir, M.L., , Cell Biology Fundamentals and Application, Student Edition, Jothpur.2012 2. DeRobertis, E.D.P. and DeRobertis, E.M.E., 2010, Cell and Molecular Biology VIII Ed. Lea and Febger, Philadelphia. 3. Jeyanthi, G.P ,Molecular biology, MJP Publishers, Chennai. 2009,		
E-references	1. http://compbio.case.edu/koyuturk/teaching/eecs600/slides/Molecular_and_Systems_Biology.pdf 2. file:///C:/Users/ACER/Downloads/Full.pdf 3. https://www.fmed.uniba.sk/uploads/media/Introduction_to_Medical_and_Molecular_Biology.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	differentiate and analyse the structure of prokaryotic and eukaryotic cells, macromolecules, and membranes	**K5**
	CO2	know how these cellular components are used to generate and utilize energy in cells and cell division	**K2**
	CO3	know the structure and functions of cell divisions, physiological changes and alterations of cell functions brought about by mutations.	**K1**
	CO4	analyse the central dogma of life	**K5**
	CO5	understand genetic role in protein synthesis mechanism.	**K2**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	M	S	S	S	M	M
CO2	S	M	S	S	M	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	S	S	M	S	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	S	M	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) -1 mark

No Correlation (N) - 0 mark

TOWARDS EQUAL STATUS
MOTHER TERESA WOMEN'S UNIVERSITY

<table>
<tr><td>Course Code</td><td>U21CHA33</td><td rowspan="2">CHEMISTRY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>ALLIED</td><td>III</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To understand the handling of chemicals and errors in chemical analysis
➢ To get knowledge in chemical bonding and hybridization
➢ To acquire knowledge in volumetric analysis
➢ To understand the basic concept of chemistry of Thermodynamics and Kinetics</td></tr>
<tr><td>Unit I</td><td colspan="6">Handling of chemicals and Data analysis</td></tr>
<tr><td colspan="7">a) Storage and handling of chemicals: Handling of acids, ethers, toxic and poisonous chemicals. Antidotes, threshold vapour concentration and first aid procedure.

b) Errors in chemical analysis: Accuracy, precision. Types of error-absolute and relative errors.Methods of eliminating and minimizing errors.

c) Separation techniques–Solvent extraction. Principle of adsorption and partition chromatography, column chromatography, thin layer chromatography (TLC), paper chromatography and their applications.</td></tr>
<tr><td>Unit II</td><td colspan="6">Chemical bonding</td></tr>
<tr><td colspan="7">a) Ionic Bond: Nature of Ionic bond. Structure of NaCl, KCl and CsCl. Factors influencing the formation of ionic bond.

b) Covalent Bond: Nature of covalent bond. Structure of CH_4, NH_3, H_2O based on hybridization.

c) Coordinate Bond: Nature of coordinate bond. Coordination complexes. Werner'stheory. Geometrical and optical isomerism in square planar and octahedral complexes. Mention of structure and functions of chlorophyll and hemoglobin.

d) Hydrogen Bond: Theory and importance of hydrogen bonding. Types of hydrogenbonding. Hydrogen bonding in carboxylic acids, alcohol, amides, polyamides, DNA and RNA.

e) van der Waal's forces: Dipole – dipole and dipole - induced dipole interactions.</td></tr>
</table>

Unit III	**Volumetric analysis**
a) Methods of expressing concentration: normality, molarity, molality, ppm. b) Primary and secondary standards: preparation of standard solutions c) Principle of volumetric analysis: end point and equivalence points. d) Strong and weak acids and bases - Ionic product of water, pH, pKa, pKb. Buffer solutions -pH of buffer solutions. Mention of Henderson equation & its significance.	
Unit IV	**Kinetics & Thermodynamics**
Chemical Kinetics: Rate, rate law, order and molecularity. Derivation of rate expressions for I and II order reactions. **Catalysis**-Homogeneous and heterogeneous catalysis. Enzyme catalysis, enzymes in biological system and in industry. **Thermodynamics:** Introduction, Scope and importance of thermodynamics- system and surrounding-isolated, closed and open systems- state of the system- intensive and extensive variables. Thermodynamic process- reversible and irreversible, isothermal and adiabatic process- First law of thermodynamics- statement- definition of internal energy (E), enthalpy (H), applications of first law of thermodynamics.	
Unit V	**Chemistry of Biomolecules**
a) Fats – Occurrence and composition. Hydrolysis of fats. b) Vitamins – Source, provitamin, properties and classification. Structure and function of vitamin A, C, D, K and E c) Hormones – Thyroxin, adrenaline and sex hormones (structure and functions only)	
Text Books	1.R. Gopalan, S. Sundaram, *Allied Chemistry*, Sultan Chand and Sons, 1995.
Reference Book	1.U. Sathyanarayana, *Biochemistry*, Books and allied (p) Ltd, 1999. 2.B.R.Puri and L.R.Sharma, *Principles of physical chemistry*, ShobanLalNagin Chand and Co. 33rd ed., 1992.
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	gain the knowledge on the handling of chemicals and errors in chemical analysis	K1
CO2	learn chemical bonding and hybridization	K2

	CO3	learn the calculations of preparing standard solutions	K2
	CO4	understand and appreciate the advanced concepts and rate equations in chemical kinetics.	K2
	CO5	calculate the change in thermodynamic properties, equilibrium constants, partial molar quantities, chemical potential	K3

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	M	M	S	S	M	S	M	M	M	S
CO2	S	M	S	S	M	S	S	S	S	S	S	S	S
CO3	S	S	M	S	S	M	S	S	S	S	M	M	M
CO4	M	S	S	S	S	M	M	S	M	S	S	M	S
CO5	S	M	S	S	S	S	S	M	S	S	S	S	M
CO5	S	S	S	S	S	S	S	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOE311</td><td rowspan="2">WILD LIFE BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Elective</td><td>I</td><td>4</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply K5:Analyse</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To understand the Principles of wild life management
➢ To learn the technique of making survey in forest.
➢ To understand the importance of Biological food chain and its managements
➢ To learn the laws and ethics of wildlife act and also wild life organization
➢ To understand the animal behaviour in natural habitat.</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to Wild life:</td></tr>
<tr><td colspan="7">Wild life -wealth of India and threatened wildlife- threats to survival of Red panda, Musk deer, and great Indian Bustard Olive Ridley turtle. Values of wildlife Principles of wild life management</td></tr>
<tr><td>Unit II</td><td colspan="6">Wild life senses:</td></tr>
<tr><td colspan="7">Wild life senses technique - objective direct and indirect methods with reference to Herpeto fauna, birds and mammal. Project Tiger Elephant & Snow.</td></tr>
<tr><td>Unit III</td><td colspan="6">Wild life conservation:</td></tr>
<tr><td colspan="7">Wild life conservation approaches and limitations management of rare and endangered species. Control and management of over abundant wild life population. Ecological monitoring and animal species and restoration programmes</td></tr>
<tr><td>Unit IV</td><td colspan="6">Wild life laws ethics:</td></tr>
<tr><td colspan="7">Wild life laws ethics, Wild life Protection Act in India. Endangered fauna, mammals, Birds and reptiles in India. Introduction to Organization- The World Conservation Union. (IUCN) World Wildlife Fund (WWF) Indian Board for Wildlife (IBWL).</td></tr>
<tr><td>Unit V</td><td colspan="6">Animal behaviours:</td></tr>
<tr><td colspan="7">Animal behaviours – Aggressive behaviour, Altruism- communication and signaling, mating behaviour social system of mammals. Insect socio- biology the man behaviours and its genitive traits</td></tr>
</table>

Text Books	1. Arumugam NA and Natarajan P. Animal Behaviour – Ethology, Saras Publication Nagercoil,Tamilnadu, 2011. 2. Ridley M. Animal Behaviour - A concise Introduction , Blackwell Scientific Publications, Oxford. (2003).
Reference Books	1. David McFarland. Animal Behaviour, Pitman Publishing Limited, London, UK. 2001. 2. Manning A and Dawkins MS. An Introduction to Animal Behaviour, 6th edition, Cambridge University Press, UK. 2005. 3. Wallace R A. The Ecology and Evolution of Animal Behaviour, Goodyear Publishing Company Inc., Santa Monica, California. 1979
E-References	1. http://swayam.gov.in/nd1_noc20_bt04/ preview 2. http://nd1.iitkgp.ac.in
Course outcome	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	values and apply the principles of wild life for wild life management	**K3**
CO2	improve the awareness of wild life senses	**K2**
CO3	gain the knowledge on wild life conservation approaches	**K2**
CO4	acquire the knowledge of ethics and wild life and apply for the protection of wild life	**K3**
CO5	analyse the Animal behaviors, Insect socio-biology and its genetic traits	**K5**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	M	S	S	S	S	S	S	M	S	S	M	S	M
CO2	S	S	M	S	S	S	S	M	S	M	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	M	S	S	S	S	S	S	S
CO5	M	S	S	S	S	M	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOE312	ANIMAL BEHAVIOUR	L	T	P	C
Elective	II		4	-	-	3
Cognitive Level	K1:Recall K2:Understand K3:Apply					
Learning objective	➢ To know about basic concepts of animal behaviour ➢ To understand the pattern of behaviour of animals ➢ To understand the importance of society and social insects ➢ To learn the sexual behaviour of animals ➢ To distinguish different type of biological rhythms.					
Unit I	**Introduction to Ethology:**					
Origin and history of Ethology : Brief Profiles of Karl 1 Von Frish, Ivan, Pavlov, Kornrad Lorenz, Nilco Tinbergen, Proximate and ultimate causes of behaviour. Methods and recording the behaviours.						
Unit II	**Stereotyped behaviors:**					
Stereotyped behaviors- Individual behaviours patterns. Instinct Vs. Learnt behavior Associative learning, classical and operant conditioning Habituation, Imprinting.						
Unit III	**Social Behaviors**					
Social Behaviors- concepts & society: communication and the senses Altruism: Insects Society with honey bee as example foraging in honey bee and advantages of the waggle dance.						
Unit IV	**Sexual behaviour**					
Sexual behaviour- Asymmetry of sex, sexual dimorphism, mate choice, intra, sexual selection, inter- sexual selection, sexual Conflict in parental care.						
Unit V	**Biological Rhythm :**					
Type and characters short and long term Rhythms: circadian rhythm, tidal rhythm lunar rhythms photoperiod and regulation seasonal reproduction in vertebrates						
Text Books	1. Dewsbur, D.A Comparative animal behavior. McGraw Hill Book Company. 2001. 2. Alcock, J. Animals Behaviour: An evolutionary approach. Sinauer Assoc., Sunderland, Mass. 2015.					

Reference Book	1. Bradbury, J,W., and S.L Vehrencamp. Principles and animals communication sinauer Assoc., Sunderland, Mass, USA.1999. 2. Eibl –Eibesfeldt, I.Ethology: the biology of behavior. Holt, Rinehart & Mc Graw Hill 16. 1970 3. Drickamer , L.C. S.H. Vessey and E.M. Jakob Animals Behavior. Mc Graw Hill. 2002.		
E-references	1. http://nd1.iitkgp.ac.in/ 2. http://www.swayamprabha.gov.in/index.php/program/archive/9 3. http://www.mooc-list.com/tage/animals- behaviour 4. http://unaab.edu.ng/funaab-ocw/attachments/Animal%20Behaviour%201.pdf 5. https://www.ewingdigital.com/text_content/115885834145eafdbf6969b2.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand different type of animal behavior and its significance.	**K2**
	CO2	get an insight to the students about the stereotyped behaviors	**K2**
	CO3	know the social behaviour	**K2**
	CO4	understand the sexual behavior	**K2**
	CO5	understand the type and characters of short and long term rhythms: circadian rhythm,	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	M	S	M	S	S	S	M
CO2	S	M	S	S	S	M	M	S	M	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	M	S	M	S	M	S	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZON3I1</td><td rowspan="2">PUBLIC HEALTH AND HYGIENE</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>NME</td><td>I</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To gain awareness on Public Health and Hygiene
➢ To create knowledge on Health Education and hazards.
➢ To identify the communicable diseases and their control measures
➢ To learn about non-Communicable diseases and their preventive measures
➢ To comprehend the health education of India</td></tr>
<tr><td>Unit I</td><td colspan="6">Scope of Public health and Hygiene:</td></tr>
<tr><td colspan="7">Scope of Public health and Hygiene – nutrition and health – classification of foods – Nutritional deficiencies - Vitamin deficiencies.</td></tr>
<tr><td>Unit II</td><td colspan="6">Environment and Health hazards:</td></tr>
<tr><td colspan="7">Environment and Health hazards – Environmental degradation – Pollution and associated health hazards.</td></tr>
<tr><td>Unit III</td><td colspan="6">Communicable diseases:</td></tr>
<tr><td colspan="7">Communicable diseases and their control measures such as Measles, Polio, Chikungunya, Rabies, Plauge, Leprosy, AIDS and Corona.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Non-Communicable diseases:</td></tr>
<tr><td colspan="7">Non-Communicable diseases and their preventive measures such as Hypertension, Coronary Heart diseases, Stroke, Diabetes, Obesity and Mental ill-health.</td></tr>
<tr><td>Unit V</td><td colspan="6">Health Education in India:</td></tr>
<tr><td colspan="7">Health Education in India – WHO Programmes – Government and Voluntary Organizations and their health services – Precautions, First Aid and awareness on sporadic diseases.</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Park and Park,: Text Book of Preventive and Social Medicine – Banarsidas Bhanot Publ. Jodhpur – India. 2010
2. Dubey, R.C and Maheswari, D.K.: Text Book of Microbiology – S. Chand & Co. Publ. New Delhi – India. 2007
3. Park, J.E. and Park, K. Textbook of Community Health for Nurses.2010</td></tr>
</table>

Reference Books	1. Jatin V. Modi and Renjith S. Chawan. Essentials of Public Health and Sanitation –Part I- IV .Murray, C. J. L. and A.D. Lopez. The Global Burden Of Disease. World Health Organization.1996. 2. Verma, S. Medical Zoology, Rastogi publ. – Meerut – India .1998 3. Singh, H.S. and Rastogi, P. : Parasitology, Rastogi Publ. India.2009		
E-Reference link	1. http://oms.bdu.ac.in/ec/admin/contents/316_16SNMEZO2_2020052104361175.pdf 2. http://keralamarinelife.in/Journals/Vol21/03%20Madhumita%20Mukherjee.pdf 3. https://content.kopykitab.com/ebooks/2013/11/2328/sample/sample_2328.pdf		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	communicate awareness on public health and Hygiene	**K3**
	CO2	gather knowledge on health education and hazards.	**K2**
	CO3	identify the communicable diseases and their control measures	**K3**
	CO4	learn about non-Communicable diseases and their preventive measures	**K1**
	CO5	Control communicable diseases by using appropriate disease control measures	**K3**

Mapping of COs with POs & PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S	S	M	S
CO3	S	S	S	S	S	S	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	M	S	S	S	S	S	M
CO5	S	S	S	S	S	M	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

Course Code	U21ZON312	ORNAMENTAL FISH CULTURE	L	T	P	C
NME	II		2	-	-	2

Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Evaluate
Learning objective	➢ To know the importance and scope of ornamental fish culture ➢ To be familiar with popular ornamental fishes ➢ To learn the breeding behavior, feeding, Aquarium design and fish keeping techniques ➢ To acquire thorough knowledge on the common infections and treatment ➢ To become self employed citizen/ entrepreneur
Unit I	**Scope of ornamental fish culture:**
Importance and scope of ornamental fish culture – Economic potential, commercial and aesthetic value of ornamental fish culture, trends in ornamental fish farming in the world and in India. Taxonomy of important freshwater and marine ornamental fish of indigenous and exotic species.	
Unit II	**Popular ornamental fishes:**
Beta, Colisa, Macropodus, Trichogaster leeri, T. italics microlepis, Zebra fish. Gold fish varieties: Koi, Puntius, tetra, Glass fish, cichilids, angel fish, molly, guppy. Marine species: Hippocampus, scat, Biology, habits and patterns of reproduction of Gold fish and Zebra fish.	
Unit III	**Fish farms:**
Fish farms - mass production of fancy fishes, preparations for breeding – breeding behaviour of chosen fishes: carp, fighter fish – induced breeding – food and feeding – live feeds: rotifers, tubifex and artificial feeds.	
Unit IV	**Disease management:**
Common bacterial, viral, fungal, protozoan and crustacean infections - treatment and control.	
Unit V	**Aquarium design, Construction and preparation:**
Size, shape, substrate, ornamental aquatic plants. Construction and functions of Bio-filters; aerators – accessories for fish tanks – hood and 30 light, nets, suction tube and maintenance of water quality: controlling ammonia build up, pH, feeding regimes	
Text Books	1. Jameson, J.D. Alangara Meen Valarpu (in Tamil). National Book House, New Delhi. 2005.

Reference Books	1. Baradach, JE, JH Ryther and WO Mc Larney. Aquaculture. The Farming and Husbandry of Freshwater and Marine Organisms. Wiley Interscience, New York. 1972. 2. Jameson, J.D. and R.Santhanam. Manual of ornamental fisheries and farming technology. Fisheries College and Research Institute, Thoothukudi. 1996. 3. Mitchell Beazley, The complete guide to tropical aquarium fish care. Read and Consumes Book Ltd., London. 1998.		
E-Reference	http://oms.bdu.ac.in/ec/admin/contents/316_16SNMEZO2_2020052104361175.pdf http://keralamarinelife.in/Journals/Vol21/03%20Madhumita%20Mukherjee.pdf https://content.kopykitab.com/ebooks/2013/11/2328/sample/sample_2328.pdf		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	know the importance and scope of ornamental fish culture	**K1**
	CO2	list out the popular ornamental fishes and its marketing	**K2**
	CO3	practice Aquarium fish culture	**K3**
	CO4	identify the common infections disease of fish and management	**K3**
	CO5	design aquarium to become potential entrepreneur	**K4**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	M	S	S	S	M	S
CO3	S	S	S	S	S	S	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	M	S	S	S	S	S	M
CO5	S	S	S	S	S	M	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER IV

Course Code	**U21ZOT41**	**CHORDATA**	**L**	**T**	**P**	**C**
CORE	**VI**		**4**	**-**	**-**	**4**

Cognitive Level	K2:Understand K3:Apply
Learning objective	➢ To understand the systemic and functional morphology of various forms of vertebrates ➢ To discuss the affinities and adaptations of chordates to different modes of life. ➢ To understand the origin and evolutionary relationship in different subphylum of chordates ➢ Make the student to enlighten the concept of diversity, adaptations, organization and taxonomic status of Chordates. ➢ Student can be able to Characteristics and Outline of Classification of Origin of Chordata.
Unit I	**General characters and Classification of Chordata:**

up to orders with a few examples Affinities and systematic position of cephalochordate, Hemichordates and Urochordata.

Unit II	**Pisces:**

Type Study: Shark -External morphology, Digestive System, Respiratory system, nervous, excretory and Reproductive system.
General Topic: Accessory respiratory organs in Fishes

Unit III	**Amphibia**

Type Study: Frog- External morphology, Digestive System, Respiratory system,circulatory, nervous, excretory, Reproductive system and metamorphosis.
General Topic: Parental care in Amphibia

Unit IV	**Reptilia**

Type Study: Calotes versicolor – External morphology, Digestive System, Respiratory, circulatory, nervous, excretory, pectoral and pelvic Girdle only
General Topic: South Indian Poisonous and non- Poisonous snakes.
Identification – Poison apparatus, biting mechanism, Nature of venom, first aid and treatment.

Unit V	**Aves**

Type study – Pigeon External morphology, Digestive System, Respiratory system, circulatory, nervous, excretory, exoskeleton and flight mechanism
General Topic: Migration of birds
Mammalia:
Type Study – Rabbit External morphology, Digestive System, Respiratory system, circulatory,

nervous, excretory, Reproductive system. General Topic: Dentition in Mammals, Adaptation of Aquatic mammals	
Text Books	1. T.N. Ranganathan .Chordata Zoology, Rainbow printers, Palayamkottai.1996.
References	1. A Manual of Zoology, volume II – Chordata. Parts I & II. M.Ekambatanatha Ayyar, T.N. Anantha Krishnan, S.Viswanathan (Printers and Publishers) Pvt.Ltd, Madras. 1992. 2. Chordate Zoology, Jordan E. L & Verma P. S., S. Chand & Company Ltd. 1998.
E-references	1.https://www.britannica.com/animal/chordate 2. https://www.uou.ac.in/sites/default/files/slm/BSCZO-201.pdf 3. http://assets.vmou.ac.in/MZO06.pdf 4. study-note-animal-kingdom-part-02-01%20(2).pdf
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	understand the General characters and classification of Chordata	**K2**
CO2	learn about the morphology, digestive System, respiratory system, nervous, excretory and reproductive system of shark	**K2**
CO3	know the parental care in amphibia	**K2**
CO4	understand the internal organ of Reptilia, differentiate and snake venom	**K3**
CO5	gather knowledge on migration of birds, dentition in mammals and adaptation of aquatic mammals	**K2**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFICOUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	M	S	M	M	N	S	S	S	S	S	M	S	S
CO2	S	M	S	S	M	M	M	S	M	M	S	S	S
CO3	M	S	S	S	M	S	S	S	S	S	S	M	M
CO4	S	S	S	M	M	S	M	S	M	M	M	S	S
CO5	S	M	M	S	S	S	M	M	S	S	M	N	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOP42	CHORDATA (Practical)	L	T	P	C
CORE	VII		-	-	4	4
Cognitive Level	K2:Understand K3:Apply					
Learning objective	➢ To learn the skills in mounting of scales and parasitic identification in pisces ➢ To develop practical knowledge on identification and classification of chordates ➢ To understand the systemic and functional Morphology of various groups of vertebrates ➢ To learn the biodiversity, habitat, adaptations organizations of chordates ➢ To interpret the affinities, evolutionary relationships and their economic importance					
	I. Mounting & identifications Placoid , Cycloid, Ctenoid, Ganoid scales of Pisces Two parasites identifications in any fish digestive tract. Mounting of Weberian ossicles Feathers identifications - Quill feather, down feathers **II. Diagram and description of** Frog and Calotes - Arterial System, venous system, Brain – dorsal and ventral view digestive and urinogenital system of Tilapia, Virtual dissection of brain and pituitary in frog **III. Draw and classify giving reasons:** Amphioxus, Ascidia, Balanglossus, Tornaria larva. Petromyzon Scoliodon, Trygon, Narcine, Clarias, Gambusia, Echeneis, Hippocampus (M Exocoetus, Anabas, Protopterus, Rana, Alytes, Hyla, Salamander, Ichthyophis, Axolotal larva Calotes, Draco, Varanus, Naja naja, Vipera russellii, Enhydrina, lycodon , C King fisher, Psittacula, Columba, Duck , Sparrow, Myna Ornithorhynchus, Rattus, Pteropus, Oryctolagus, Loris. Whale. Porpoise. **IV Draw labelled Diagram** **OSTEOLOGY** – Pigeon synsacrum, Frog and Rabbit- skull of frog. Pectoral and Pelvic girdle Bones of fore limb and hind limb **Dentition** –- Rabbit and Man					

A record of lab work should be maintained and submitted at the time of the practical examinations Study tour to different habitat for one day for species collection & exposing the students to ecosystem and animal farms is compulsory.			
Text Books	1. Lal, S.S , A Text Book of Practical Zoology: Rastogi, Meerut.2014. 2. Arumugam N. A manual of Practical Chordates, Saras Publication, Nagercoil,2015		
References Books	1. Verma PS.*Chordate Zoology*, S Chand Publishers, New Delhi, (2013).		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	practice the techniques of mounting and identifications of different cells and feathers	K2
	CO2	identify the poisonous animals like snake	K3
	CO3	analyse the various types of animal cells and Molecular structures with their characteristic features and detailed functions	K3
	CO4	understand the techniques of various internal systems present in the chordates.	K2
	CO5	gain the knowledge on the structure, functions of selected organisms through the observations of both living and preserved specimens.	K2

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	M	S	S	S	S	S	M
CO2	S	S	M	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	M	S	S	S	M	S	M	S	M	S
CO4	S	S	S	S	S	S	S	S	S	S	M	S	S
CO5	S	S	S	S	S	S	M	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21CHA44	CHEMISTRY (Practical)	L	T	P	C
ALLIED	IV		-	-	4	4

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objective	➢ To enable the students to acquire knowledge in Organic Estimation ➢ To understand basics and gain knowledge in organic analysis
Unit I	**Acidimetry and alkalimetry**:Titration acids used: hydrochloric acid, sulphuric Standard solutions prepared: sodium carbonate, sodiumbicarbonate, oxalic acid. **Oxidation and reduction titration:** Oxidising agents: Potassium permanganate (permanganimetry). Reducing agents: Ferrous sulphate, ferrous ammonium Sulphate, oxalic acid **Standard solutions prepared:** Ferrous Sulphate, ferrous ammonium Sulphate and oxalic acid. **Iodometry titrations**: titrations of liberated iodine against sodium thiosulphate using acidified potassium permanganate, potassium dichromate and copper Sulphate solutions. Standard solutions: potassium dichromate, copper sulphate.
Text Books	1.Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996. 2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
Reference Books	1.N.S. Gnanapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998. 2. Practical Chemistry by A.O. Thomas, Scientific Book Centre, Cannanore, 2003. 3.Basic Principles of Practical Chemistry, V. Venkateswaran, R.Veeraswamy, A. R. Kulandaivelu, Sultan Chand & Sons, New Delhi, 2nd Edn., 2004.
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	understand the acidimetry and alkalimetry titrations	**K1**
CO2	learn titrations the concept of oxidation and reduction	**K2**

	CO3	prepare the standard solutions for analysis	**K3**
	CO4	learn the calculations of molarity, molality and normality of the solutions	**K2**
	CO5	gain hands on skill in iodometry titrations	**K3**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	M	M	S	M	S	M	M	M	S
CO2	S	S	M	S	M	S	M	S	S	M	S	S	M
CO3	S	S	S	S	S	M	S	S	S	S	M	M	S
CO4	S	S	S	S	S	M	M	S	M	S	S	M	S
CO5	S	S	S	S	M	S	S	M	S	M	M	S	M
CO5	S	S	S	M	S	S	M	M	S	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOE411	ANIMAL HANDLING & GUIDELINES	L	T	P	C
Elective	II		3	-	-	3

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objectives	• To demonstrate competency in handling a variety of livestock and laboratory animal species. • To understand the importance of animal handling and ethical animal care

Unit I **Animal Handling and Restraining:**

Animal Handling and Restraining – safe animal handling techniques for different animals and situations, Working safely with animals,Sanitation and cleanliness- Injection and Biopsy collection , briefing about setting up breeding cage and weaning. Emergency situations: such as animal escapes, animal chokes

Unit II **Animal Safety:**

Procedure room usage SOP- Biosafety Cabinet- Anesthesia Setup- Euthanasia Setup and Animal discard bin, Procedure Room trolley- First Aid Kit and emergency situations -Animal bites, Needle prick and Inj. Splash.

Unit IV **Animal care:**

Animal care and technical personnel, physical relationship of animal facilities to laboratories, Parasites and Pests of Companion Animals - Common Diagnostic and Therapeutic Procedures and Terms. Emergency exit plan (natural calamities/ fire accidents/or any other)

Unit IV **Animal Breeding:**

Mice, Rats, Rabbits-Breeds-uses- Behaviour-Anatomical and physiological features-Breeding and reproduction-husbandry-techniques

Unit V **Guidelines:**

In-vivo Animal Handling Guidelines for Handling of animal, CPCSEA Guidelines, Maintenance of animal, Animal house, Laboratory, Administration of drugs, Routes of administration, dissection procedures, Safety procedures.
Toxicity & Research- Guidelines for toxicity-cytotoxicity -Ethical clearance -ethical issues

Text Books

Animal Handling and Physical Restraint, ISBN 9780367028329, CRC Press-2019.

Reference Books

1. Livestock Management (LSM) Vocational Higher Secondary Education (VHSE) , State Council of Educational Research and Training (SCERT), KERALA 2016.
2. The Animals (Scientific Procedures) Act (Amendment) Order 1993". August 23, 1993. Retrieved February 22, 2013.
3. National Research Council,Guide for the Care and Use of Laboratory Animals, Publisher National Academic Press,2010
4. Karen Hrapkiewicz, Lesley A. Colby, Patricia Denison.A Clinical Laboratory Animal Medicine: An Introduction, Publisher Wiley–Blackwell,2013

E-Reference	https://scert.kerala.gov.in/wp-content/uploads/2020/06/13-live%20stock%20management.pdf		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	learn the animal handling skill	**K1**
	CO2	know the SOP of animal handling and safety	**K2**
	CO3	understand and practice the safe animal transport	**K3**
	CO4	know about the handling of animal during natural calamities, common diagnostic procedure	**K2**
	CO5	gain knowledge about CPCSEA guidelines	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	S	M	S	M	S	M	S	M
CO2	M	S	S	S	S	S	S	S	S	M	S	S	S
CO3	S	S	M	S	S	M	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	S	M	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOE412	INSECT VECTORS AND DISEASES	L	T	P	C
Elective	II		3	-	-	3
Cognitive Level	K1:Recall K2:Understand K3:Apply					
Learning objectives	• To comprehend the various insect vectors and disease spreading mechanism • To learn the various diseases caused by the insect vector and its control measures					
Unit I	Introduction to Insects:					
General Features of Insects, Morphological features, Head – Eyes, Types of antennae, Mouth parts - feeding habits						
Unit II	Concept of Vectors:					
Concept of Vectors - Brief introduction of Carrier and Vectors (mechanical and biological vector),Reservoirs, Host-vector relationship, Vectorial capacity, Adaptations as vectors, Host Specificity						
Unit III	Insects as Vectors:					
Insects as Vectors - Classification of insects up to orders, detailed features of orders with insects as vectors – Diptera, Siphonaptera, Siphunculata, Hemiptera- Dipteran as Disease Vectors - Dipterans as important insect vectors – Mosquitoes, Sand fly, Houseflies						
Unit IV	Study of mosquito:					
Study of mosquito-borne diseases – Malaria, Dengue, Chikungunya, Viral encephalitis, Filariasis; Control of mosquitoes Study of sand fly-borne diseases –Visceral Leishmaniasis, Cutaneous Leishmaniasis, Phlebotomus fever; Control of Sand fly Study of house fly as important mechanical vector, Myiasis, Control of house fly.						
Unit V	Siphonaptera:					
Siphonaptera as Disease Vectors Fleas as important insect vectors; Host-specificity, Study of Flea-borne diseases Plague, Typhus fever; Control of fleas - Siphunculata as Disease Vectors-Human louse (Head, Body and Pubic louse) as important insect vectors; Study of louse-borne diseases – Typhus fever, Relapsing fever.						
Text Books	1. Imms, A.D. . A General Text Book of Entomology. Chapman & Hall, UK.1977. 2. Chapman, R.F. . The Insects: Structure and Function. IV Edition, Cambridge University Press, UK.1998					

Reference Books	1. Pedigo L.P. Entomology and Pest Management. Prentice Hall Publication.2002. 2. Mathews, G. Integrated Vector Management: Controlling Vectors of Malaria and Other Insect Vector Borne Diseases. Wiley-Blackwell-2011		
E-Reference	https://www.who.int/tdr/diseases-topics/vectors/en/#:~:text=Mosquitoes%20are%20the%20best%20known,%2C%20Chikungunya%2C%20Rift%20Valley%20fever.		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the general features of insects	**K1**
	CO2	know the concept of vectors	**K2**
	CO3	classify the insects vectors	**K3**
	CO4	know about mosquito borne diseases	**K2**
	CO5	gain knowledge about Siphonaptera as Disease Vectors	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	S	M	S	M	S	M	S	M
CO2	S	S	S	S	S	S	S	S	S	M	S	S	S
CO3	S	S	M	S	M	M	S	M	S	S	S	M	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	S	M	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	**U21ZON421**	**VERMICOMPOSTING**	**L**	**T**	**P**	**C**
NME	**I**		**2**	**-**	**-**	**2**
Cognitive Level	K1: Recall K2: Understand K3: Apply K5: Analyse					
Learning objective	➢ To get the thorough knowledge on making vermicompost and vermiculture. ➢ To learn about South Indian and North Indian species used in Vermicomposting and Culture techniques of earthworms ➢ To study the vermicompost production ➢ To encourage the self employment practice and save the human being by the way of minimizing the use of chemical fertilizers. ➢ To understand the interaction of earthworms with other organisms					
Unit I	**Taxonomy of Earthworm:**					
Earthworm taxonomy – Morphological and anatomical – Classification of earthworms – Food habits – Digestive system – Excretion – Reproduction and Life cycle – Earthworm as farmer‟s friend.						
Unit II	**Types of earthworm:**					
Types of earthworm – Exotic and native species – South Indian and North Indian species used in Vermicomposting – Collection and Preservation of earthworms for vermicomposting – Culture techniques of earthworms						
Unit III	**Vermicompost production:**					
Vermicompost production – Requirements – Different methods of Vermicomposting – Heap method – Pot method and Tray method – changes during Vemicomposting.						
Unit IV	**Role of Earthworms in soil fertility:**					
Role of Earthworms in soil fertility – Use of Vermicompost for crop production – Use of earthworms in land improvement and land reclamation – Economics of Vermicompost and vermiwash production. Earthworms as animal feed – Medicinal value of earthworm meal – Role of Earthworms in Solid Waste, Sewage and faecal waste management and Vermifilters. Earthworms as bioreactors.						
Unit V	**Interaction of earthworms:**					
Interaction of earthworms with other organisms – Influence of chemical inputs on earthworm activities – Large scale manufacture of Vermicompost, packaging of vermicompost and its marketing – Financial supporting – Government and NGOs for vermiculture work						

Text Books	1. Sreenivasan Ettammal, Handbook of Vermicomposting Technology the Western India technology, Council for Advancement of People's Action and Rural Technology, New Delhi, India. 40 pp. 1997. 2. Vermicology: The Biology of Earthworms, (Ismail, S.A.) Orient Longman. 92pp. 1997. 3. Ismail, S.A Mannpuzhu: Valarppum, Tozhilnutpamum, Payankalum. Orient Longman. 115pp. 2001. 4. Alvares,C., Shiva,V., Ismail, S.A., Vijayalakshmi, K., Mathen, K., and Declercq, B The Organic Farming Reader, ARISE and Other India Press, India. 1999. 298 pp. 5. Ismail, S.A The Earthworm Book, Other India Press, Goa. 2005.		
Reference Books	1. Talashilkar.S.C. and A A K Dosani, Earthworms in Agriculture ISBN 10: 8177542494 / ISBN 13: 9788177542493, Agrobios, Jodhpur, 2005 2. S.C. Talashikar and Dosani, Earthworm in Agriculture –, Agrobios Publications, Near Nasarani Cinema, Jodhpur, 342 002. 2010. 3. Ismail. SA , "Vermicology: Biology of Earthworms", Orient Longman Ltd, Chennai, India. 1997.Hall Publication.		
E-Reference	1. https://clarkcountycomposts.org/images/class_3_-_red_worm_composting.pdf 2. https://www.free-ebooks.net/academic-science/Handbook-of-Vermicomposting/pdf?dl&preview 3. file:///C:/Users/ACER/Downloads/5c55d33672e19.pdf 4. https://www.uvm.edu/sites/default/files/Extension-Master-Gardener/compostingwithworms.pdf 5. https://ag.tennessee.edu/EPP/Redbook/Apiculture%20(Beekeeping).pdf 6. https://drive.google.com/file/d/1rpz8Qhqyy6UoOOVpLjIVDZP3ZXqjNBte/view 7. http://studymaterial.unipune.ac.in:8080/jspui/bitstream/123456789/7420/1/Apiculture.pdf		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	gain knowledge about taxonomy of earthworms	**K2**
	CO2	know the types of earthworms and species used in vermicomposting	**K2**
	CO3	understand and analyse the different methods of vermicomposting	**K3**
	CO4	apply the knowledge on earthworms in soil fertility.	**K5**
	CO5	gather information about influence of chemical inputs on earthworm activities and Large scale manufacture of Vermicompost	**K1,K2**

Mapping of COs with POs &PSOs:

CO	Pos								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	M	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S	S	M	S
CO3	S	S	S	S	S	S	S	M	S	M	S	S	S
CO4	S	S	S	S	S	S	M	S	S	S	S	S	M
CO5	S	S	S	S	S	M	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

Course Code	U21ZON422	APICULTURE	L	T	P	C
NME	II		2	-	-	2
Cognitive Level	K2:Understand K3:Apply					
Learning objective	➢ To gain knowledge about the honey bees, its life style and social behaviour. ➢ To learn apiculture, and recognize the list of honey bees ➢ To know the economic importance of bee products ➢ To understand the biological features of honey bee and economic importance and get self employment.					
Unit I	**Introduction to Apiculture**					
Introduction to Apiculture – Scope of Apiculture. Honey bee – Classification, types of honey bees – *Apis dorsata, Apis florae, Apis indica* and Dammer bee, Bee colony- function of members – Different kinds of cells, Bee hive and its architecture, communication in bees.						
Unit II	**Bee colony**					
Bee colony- function of members – Different kinds of cells, Bee hive and its architecture, communication in bees.						
Unit III	**Apis indica**					
Apis indica – social life in Indian honey bee. Morphology of Queen, Drones and Workers.						
Unit IV	**Bee keeping**					
Bee keeping – methods of bee keeping in India – Primitive hives – wall type, movable type, bamboo hive. Modern hives – longs troth frame hive, Newtons hive. Appliances use in bee keeping.						
Unit V	**Economic importance of bee products**					
Economic importance of bee products – chemical composition, Nutritive value and medicinal uses of honey, bee wax, bee venom and disease of honey bees.						
Text Book	1. Dr. N. Arumugam, Applied Zoology Saras Publication, Nagerkovil, 2014. 2. Ravindranathan. K. R, A text book of Economic Zoology Dominant Publishers and distributors, New Delhi.2005.					

Reference Book	1. M. S. Nalina sundari, Entomology M. J. P Publications, Chennai, 2006. 2. Sharma P.L & Singh S. Hand book of Bee Keeping, Agrobius Publ, India, 2001. 3. Ravindranathan K. R. A text book of Economic Zoology. Dominent Publishing & distributors, New Delhi, 2005
E-references	1.http:// www.fao.org>docrep>pdf 2.http:// www.uaex.edu>special-programs>bee keeping
Course out come	**Upon completion of this course, the students will be able to**

CO	Course Outcomes	Knowledge Level
CO1	comprehend the scope of apiculture and honey bees classification	**K2**
CO2	learn bee colony and different kinds of cells	**K2**
CO3	acquire the knowledge Apis indica and morphology of queen, drones and workers	**K2**
CO4	understand biological features of bee keeping	**K2**
CO5	know the nutritive value and economic importance to become potential entrepreneur	**K3**

Mapping of COs with POs & PSOs:

CO	**PO**								**PSO**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	S	S	S	M	S	S	S	M	S	S	M	M
CO2	S	S	S	M	S	S	M	S	S	M	M	S	S
CO3	S	S	M	S	S	S	S	S	S	M	S	S	M
CO4	S	S	S	S	S	S	S	S	M	M	S	S	M
CO5	S	S	M	S	S	S	M	S	S	M	S	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

SEMESTER-V

Course Code	U21ZOT51	FUNDAMENTALS OF ANIMAL PHYSIOLOGY	L	T	P	C
CORE	VIII		5	-	-	4

Cognitive Level	K1:Recall K2:Understand K4:Evaluate
Learning objective	➢ To learn the digestion, respiration and circulatory system ➢ To study the structure and function of internal organs ➢ To know the excretory mechanism and its significance ➢ To get knowledge about the nerve, muscle and receptors of human body. ➢ To aware of hormonal roles in reproductive process.
Unit I	**Physiology of Digestion**
Structural organization and functions of gastrointestinal tract Mechanical and chemical digestion of food; Absorptions of food Hormonal control of secretion of enzymes in Gastrointestinal tract.	
Unit II	**Respiration Circulation**
Respiration – Types of respiratory organs – Respiratory pigments – transport and exchange of gases control of respiration – biological oxidation anaerobiosis respiratory quotient. Structure and function of human Heart, haemodynamics, ECG, Blood pressure	
Unit III	**Excretion:**
Structure of kidney and its functional unit; Mechanism of urine formation; 10 Regulation of water balance; Regulation of acid-base balance. Origin and Types of Nitrogenous wastes – Ammonotelism, Ureotelism and Uricotelism	
Unit IV	**Receptors and effectors:**
Structure of neuron, resting membrane potential, conduction of action potential across the myelinated and unmyelinated nerve fibers; Types of synapse, Synaptic transmission and, Neuromuscular junction; Reflex action and its types - reflex arc. Ultra structure of skeletal muscle; Molecular and chemical basis of muscle contraction; Characteristics of muscle twitch; Motor unit, summation and tetanus	
Unit V	**Endocrine System and Reproductive Physiology:**
Types of endocrine glands – pituitary, thyroid, parathyroid, adrenal and sex glands – their secretions and physiological role, Human reproductive cycle and the role of hormones.	
References	1. Text Book of Medical Physiology, Elsevier Inc. Hall, J.E., 2013,

Text Books	1. Animal Physiology- P.S Verma, B.S.Tyagi, V.K. Agarwal, II edt, 1978, S.Chand & Company Ltd. Ram Nagar, New Delhi – 110 055. 2.General comparative physiology by Hoar, S. William, 3rd edt, 1987, Prentice Hall of India Pvt. Ltd. New Delhi, 18 BN-0-87692-337-6.
E-References	Animal Physiology : https://www.classcentral.com/course/swayam-animal-physiology-12894 Animal Physiology : https://swayam.gov.in/nd1_noc20_bt42/preview Respiration in the Human Body: https://www.classcentral.com/course/edx-respiration-in-the-human-body-3050
Course out come	Upon completion of this course, the students can able to

CO	Course Outcomes	Knowledge Level
CO1	know the physiological process of digestion respiration and circulation and diseases associated with them.	**K1**
CO2	attain knowledge on respiratory organ and blood circulation systems	**K2**
CO3	comprehend he structure and function of of excretory system	**K4**
CO4	interpret the association between the nerve coordination and muscle physiology.	**K4**
CO5	gain a deep knowledge on endocrine and reproductive system	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	M	S	S	S	S	M	M	S	S	M
CO2	S	S	S	M	S	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	M	M	S	S	S
CO4	S	S	S	S	S	S	S	S	M	M	S	S	S
CO5	S	S	S	M	S	S	M	S	S	M	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOT52	GENETICS & BIOSTATISTICS	L	T	P	C
CORE	IX		5	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objective	➢ To study the basic concept of gene interaction ➢ To learn sex chromosome, syndromes and gene transformation ➢ To get thorough knowledge on gene transformation ➢ To know the biological data collection, tabulation and sampling methods ➢ To acquire the knowledge of biological data and statistical tool for excellent presentation
Unit I	**Mendel's Experiments:**
Mendel's Experiments. Interaction of genes -- Epistasis, Complementary and supplementary. Multiple alleles – Blood groups - inheritance. Polygenic inheritance – Inheritance of skin colour.	
Unit II	**Linkage & Crossing over in Drosophila:**
Linkage & Crossing over in Drosophila. Chromosomal maps. Sex chromosomes and sex chromatins Sex determination in Man Sex linked inheritance, sex influenced genes and sex limited genes. Extra – chromosomal inheritance.	
Unit III	**Bacterial transformation**
Bacterial transformation – Conjugation -- Transduction – Gene regulation – Genetic Code Bacteriophages – Structure and Replication.	
Unit IV	**Population Genetics**
Population Genetics – Hardy Weinberg law. Syndromes: Down, Klinefelter, Turner. Inbreeding, Out breeding and Heterosis. Eugenics, Euthenics and Genetic Counselling.	
Unit V	**Statistical Methods**
Statistical Methods- Collection of data; Sampling methods, presentation of data; Frequency analysis, parts of a table frequency distribution. frequency polygon, frequency polycurve, Histogram, bar charts, pie diagrams.– Chi square analysis. Probability. Analysis of data; measure of central value calculation of mean, mode, median, standard deviation and standard error. Coefficient of Variation.	
Text Books	1.Genetics by P.K. Gupta, Rastogi Publications, 3rd edt, ISBN-81-7133-842-9, Meerut ,. 2015 2.Ramakrishnan P. Biostatistics ,Saras Publication Nagercoil, Tamilnadu. 2015.

References Books	1. Gardner Eldon, J., D. Peter Snustad. . Principles of Genetics, 8th Edition. John Wiley & Sons.2012. 2. Genetics by Verma P.S. and Agarwal V.K., revised edt, ISBN-81-219-3114-2. S. Chand & Co. New Delhi –2010, 3. Primrose SB and Twyman R. Principles of Gene Manipulation and Genomics, John Wiley & Sons, London, UK. 2006 4. Pandey M. Biostatistics Basic and Advanced, Publishers Viva Books, New Delhi .2015.
E-references	1. http://www.maths.lth.se/matstat/kurser/statgen/book/StatisticsInGenetics-20031125.pdf 2. http://www.bionica.info/biblioteca/AnonimoxxxIntroductionMolecularGenetics.pdf
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	know the basic concepts of genetics, multiple alleles and polygenic inheritance	**K1**
CO2	acquire thorough knowledge on linkage & crossing over in Drosophila	**K2**
CO3	learn the types and mechanism bacterial transformation	**K2**
CO4	know the population genetics, Eugenics, Euthenics and Genetic counseling.	**K2**
CO5	understand the hypothesis testing, significance of correlation and application of this tool in biology.	**K3**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	M	S	S	S	S	M	S	M	S	M	S	M
CO2	M	S	S	S	S	S	S	S	S	M	S	S	S
CO3	S	S	M	S	S	M	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	S	M	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><th>Course Code</th><th>U21ZOT53</th><th rowspan="2">BASICS BIOCHEMISTRY</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><th>CORE</th><th>X</th><th>5</th><th>-</th><th>-</th><th>4</th></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To know the structure and properties of biomolecules.
➢ To understand the role of carbohydrates, Protein and lipids
➢ To study the different metabolic cycles
➢ To know the importance of enzymes, vitamins
➢ To understand the role of nucleic acids & vitamins</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to Biomolecules:</td></tr>
<tr><td colspan="7">Bimolecules - Introduction and bonding –Strong and weak bonds– pH and buffers. Acid-Base balance,Buffer concept and significance– Henderson – Hassel Bach equation. Metabolism- Anabplism, catabolism.</td></tr>
<tr><td>Unit II</td><td colspan="6">Carbohydrates</td></tr>
<tr><td colspan="7">Carbohydrates – Classification structure, Biological importance, carbohydrate metabolism – Glycolysis, TCA, Cycle, Glycogenesis, glycogenolysis gluconeogenesis, HMP Shunt pathway</td></tr>
<tr><td>Unit III</td><td colspan="6">Amino acids:</td></tr>
<tr><td colspan="7">Structure and properties of Amino acids – Zwitterions. Protein classification. Properties and importance's – Level of Organization – Primary, Secondary, Ramachandran Plot, tertiary and quaternary structure of protein</td></tr>
<tr><td>Unit IV</td><td colspan="6">Lipids</td></tr>
<tr><td colspan="7">Classification, properties and biological importance, Biosynthesis of cholesterol and B-Oxidation of lipids. Enzymes- Classification and mechanism of action, Factors affecting enzyme action, enzyme inhibition</td></tr>
<tr><td>Unit V</td><td colspan="6">Nucleic acids</td></tr>
<tr><td colspan="7">Nucleoproteins & nucleosides, Nucleotides, chemical structure of DNA & RNA Their importance Role of Vitamins in biological system.</td></tr>
</table>

Text Books	1. Ambika Shanmugam, Fundamentals of Biochemistry for Medical students, Published by the Author, Madras. 2012, 2. Rastogi, S.C. Biochemistry, 3rd Edition Tata Mc Graw Hill Edition, New Delhi. 2010.		
Reference Books	1. Harpers Illustrated Biochemistry, 30th Edition The McGraw- Hill Education,2011. 2. Nelson, D.L., Leninger, A.L. and Cox, M.M.., Lehninger Principles of Biochemistry, W.H. Freeman Co.,2012. 3. Deb, AC. Fundamental of Biochemistry, 10th Edition New Central Book Agency. Pvt.Ltd ,Kolkata, 2011.		
E-References	1. http://swayam.gov.in / nd1.noc19_bt19/preview 2. http://www.swayam.gov.in/nd1_noc20_bt11/ Preview 3. http://ndl.iitkgp.ac.in/		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	gain basic knowledge on biomolecules	**K2**
	CO2	understand the biological importance and metabolism of carbohydrate	**K2**
	CO3	get thorough knowledge on the metabolism and importance of aminoacids	**K2**
	CO4	know the classification, properties and biological importance of lipids	**K2**
	CO5	illustrate the structure of DNA & RNA their importance	**K3**

Mapping of COs with POs & PSOs

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	M	M	S	M	S	S	M	M
CO2	S	S	S	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	M	S	S	S	S
CO5	S	S	S	S	S	S	M	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOT54</td><td rowspan="2">FUNDAMENTAL CONCEPTS OF DEVELOPMENTAL BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>CORE</td><td>XI</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To know the various stages involved in the embryo development
➢ To study the process of fertilization and its development like organogenesis
➢ To enlighten about the embryo formation and development
➢ To learn the organogenesis process of C.elegans
➢ To understand the teratogenesis and stem cell therapy</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to Developmental Biology:</td></tr>
<tr><td colspan="7">Definition, History of Developmental Biology - Theories of Preformation – epigenesis – Von Baer's law and biogenetic theory. Gametogenesis – Spermatogenesis and Oogenesis. Structure of egg and sperm of Amphioxus, frog, Chick and rabbit.</td></tr>
<tr><td>Unit II</td><td colspan="6">Fertilization:</td></tr>
<tr><td colspan="7">Fertilization, Physicochemical, Cytological and Biochemical aspects of fertilization, Cleavage and its pattern in Vertebrates; Morula – Types of blastula. Gastrulation morphogenetic, Movements – Neurula. Organogenesis – Development of heart, brain, and eye in chick.</td></tr>
<tr><td>Unit III</td><td colspan="6">Embryonic adaptation:</td></tr>
<tr><td colspan="7">Foetal membranes in Chick – placenta in mammals. Experimental embryology: Organizer Concept – field and gradients - amphibian metamorphosis and its hormonal. Control. Regeneration in planarians and Amphibian.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Late Development in invertebrate /vertebrate models :</td></tr>
<tr><td colspan="7">Organogenesis- development of ectodermal organs, mesodermal organs, endodermal organs, vulval formation in C.elegans</td></tr>
<tr><td>Unit V</td><td colspan="6">Medical implications:</td></tr>
<tr><td colspan="7">Germ cell specification& migration , Medical implications of developmental biology - genetic errors/ teratogenesis/ stem cell therapy etc</td></tr>
<tr><td>Text Book</td><td colspan="6">1. Developmental Biology - Arumugam N. Saras Publicaion – kottar. 2007.
2. Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2000.</td></tr>
</table>

References	1. Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2010. 2. An introduction to embryology, – Balinsky B.I- W.B.Saunders Co.., Philadelphia, 2008 3. Strickberger, Evolution, Jones and Barlett Publishers Inc., London, 2010.		
E-References	1. https://mobot-biodiversity-jc.weebly.com/uploads/1/8/6/0/18603232/the_evolutionary_biology_of_species_by_t_g_barraclough_2019.pdf 2. http://bgc.org.in/pdf/study-material/developmental-biology-7th-ed-sf-gilbert.pdf 3. https://www.blackwellpublishing.com/ridley/EVOC20.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the history of developmental biology and gametogenesis, spermatogenesis and oogenesis process	**K2**
	CO2	learn the fertilization, physicochemical, cytological and biochemical aspects of fertilization, cleavage and its pattern in vertebrates	**K2**
	CO3	illustrate the process of embryonic adaptation	**K3**
	CO4	know the organogenesis process of C.elegans	**K2**
	CO5	Gain knowledge on teratogenesis and stem cell therapy	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	M	S	S	S	S	M
CO2	S	S	M	S	S	S	S	M	S	S	S	S	S
CO3	S	S	M	S	S	S	M	M	S	S	S	S	S
CO4	S	M	M	M	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	S	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOP55</td><td rowspan="2">ANIMAL PHYSIOLOGY, DEVELOPMENTAL BIOLOGY, GENETICS & BIOSTATISTICS AND BASICS BIOCHEMISTRY(Practical)</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>CORE</td><td>XII</td><td>-</td><td>-</td><td>5</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To understand various stages involved in cell division
➢ To observe and learn the structure of Giant chromosomes
➢ To gain knowledge about different stages of frog embryo
➢ To learn the significance of living fossils
➢ To understand mendelian genetics and statistical tool</td></tr>
<tr><td></td><td colspan="6">ANIMAL PHYSIOLOGY
Mounting Estimation and Observations
• Preparation of human blood smear
• ABO blood grouping
• Counting of different types of blood cells using haemocytometer - Demonstration of. W.B.C. & R.B.C. count
• Differential leukocyte count

• Blood Analysis – Hb Estimation (Sahli's Sethod)
• Use of Kymograph unit,
• Demonstration of blood pressure in Sphygmomanometer. , Respirometer.
• Survey of Digestive enzymes in cockroach.
• Estimations of excretory products of fish, bird and mammal and detections of ammonia, urea and uric acid.
• Urine Analysis – Detections of Albumins, Sugar and Deposits.
• Observations & Study of mantoux test, widal test

DEVELOPMENTAL BIOLOGY:
1. Chick blastoderm mounting
2. Observation of chick blastoderm
i. 24 hrs ii. 72 hrs iii.. 96 hrs
3. Placental types – Diffuse, Cotyledonary, Discoidal and Zonary

EVOLUTION
1.Variation – Finger Prints.
2 .Vestigial Organ.
3.Examples of evolutionary significance of Peripatus, Limulus and Archaeopteryx.
Animals with adaptive colouration. (Stick insect & Chamaeleon).</td></tr>
</table>

	GENETICS AND BIOSTATISTICS: 1. Observation and record of simple mendelian traits 2. Pedigree analysis – chart preparation 3. Problems based on gene frequency – Hardy Weinberg Law 4. Calculation of mean, mode, median, variance and standard deviation Using leaves 5. Problems related to Student T test, Chi Square test **BIOCHEMISTRY** 1.Qualitative analysis of Carbohydrate, lipid and protein 2. Protein estimation by Lowry methods 3. DNA estimation 4. Separation techniques-Circular paper chromatography A record of lab work should be maintained and submitted at the time of the practical examination. Study tour to the minimum of 1 day duration to be conducted compulsory.
Text Books	1. Lal, S.S, A Text Book of Practical Zoology: Rastogi, Meerut.2014. 2. Verma, PS.A Manual of Practical Zoology-third volume S Chand Publications, New Delhi. 2010, 3. Rajamanickam, C. Experimental protocols in basic molecular biology, Osho Scientific Publications, Madurai. 2001
Reference Books	1. Nigam and A.Ayyagai Lab Manual in Biochemistry, Immunology and Biotechnology. Tata McGraw- Hill Publication, New Delhi, 2007. 2. Zar, J.H. Biostatistical Analysis, Low Price Edition Pearson Education, India, 2008.
E-References	1. http:// www.ecoursesonline.iasri.res.in 2. http:// www.onlinelibrary.wiley.com
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	analyse the various stages of cell divisions	**K5**
CO2	understand the various stages of embryo development	**K2**
CO3	learn and interpret the development and evolution process	**K3**
CO4	develop skill in observing, analyzing and calculating various biological data	**K3**
CO5	gain knowledge on Mendelian characters, probability tests and Biostatistical calculation	**K3**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	S	S	S	M	S	S	S	S	M
CO2	S	M	S	S	M	S	S	M	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	S	M	M	S	S	S	S	S	S	M	S	M	S
CO5	S	S	S	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks

Moderately Correlating (M) - 2 marks

Weakly Correlating (W) -1 mark

No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOE521</td><td rowspan="2">CANCER BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Elective</td><td>III</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To distinguish normal cell and cancer cell.
➢ To understand the various methods of diagnosis of cancer
➢ To obtain the knowledge of staging the cancer cells
➢ To know about different types of cancer
➢ To obtain the knowledge about treatments for cancer.</td></tr>
<tr><td>UNIT – I</td><td colspan="6">Cancer Cell:</td></tr>
<tr><td colspan="7">Properties of normal cell and cancer cell, benign tumor and malignant tumor. Type of cancer common symptoms, causative factors Definition of primary and secondary cancer.</td></tr>
<tr><td>UNIT – II</td><td colspan="6">Diagnosis of cancer:</td></tr>
<tr><td colspan="7">Classification and diagnosis of cancer by tissue type - Solid tumor, Histopathological diagnosis. Immunohistochemistry Hematological malignancies, morphological diagnosis Biopsy its types. Clinical examinations.</td></tr>
<tr><td>UNIT – III</td><td colspan="6">Cancer classification:</td></tr>
<tr><td colspan="7">TNM classification Purpose types of staging. TNM System, Stage grouping. Factors affecting the stage and staging system.</td></tr>
<tr><td>UNIT – IV</td><td colspan="6">Sporadic cancers:</td></tr>
<tr><td colspan="7">Sporadic cancers, hereditary cancers, examples of cancer susceptibility syndromes, Immune suppression related malignancies, transplantation related malignancies.</td></tr>
<tr><td>UNIT –V</td><td colspan="6">Cancer treatments-</td></tr>
<tr><td colspan="7">Surgery and its types, Radiation, Chemotherapy, Biological therapy, Hormone therapy, transplantation. Targeted therapy, Gene therapy and other treatment methods</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Renganathan, T.S.. A text book of Human Anatomy. VI edn. S. Chand and Company Ltd., New Delhi. 2002
2. Robert A. Weinberg.(Author), Roberts A Weinberg (Author).The Biology of cancer, 2nd Edition 2nd Edition,2005</td></tr>
</table>

Reference Books	1. Vander, A.J. Sherman, J.H. and Luciano, D.S.. Human Physiology: The mechanism of body functions, VI edn. Mc Graw-Hill Publications, New York. 1994 2. Lewis J.Kleinsmith. Principles of cancer Biology, Ie first Edition English, Paperback, 2001 3. Robert G.Mc kinnell Ralph E. Parchment Alan O.Perantoni .The Biological Basis of Cance.r Second edition English, Soft Cover,1998 4. Hesteth Dr Robin HeskethIntroduction to Cancer Biology English, Paperback,2000		
E-References	1. http://csbl.bmb.uga.edu/mirrors/JLU/DragonStar2017/download/introduction-to-cancer-biology.pdf 2. https://sphweb.bumc.bu.edu/otlt/MPH-Modules/PH/PH709_Cancer/A10-Cancer.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	differentiate between normal cell and cancer cell.	**K3**
	CO2	understand the classification and diagnosis of cancer by tissue type	**K2**
	CO3	gain the knowledge of classification of cancer	**K1**
	CO4	understand the sporadic cancers, hereditary cancers and examples of cancer susceptibility syndromes	**K2**
	CO5	acquire the knowledge of cancer treatments like radiation, chemotherapy, biological therapy, hormone therapy and transplantation	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	M	S	S	M	S	S	S	M
CO2	S	S	S	S	S	M	S	S	M	S	S	M	S
CO3	S	S	S	S	S	M	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	M	S	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOE522	PARASITOLOGY	L	T	P	C
Elective	III		3	-	-	3

Cognitive Level	K1:Recall K2:Understand
Learning objectives	• To understand the concept of parasitology • To know the morphology of parasite • To understand the biological description of all types of parasites
Unit I	**Introduction to Parasitology**
Brief introduction of Parasitism, Parasite, Parasitoid and Vectors (mechanical and biological vector) Host parasite relationship	
Unit II	**Parasitic Protists**
Study of Morphology, Life Cycle, Prevalence, Epidemiology,Pathogenicity, Diagnosis, Prophylaxis and Treatment of Entamoeba histolytica, Giardia intestinalis, Trypanosoma gambiense, Leishmania donovani, Plasmodium vivax	
Unit III	**Parasitic Platyhelminthes**
Study of Morphology, Life Cycle, Prevalence,Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of Fasciolopsis buski, Schistosoma haematobium, Taenia solium and Hymenolepis nana	
Unit IV	**Parasitic Nematodes**
Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of Ascaris lumbricoides, Ancylostoma duodenale, Wuchereria bancrofti and Trichinella spiralis. Study of structure, life cycle and importance of Meloidogyne (root knot nematode), Pratylencus (lesion nematode)	
Unit V	**Parasitic Arthropoda**
Biology, importance and control of ticks, mites, Pediculus humanus (head and body louse), Xenopsylla cheopis and Cimex lectularius. Parasitic Vertebrates - A brief account of parasitic vertebrates; Cookicutter Shark, Candiru, Hood Mockingbird and Vampire bat	

Text Books	1. Arora, D. R and Arora, B. Medical Parasitology. II Edition. CBS Publications and Distributors.2001. 2. Parija, S. C. Textbook of medical parasitology, protozoology & helminthology (Text and colour Atlas), II Edition, All India Publishers & Distributers, Medical Books Publishers, Chennai, Delhi-1998

Reference Books	1. Ahmed, N., Dawson, M., Smith, C. and Wood, Ed. Biology of Disease. Taylor and Francis Group.2007. 2. K. D. Chatterjee. Parasitology: Protozoology and Helminthology. XIII Edition, CBS Publishers & Distributors (P) Ltd.2009.		
E-Reference	https://www.nature.com/subjects/parasitology#:~:text=Parasitology%20is%20the%20scientific%20discipline,host%20response%20to%20these%20agents.		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the general introduction about parasitism	**K1**
	CO2	know the morphological feature of parasites	**K2**
	CO3	comprehend the platyhelminthes parasitic life	**K2**
	CO4	acquire knowledge on nematode parasites	**K2**
	CO5	gain knowledge about vertebrate parasites	**K2**

Mapping of COs with POs & PSOs

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	S	S	S	S	S	S	M	S	S	M	S	M
CO2	S	S	M	S	S	S	S	M	S	M	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	M	S	S	S	S	S	S	S
CO5	M	S	S	S	S	M	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOS531</td><td rowspan="2">POULTRY FARMING</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>SBE</td><td>III</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To study the poultry nutrition and physiology
➢ To learn the nutritive value of egg
➢ To understand the poultry health and management
➢ To learn the techniques in poultry science
➢ To acquire the skill to become entrepreneur</td></tr>
<tr><td>Unit I</td><td colspan="6">Poultry Nutrition and Physiology:</td></tr>
<tr><td colspan="7">Essential amino acids, proteins, fatty acids, vitamins and minerals their inter-relationships.
Functional regulation of digestion, absorption and metabolism of nutrients.</td></tr>
<tr><td>Unit II</td><td colspan="6">Feed formulation for different species and groups:</td></tr>
<tr><td colspan="7">Different systems of feeding wet mash, dry mash, crumble and pellet feeding.
Feed Passage rate in G.I. tract in relation to digestion and absorption efficiency;
Characteristics features of endocrine glands.
Endocrine control and variable factors influencing growth process</td></tr>
<tr><td>Unit III</td><td colspan="6">Poultry Products technology:</td></tr>
<tr><td colspan="7">Structure, chemical composition and nutritive value of egg.
Various measures of egg quality. Shell, albumen and yolk quality assessment.
Factors influencing egg quality traits.
Mechanism of deterioration of egg quality.
Different methods of preservation of table eggs and their relative merits and demerits.
Physical, chemicals, microbial and organoleptic evaluation of meat quality</td></tr>
<tr><td>Unit IV</td><td colspan="6">Poultry Health Management:</td></tr>
<tr><td colspan="7">Common diseases of poultry – bacterial, viral, fungal, protozoan, parasitic and other emerging diseases of poultry, their prevention control and treatment. Metabolic and nutrient deficiency diseases and disorders.</td></tr>
<tr><td>Unit V</td><td colspan="6">Vaccination programmes and Deworming programmes:</td></tr>
<tr><td colspan="7">Control of coccidiosis, worms, ectoparasites and flies. Medication procedures.
Cleaning and disinfection of poultry houses. Drinking water sanitation</td></tr>
<tr><td>Text Books</td><td colspan="6">1. P.V. Sreenivasaiah Text book of Poultry Science,2002
2. Nilotpal Ghosh - A text book by Poultry Science and practice,2010</td></tr>
</table>

Reference Books	1. Benjamin Macclare- Advances in Poultry science,1999 2. Carlos Hassey- Poultry sciences- Breeding, Rearing and Management of animals,2000		
E-references	1. http://www.fao.org/3/y5169e/y5169e.pdf 2. http://dahd.nic.in/sites/default/filess/Excerpts%20of%20Poultry%20Farmn%20Manual-ilovepdf-compressed.pdf		
Course out come	Upon completion of this course, the students will be		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	learn the nutrition and physiology of poultry	**K2**
	CO2	understand the feed formulation for different species and groups	**K2**
	CO3	develop the skills in analyzing poultry eggs	**K3**
	CO4	identify and manage the microbial infections in poultry	**K3**
	CO5	gather knowledge about metabolic and nutrient deficiency diseases and disorders	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES(PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	M	S	M	S	S	S	M
CO2	S	M	S	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	M
CO4	S	S	S	S	S	M	S	S	S	S	S	S	M
CO5	S	S	S	S	M	S	M	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOS532	SERICULTURE	L	T	P	C
SBE	III		2	-	-	2
Cognitive Level	K2:Understand K3:Apply					
Learning Objective	➢ To enlighten the students about sericulture a profitable culture practice. ➢ To enhance the skills, competitiveness and employability of the students ➢ To gain the knowledge of silk production, disease management, quality of silk and marketability. ➢ Non major elective student can become entrepreneur.					
Unit I	**Introduction to sericulture& moriculture**					
Classification of Mulberry, Methods of cultivation. Biology and diseases of Silkworms Life cycle, External morphology and biology of mulberry silkworm. Internal morphology of Silkworm – Digestive, Respiratory, Nervous, Excretory and Reproductive systems.						
Unit II	**Seed /silkworm eggs**					
Structure – Commercial and reproductive, Seeds, Voltinism, Hibernating and Non hibernating eggs. Diseases of *Bombyx mori* -Viral, bacterial protozoan and fungal, Preventive and control measures. Insect and vertebrate Pests of silkworm and their management.						
Unit III	**Rearing**					
Rearing house and appliances, Rearing processes. Chawki worm rearing – optimum feeding, optimum Environmental conditions, care during rearing and cleaning. Selection of ripe worm, spinning, mounting, Harvesting, storage and transport. Reeling – Stifling, reeling appliances – types of reeling machines, Country charka, cottage basin, filature units, Applications of silk.						
Text Books	1. M. S. Nalina sundari, Entomology M. J. P Publications, Chennai, 2006. 2. Sharma P.L & Singh S. Hand book of Bee Keeping, Agrobius Publ, India, 2001. 3. Ravindranathan K. R. A text book of Economic Zoology. Dominent Publishing & distributors, New Delhi, 2005					

Reference Books	1. Ganga & J. Sulochana Chetty, An introduction to sericulture (Oxford & IBH bubl.Co.Pvt. Ltd.) 2001. 2. Hand Book of Practical Sericulture by Ullal and Narsimhanna. CSB. Bangalore.2002		
E-References	1. http://www.survivorlibrary.com/library/silk_culture-a_manual_with_complete_instructions_1885.pdf 2. https://n-modell.hu/11kopjts/178679-introduction-to-sericulture-pdf		
Course out come	Upon completion of this course, the students will be to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	acquire knowledge about sericulture and moriculture	**K2**
	CO2	learn the commercial and reproductive system of silkworm eggs and pests of silkworm and their management	**K2**
	CO3	gain knowledge of rearing house and appliances	**K2**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	M	S	S	M	M	M	S	S	S	M
CO2	S	S	S	M	S	S	M	M	M	S	M	S	S
CO3	S	S	S	M	S	S	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

SEMESTER VI

Course Code	U21ZOT61	GENETIC ENGINEERING & BIOTECHNOLOGY	L	T	P	C
CORE	XIII		5	-	-	4

Cognitive Level	K2:Understand K3:Apply K6: Create
Learning objective	• To know the concepts of biotechnology and familiarize with the tools and techniques of Biotechnology • To acquire knowledge on tissue culture and learn the fundamentals of patenting of biological products. • To be familiar with microbial degradation of bioremediation and biomining process. • To understand the production and application of stem cell production • To elucidate the production of transgenic animals and their importance.
Unit I	**Introduction to Genetic Engineering**
History and scope of Genetic Engineering and biotechnology, Basic steps in Gene cloning, Restriction enzymes. Cloning Vectors -Bacterial plasmids (p BR 322) Bacteriophage Vector – (Lambda) Animal vector – (SV 40)	
Unit II	**Introduction of DNA into cells**
Bacteria – Transformation, Plants –Electroporation, Animals – shot gun method, Liposome mediated fusion. Identification of recombinant hosts – Bacteria, Transgenic plants a brief note. Application of Recombinant DNA in medicine and industry, Biohazards of recombinant DNA.	
Unit III	**Animal cell and Tissue culture**
Animal cell, culture media physical, chemical functions of different constituents of culture medium, Role of carbon dioxide, growth factors, Glutamine in culture medium, serum and protein free media and their applications. Types of cell culture; Primary and established culture, Organ culture Disaggregation of tissue, cell separation cell synchronization, Cryopreservation.	
Unit IV	**Environmental Biotechnology**
Pollution control –Waste Treatment Anaerobic, Aerobic Waste Treatment, Biodegradation, Microorganism in Pollution Control. Bioremediation, Biosensors and Biofuels	
Unit V	**Transgenic animals**
Production, application advantages. Transgenic animals in livestock improvement, PCR, DNA finger printing, Ethical issues in animal Biotechnology. Stem cell culture - production and application.	

Text Books	1. P. K. Gupta Rastogi and Co, Elements of Biotechnology. Meerut. 2016. 2. S.K. Agarwal, Environmental Biotechnology APH Publication Co, New Delhi – 2010. 3. V. Kumaresan ,Biotechnology – Saras Publication , (2015)
Reference Books	1. R.C Dubey, A Text book of Biotechnology. III Ed.,S.Chand& company Ltd. 2003. 2. H.K.Das Text book of Biotechnology . III Ed., Wiley India (P) Ltd. ,2004. 3. S.C.Rastogi, Biotechnology – Principles and Applications – I Ed., Narosa Publishing house. 2007.
E-References	1. https://thunderbooks.files.wordpress.com/2009/05/introduction-to-biotechnology-and-genetic-engineering-infinity-2008.pdf 2. http://www.ifsc.usp.br/~ilanacamargo/FFI0740/2.pdf 3. https://ingeniumcanada.org/sites/default/files/2019-01/education-genetics-and-biotechnology-eak.pdf
Course out come	Upon completion of this course, the students can able to

CO	Course Outcomes	Knowledge Level
CO1	understand the genetic engineering tools and gene cloning.	**K2**
CO2	know the transformation mechanism of gene	**K2**
CO3	comprehend the values of animal tissue culture	**K2**
CO4	apply the knowledge of genetic engineering in environmental management	**K3**
CO5	learn the techniques and create new transgenic animals	**K6**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	S	S	S	S	M	S	S	M	M	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	S	S
CO3	S	M	S	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	M	S	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	M	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOT62	MICROBIOLOGY AND IMMUNOLOGY	L	T	P	C
CORE	XIV		5	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objective	➢ To provide the knowledge with the latest information in scientific microbiological methods. ➢ To learn the microbial culture and maintenance techniques ➢ To get skills of microbial culture and application of this knowledge to well being of human health and environmental health. ➢ To provide the knowledge of auto immune diseases ➢ Acquire the knowledge to understand the science of immunology for the new invention of vaccine for some deadly diseases.
Unit I	**Introduction**
History and scope of Microbiology. Outline classification of microorganisms. General structure of microbes - Bacteria, fungi, Virus algae and protozoa. **Bacterial growth:** Culture media and selective media; continuous and batch culture technique; growth curve.	
Unit II	**Applied Microbiology**
Food Microbiology: Food poisoning, food spoilage and preservation. Industrial Microbiology: Production of antibiotic with reference & penicillin production. . Soil microbiology: Role of soil microbes in N_2 fixation.	
Unit III	**Medical Microbiology**
Diseases caused by bacteria in different system of man as given below. Dermal – streptococcal inflammation-upper respiratory tract streptococcal. Respiratory – Tuberculosis. Gastro – intestinal – dysentery. Reproductive – Gonorrhea. Viral disease with reference to causative organisms, symptoms, impact on the host and control measures	
Unit IV	**Immunology**
History and scope of immunology Immunity – Types of Immunity – Innate and acquired, passive and active. Lymphoid organs – primary and secondary (Thymus, Bone Marrow, Bursa of fabricius, spleen, tonsil, lymph node, payer's patches).	
Unit V	**Immunology:**
Immunoglobulin structure and function, biological properties of lg classes. Interaction of antigen and antibody, complement activation. Immunopathology: - Major histocompatibility complex and its significance. HLA. Hypersensitivity - Types of hypersensitivity. AIDS and immunity.	

Text Books	1. P.K Gupta, Immunology, Rastogi publication, meerut, 2016. 2. Ananda narayanan, T. and Jayram Paniker, C.K., Textbook of Microbiology, 6th Ed. 3. Orient Longman Ltd., Chennai. 2010. 4. Kannan, I., Immunology, MJP publishers, Chennai. 2011.
Reference Books	1. Microbiolog**y.** Michel J. Pelezar, JR., E.C.S. Chan, Noel R. Krieg, 5th edt. Tata MaGraw- Hill Publishing Company Ltd, New Delhi.2001. 2. Immunology & Immunotechnology, Ashim K. Chakravarth, Published in India by oxford university press, Jai Singh Road, New Delhi.2006. 3. Arora, M.P. Immunology, Ane Books Pvt. Ltd., New Delhi, 2010. 4. Immunology & Immunotechnology, Ashim K. Chakravarth, Published in India by oxford university press, Jai Singh Road, New Delhi. 2006.
E-References	1. https://labscientists.files.wordpress.com/2017/12/microbiology-immunology-1.pdf 2. http://lib.rudn.ru/file/Immunology_Microbiology_Catalogue_eBook.pdf 3. https://www.moscmm.org/pdf/Ananthanarayan%20microbio.pdf 4. https://alraziuni.edu.ye/book1/Laboratories/microbiology%20immunology.pdf
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	gain knowledge with microbial culture and maintenance techniques	**K2**
CO2	learn the food poisoning, food spoilage and preservation and production of antibiotics	**K1**
CO3	Know the diseases caused by bacteria in different system of man	**K2**
CO4	acquire the knowledge of auto immune diseases	**K2**
CO5	attain the knowledge to understand the structure and function of immunoglobulin	**K3**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES(PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	M	S	S	S	S	M	M	S	S	M
CO2	S	S	S	M	S	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	M	M	S	S	S
CO4	S	S	S	S	S	S	S	S	M	M	S	S	S
CO5	S	S	S	M	S	S	M	S	S	M	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	U21ZOT63	EVOLUTION	L	T	P	C
CORE	XV		5	-	-	4

Cognitive Level	K2:Understand K3:Apply
Learning objective	➢ To know the various stages involved in the embryo development ➢ To study the process of fertilization and its development like organogenesis ➢ To enlighten about the embryo formation and development ➢ To learn the evolutionary process and understand the importance of fossils ➢ To understand the evolutionary theories and speciation process.
Unit I	**Introduction to Evolution:**
Introduction- Origins of evolutionary thought, Early ideas of evolution, Concept of Evolution, Origin of Life, Origin of Prokaryotes and Eukaryotes.	
Unit II	**Theories of Evolution:**
Theories of Evolution – Lamarckism, Darwinism, Neo – Lamarckism, Neo – Darwinism, Mutation theory of Devries modern synthetic theory. Isolating mechanism.	
Unit III	**Evidences of evolution:**
Morphological, Embryological, Physiological, Geographical and Geological, immunological evidences for evolution. Fossils, Geological time scale	
Unit IV	**Species Concepts:**
Species Concepts and Species Attributes, The "Modern Synthesis" The nature of evolutionary units; Species concepts- Speciation (Allopatric & sympatric). A general theory of speciation	
Unit V	**The causes of evolution:**
Hardy-Weinberg equilibrium – Mutation Geneflow, Genetic drift Nonrandom breeding. Natural selection I: Stabilizing, directional, and disruptive selectio- Natural selection II: The general selection model.- Group selection, kin selection, and sociobiology.	
Text Book	1. Developmental Biology - Arumugam N. Saras Publicaion – kottar. 2007. 2. Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2000.

References	1. Modern Experimental Zoology by Preeti Guptha and Mridula Chaturvedi. 2010. 2. An introduction to embryology, – Balinsky B.I- W.B.Saunders Co.., Philadelphia, 2008 3.Strickberger, Evolution, Jones and Barlett Publishers Inc., London, 2010.		
E-References	1. https://mobot-biodiversity-jc.weebly.com/uploads/1/8/6/0/18603232/the_evolutionary_biology_of_species_by_t_g_barraclough_2019.pdf 2. http://bgc.org.in/pdf/study-material/developmental-biology-7th-ed-sf-gilbert.pdf 3. https://www.blackwellpublishing.com/ridley/EVOC20.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the history of developmental biology and gametogenesis, spermatogenesis and oogenesis process	**K2**
	CO2	learn the fertilization, physicochemical, cytological and biochemical aspects of fertilization, cleavage and its pattern in vertebrates	**K2**
	CO3	illustrate the process of embryonic adaptation	**K3**
	CO4	know the theories of evolution	**K2**
	CO5	identify and conserve genetic resources mutation theory of devries modern synthetic theory	**K3**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	M	S	S	S	S	M
CO2	S	S	M	S	S	S	S	M	S	S	S	S	S
CO3	S	S	M	S	S	S	M	M	S	S	S	S	S
CO4	S	M	M	M	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	S	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	U21ZOT64	ENVIRONMENTAL BIOLOGY	L	T	P	C
Core	XVI		4	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply K4:Evaluate
Learning objective	➢ To know the factors involved in the environment ➢ To comprehend the relationship occurs between the organism ➢ To understand the population, community ecology and function of ecosystems ➢ To list biotic and abiotic factors that affect, the distribution, dispersal, and behaviour of organisms. ➢ To describe the structure and function of ecological systems and explain how ecological systems work at different spatial and temporal scales.
Unit I	**Light:**
Physico-chemical factors: Light: Spectra (composition of light), Light on land, light in water. Biological effects of light. Temperature: Range, Diurnal variation, thermal Stratification, temperature tolerance, Classification of Organisms. Adaptation of extreme temperature, Biological effects of temperature. Medium and substratum: Atmosphere and Air; Lithosphere and soil; Hydrosphere and water.	
Unit II	**Inter specific relationships and intra specific relationships**
Types and example, Colonization, Aggregation, Social organization, Psychological Factors Population Ecology: Types, density, and estimation, natality, mortality, age, distribution, growth pattern, fluctuation and equilibrium biotic potential. Dispersal and distribution, Regulation of population.	
Unit III	**Ecosystem**
Community, characteristics, diversity dominance, structure, Stratification, periodicity, fluctuation, Ecotone and edge effect, Ecological niche, equivalence, ecotypes, ecological succession Ecosystem: Components, food chain and its types- food web, Ecological pyramids. Energy flow and productivity – Examples (Pond and Forests) – Biogeochemical cycles- carbon, Nitrogen and phosphorous.	
Unit IV	**Habitats**
Fresh water, Marine, Terrestrial and Estuarine Habitats Pollution: Kinds, sources of pollution, Hazards of pollution to human, animals, plants and Buildings. /control and remedial measures. Practical Application of ecology in fishery, management, agriculture And forestry. Wild life conservation in India.	
Unit V	**Biodiversity**
Types and Levels- Species diversity, values of biodiversity. Causes of erosion of biodiversity. Conservation of biodiversity, Application of remote Sensing in biodiversity.	

Text Books	1. P. D. Sharma, Environmental Biology: Rastogi Publications, Meerut, 2016. 2. Gupta PK. *Cytology, Genetics and Evolution*, Rastogi Publications, Meerut,2016. 3. Arumugam N. *Concepts of Ecology*, Saras Publication, Nagercoil, Tamilnadu,2014.		
Reference Books	1. P.S. Verma & V.K.Agarwal, Environmental Biology (Principles of ecology) ISBN- 81-219-0859-0S. Chand &Co. Ram nagar, New Delhi , 2010. 2. Sharma P.D, 7th edt, Elements of Ecology Rastogi Publication, Meerut,2010.		
E- Reference	1. http://www.uilis.unsyiah.ac.id/oer/files/original/1c18821adec76287db06550e04d69314.pdf 2. https://www.hzu.edu.in/bed/E%20V%20S.pdf 3. http://assets.cambridge.org/97805217/87277/excerpt/9780521787277_excerpt.pdf		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	learn the physico-chemical factors and biological effects of light	**K1**
	CO2	understand the Inter specific relationships and intra specific relationships of ecosystem	**K2**
	CO3	elucidate the characteristic features of animal association with various ecosystems and also learn about Energy flow and productivity of ecosystem	**K3**
	CO4	learn the different pollution effects	**K2,**
	CO5	evaluate the types and application of biodiversity	**K4**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES(PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	M	S	S	S	S	M	M	S	S	M
CO2	S	S	S	S	S	S	S	S	M	S	S	M	S
CO3	S	S	S	S	S	M	S	S	S	S	S	S	S
CO4	S	M	S	S	S	S	S	S	M	S	S	S	S
CO5	S	M	S	M	S	M	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	U21ZOP65	ENVI RONMENTAL BIOLOGY MICROBIOLOGY & IMMUNOLOGY, GENETIC ENGINEERING & BIOTECHNOLOGY (Practical)	L	T	P	C
Core	XVII		5	-	-	4
Cognitive Level	K2:Understand	K3:Apply	K4:Evaluate			

Learning objective

- To comprehend about the physical and chemical parameter in water sample
- To gain knowledge about the adaptations of marine animals
- To learn about various microbial techniques
- To acquire the practical skill on immunological techniques.
- To learn the techniques of ames test

Environmental Biology

1. Estimation of dissolved oxygen in tap water and distilled water
2. Estimation of dissolved CO_2 in water samples.
3. Measurement of hardness of water by using detergent on distilled water and tap water
4. Estimation of salinity in water sample
5. Sampling of animal population by using quadrate method
6. Detection of transparency of water by Secchi disc method
7. Animal association- symbiosis, parasitism, predation & commensalisms
8. Analysis and mounting of freshwater and marine planktons
9. Adaptation of aquatic animals based on a study of museum specimen such as rocky, sandy, muddy and burrowing animals

Microbiology:

1. Preparation of media – Natural Broth solid media (Agar)
2. Plating techniques – streak plate, pour plate and spread plate
3. Serial dilution techniques
4. Gram‟s staining
5. Hanging drop experiment
6. Screening of antimicrobial agent (Krby Bauer Method)
7. Observation of Instruments: Water bath, laminar air flow, autoclave, Incubator, Hot air oven, Colony counter.
8. Spotters: - Bacteria, Fungi, Algae, Spirogyra, Agaricus, Rhizopus, Bread mould, Protozoa – paramecium, Yeast.

<table>
<tr><td></td><td colspan="3">Immunology
1. Observation and study of Lymphoid organs
i. Bone Marrow, Bursa fabricus
ii. Thymus, Lymph node, Spleen
2.Antigen antibody reaction- Any two
3.Observation and study of IgG, IgA and IgM

Biotechnology & Genetic Engineering
1. Observation of E. Coli, Bacteriophage , Plasmid
2. Demonstration of Complementation test
3. Demonstration of AMES test

A record of lab work should be maintained and submitted at the time of the practical examination. Study tour – visit to Labs / Biotechnology units /Animal farm / Microbiology and Immunology lab is compulsory.</td></tr>
<tr><td>Text Books</td><td colspan="3">1. Lal, S.S , A Text Book of Practical Zoology: Rastogi, Meerut.2014.
2. Verma, PS A Manual of Practical Zoology-third volume, S Chand Publications, New Delhi.2010.</td></tr>
<tr><td>Reference Books</td><td colspan="3">1. Janarthanan, S. and Vincent, S. Practical Biotechnology: Methods and protocols, University.Press, 2007.
2. Yogendra, N. and Srivastava, N.. Environmental Pollution, Ashish Publishing House. New Delhi. 2001</td></tr>
<tr><td>Course out come</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td rowspan="6"></td><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>practice water quality analysis</td><td>K4</td></tr>
<tr><td>CO2</td><td>gain knowledge on animal population methods</td><td>K2</td></tr>
<tr><td>CO3</td><td>perform the technique of microbial isolation and culturing procedures</td><td>K3</td></tr>
<tr><td>CO4</td><td>master the immunological techniques to rule out disorders</td><td>K3</td></tr>
<tr><td>CO5</td><td>interpret the diagnostic tests with health condition.</td><td>K4</td></tr>
</table>

Mapping of COs with POs & PSOs

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	M	S	S	S	S	S	S	M	S	S	M	S	M
CO2	S	S	M	S	S	S	S	M	S	M	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S	M	S	S
CO4	S	S	S	S	S	M	S	S	S	S	S	S	S
CO5	M	S	S	S	S	M	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOT641</td><td rowspan="2">BIOINFORMATICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Elective</td><td>IV</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To gain the knowledge about computer and its devices
➢ To learn about the programming languages and its application
➢ To learn the basic concept of bioinformatics and its application in various fields
➢ To learn the use of nucleic acid and protein data banks
➢ To understand the methods of representation for evolutionary analysis tree</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to Computer</td></tr>
<tr><td colspan="7">History development and types of computers general awareness of computer systems. hard ware and soft ware(CPU and other peripheral devices)</td></tr>
<tr><td>Unit II</td><td colspan="6">Programming languages</td></tr>
<tr><td colspan="7">Machine language assembly languages. Higher level language- introduction, email, world wide web – surfing</td></tr>
<tr><td>Unit III</td><td colspan="6">Sequence analysis</td></tr>
<tr><td colspan="7">need and importance pairwise alignments- dynamic programming - Global and local – Alignment concepts- Database searching tools Entrez, BLAST, FASTA, Multiple alignment cluster construction of phylogenic trees.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Use of nucleic acid and protein</td></tr>
<tr><td colspan="7">data banks NCBI, EMBI, DDBJ, SWISSPORT,3D structural analysis of biomolecules – molecular visualization tools Rasmol, chemsketen and SPDBV- Protein Docking</td></tr>
<tr><td>Unit V</td><td colspan="6">Evolutionary analysis :</td></tr>
<tr><td colspan="7">Distance clustering methods- Rooted and Un rooted tree representation Bootstrapping strategies, Neutral networks.</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Introduction of Bioinfomatics –Attwood tand Parry d. Pearson Education Asia. 2012
2. Computer for biologists- A, Fielding. Benjamin/cuming pubi.co 2015</td></tr>
</table>

Reference Books	1. Attwood, T.K. and Parry, D.J – Smith, D.J. Introduction to Bioinformatics,2005. 2. Baxevanis, A.D. and Quellette, B.F.F.. Bioinformatics. A practical guide to harbour Laboratory Press, New York. 2010
E-references	1. http://www.aun.edu.eg/molecular_biology/Procedure%20Bioinformatics22.232015/Xiong%20%20Essential%20Bioinformatics%20send%20by%20Amira.pdf 2. http://www.ru.ac.bd/wpcontent/uploads/sites/25/2019/03/410_01_Lesk
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	able to know the history development and types of computers	**K1**
CO2	understand the programming languages	**K2**
CO3	apply the knowledge of sequence alignment tools	**K3**
CO4	understand the uses of nucleic acid and protein data banks	**K2**
CO5	know the applications of evolutionary analysis	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	W	S	S	M	S	M	S	S	S	S	S	M
CO2	S	W	S	M	S	S	S	M	M	S	S	S	S
CO3	S	M	S	S	S	S	M	S	S	M	S	S	S
CO4	S	S	S	S	M	M	S	S	M	S	S	S	S
CO5	S	S	S	S	S	M	M	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOE642</td><td rowspan="2">GEOINFORMATICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>Elective</td><td>IV</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learningob jectives</td><td colspan="6">• To understand the concept of GIS
• To know the various geographical data
• To understand the concept of GPS and Remote sensing</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to GIS:</td></tr>
<tr><td colspan="7">Definitions, Evolution, Components and Objectives. Overview of GIS Software Packages</td></tr>
<tr><td>Unit II</td><td colspan="6">Spatial Data:</td></tr>
<tr><td colspan="7">Types of Geographic Data, Levels of Measurements. Concepts of Space and Time, Layers Coverage. Spatial Data Models, Representation of Geographic Features in Vector, Raster Data Models. Concept of Arc, Node, Vertices and Topology.</td></tr>
<tr><td>Unit III</td><td colspan="6">Non-Spatial Data:</td></tr>
<tr><td colspan="7">Advantages of Data Base Management System. Conceptual Implementation Models, Hierarchical, Network, Relational Models. RDBMS: Components, Concept, Database Schema, Tables and Relationships</td></tr>
<tr><td>Unit IV</td><td colspan="6">Concepts of GPS:</td></tr>
<tr><td colspan="7">Spherical trigonometry, History, Types, Navigation Systems and Applications, Introduction to IRNSS.</td></tr>
<tr><td>Unit V</td><td colspan="6">Introduction to Remote Sensing:</td></tr>
<tr><td colspan="7">Concepts Definition, History Development, Stages in RS-EMR, EMR Spectrum, Types and application of RS.</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Longley, P. A., Goodchild, M. F., Maguire, D. J.,Rhind, D. W. :Geographical Information Systems and Science, John Wiley & Sons, Chichester .2002.
2. Lo, C. P.,Yeung, A. W: ConceptsTechniques of Geographical Information Systems, PrenticeHall of India, New Delhi.2002.</td></tr>
<tr><td>Reference Books</td><td colspan="6">1. Chang, K. T. Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York.2008.
2. Ahmed, E. L. Rabbany, Introduction to Global Positioning Systems, ArtechHouse, Boston.2002.</td></tr>
<tr><td>E-Reference</td><td colspan="6">1. https://geoinformatics.com/
2. https://www.igi-global.com/dictionary/geoinformatics-in-eco-climatic-studies/42567
3. https://www.igi-global.com/book/advanced-topics-global-information-management/29</td></tr>
</table>

Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the general concept of GIS	**K2**
	CO2	know the spatial data	**K2**
	CO3	acquire knowledge on non-spatial data	**K2**
	CO4	learn the concept of GPS	**K2**
	CO5	know the concept and uses of remote sensing	**K1**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	M	S	S	S	M	M	M	M	S	S	M	M
CO2	S	M	S	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	M	S	M	S	S
CO4	M	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	M	S	S	M	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

Course Code	**U21ZOS641**	**AQUACULTURE**	**L**	**T**	**P**	**C**
SBE	**IV**		**2**	**-**	**-**	**2**

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objective	➢ To understand the importance and scope of aquaculture ➢ To gain knowledge in the cultivable fishes and its economic importance ➢ To understand the Preparation of pond and methods of fish cultures ➢ To gain knowledge on aquatic farm management ➢ To Provide in depth knowledge on fish diseases and its diagnosis
UNIT – I	**Importance of aquaculture –**
Prospects and scope – Aquaculture farm- site selection, topography, water availability and supply, soil condition and quality design and layout of farms.	
UNIT – II	**Cultivable species-**
see weeds. Crustacean (Prawns and Lobsters), Mollusces (Mussels and oysters) and fishes – Economic importance's market values and its by products.	
UNIT – III	**Pond Preparation & Production Culture Systems**
Traditional, Extensive, Semi- Extensive, and Intensive Systems. Composite fish culture, paddy cum fish culture – Integrated fish culture sewage water fish culture	
UNIT – IV	**Water quality management-**
temperature, salinity ,pH, O2,CO 2, level, nutrients and trace elements. Control of parasites & predators	
UNIT –V	**Diseases in culture ponds,**
disease diagnosis, ELISA Western blotting, DNA based diagnosis of disease and Fish vaccines.	
Text Books	1. Arumugam, Aquaculture, Saras Publications,2014. 2. K.Pandey & J.P.Shukla, Fish and Fisheries, Rastogi Publication,2016.
Reference Books	1. Das. M.K. and R.K. Das .Fish and fisheries in India- Diagnosis and control inland Fisheries Society of India, Barrack pore, west Bengal,2011 2. Govindan, T.K.Fish Processing Technology. Oxford & IBH

	Publishing Co. Pvt.Ltd.,Kolkata.2010 .
E-References	1. https://www.mooc-list.com/course/oceanography-key-better-understand-our-world-coursera 2. https://igor.crew.c-base.org/aquaculture.pdf 3. http://www.agrifs.ir/sites/default/files/AQUACULTURE.pdf 4. https://www.cabi.org/uploads/CABeBooks/CAB-eBooks-Col-Aquaculture-and-Fisheries.pdf 5. https://www.blackwellpublishing.com/pdf/catalogue_2007_online_aquaculture.pdf
Course out come	Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	learn, rear the cultivable aquatic animals	**K1**
CO2	find out the cost benefit analysis in maintaining aqua farms.	**K3**
CO3	know the pond preparation and production culture system	**K2**
CO4	know the importance of quality of the water to maintain the aquaculture	**K2**
CO5	gain knowledge to prevent disease and parasitic infestations	**K3**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	M	M	S	M	S	S	M
CO2	S	S	S	S	S	S	S	S	S	S	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOE642</td><td rowspan="2">ORNITHOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>SBE</td><td>IV</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">➢ To give an introduction to bird science
➢ To understand about the method of studying migration
➢ To understand the diversity of foods and foraging
➢ To understand the breeding territories of birds
➢ To know about the bird distribution and its population studies</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to ornithology:</td></tr>
<tr><td colspan="7">Terminology used in ornithology- types of bills, types of feet- Identification of birds in the field based on tail, bill, crest, leg & color</td></tr>
<tr><td>Unit II</td><td colspan="6">Equipments used in the field study:</td></tr>
<tr><td colspan="7">Fields guides- Photography- Identification of calls- feet and beak modification in birds. Bird migration- method of studying migration.</td></tr>
<tr><td>Unit III</td><td colspan="6">Diversity of foods and foraging behavior :</td></tr>
<tr><td colspan="7">Social foraging, mating preferences- Pair bonds, courtship and divorce – production and control of the song – functions of bird song.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Timing of breeding:</td></tr>
<tr><td colspan="7">Breeding territories nest and nest building egg & clutch size, clutch and egg replacement. Incubation and hatching – caring for young</td></tr>
<tr><td>Unit V</td><td colspan="6">Avian population change :</td></tr>
<tr><td colspan="7">Over time and space – methods of estimation- classifying bird species assemblages- recent avian extinctions causes of avian population decline.</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Salim Ali.S. and Ripley SD. Handbook of the birds of india and Pakistan. Compact edition Oxford University Press and BNHS Mumbai .2011.
2. Chinnasathan and Bal Pandey.The Nesting behavior of Indian Birds, Sugeeth Publication,2001.</td></tr>
</table>

Reference Books	1. Caughley G.Sinclair.AR.Wildlife ecology and management. Back well Science.2000. 2. Dewsbur, D.A Comparative animal behavior. McGraw Hill Book Company. 1998. 3. Drickamer , L.C. S.H. Vessey and E.M. Jakob Animals Behavior. Mc Graw Hill. 2002.		
E-references	1. http://www.jnkvv.org/PDF/13042020153242134201400.pdf 2. https://txmn.org/elcamino/files/2010/03/Ornithology-Basic-Concepts.pdf		
Course out come	Upon completion of this course, t3e students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	able to know the introduction and terminology of ornithology	**K2**
	CO2	know the importance of equipments used in the field to apply for ornithology studies	**K3**
	CO3	learn about diversity of foods and foraging behavior	**K2**
	CO4	assess their breeding and migration	**K2**
	CO5	create awareness to protect them from extinction	**K2**

Mapping of COs with POs & PSOs

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES(PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	S	M	M	M	S	S	S	M
CO2	S	S	S	S	M	S	M	S	S	S	S	M	S
CO3	S	S	S	S	S	S	M	S	S	S	S	S	S
CO4	S	S	S	S	S	M	M	S	S	S	S	M	S
CO5	S	M	S	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOV51</td><td rowspan="2">FIRST AID AND SAFETY METHODS</td><td>Total Hours</td><td>C</td></tr>
<tr><td colspan="2">Value Added Programme</td><td>30</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="4">K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="4">➢ To be familiar with the fundamental concept of first aid and safety methods
➢ To learn the skill to manage the medical emergency and action at emergency.
➢ To acquire the knowledge on various accidents and community emergency
➢ To know the causes and symptoms of diabetes mellitus
➢ To study the emergency and to learn community casualty</td></tr>
<tr><td>UnitI</td><td colspan="4">Fundamental Concepts</td></tr>
<tr><td colspan="5">Managing an incident, Action at an emergency, Traffic accidents, Fires, Electrical incidents, Water incidents, Major incident/Mass casualties.</td></tr>
<tr><td>Unit II</td><td colspan="4">First aid</td></tr>
<tr><td colspan="5">First aid box, First aid for Drowning, First aid for Fire Injuries, First Aid for Severe Burns, First Aid for Mild Burn, First Aid for Injuries on the Play Field, First aid for snake biting, poisoning and stings, Transporting the Person for Medical Help After Giving First Aid</td></tr>
<tr><td>Unit III</td><td colspan="4">Assessing casualties</td></tr>
<tr><td colspan="5">Assessing the sick or injured, mechanism of injury, primary survey, secondary survey, Head to toe examination, monitoring vital sign. Breathing and circulation, life saving priorities, unconscious adults, unconscious child, unconscious infant</td></tr>
<tr><td>Unit IV</td><td colspan="4">Medical Emergency</td></tr>
<tr><td colspan="5">Heart attack, Stroke, Diabetes mellitus, Hyperglycemia, Hypoglycemia, Seizures in adults, Seizures in children, Childbirth, Emergency childbirth.</td></tr>
<tr><td>Unit V</td><td colspan="4">Community Emergency</td></tr>
<tr><td colspan="5">Fire explosions, Earth quakes, Flood and famine, Burns, Road accidents, Accessing a conscious and unconscious casualty.</td></tr>
<tr><td>Text Books</td><td colspan="4">First Aid, CPR and AED, 5th ed A. Thygerson, B. Gulli & J.R. Krohmer. Jones & Bartlett. ISBN: 0763742090.2006.</td></tr>
<tr><td>Reference Books</td><td colspan="4">1. The authorized manual of St. John Ambulance, St. Andrew's Ambulance association and the British red cross society. 2002
2. Dorling Kindersley- First Aid manual, 5th edition, , London.2001
3. Clement ,Text book on First Aid & Emergency Nursing, First edition, JP brothers, 2012</td></tr>
</table>

E-References	1. https://kuiyem.ku.edu.tr/wp-content/uploads/2016/12/American-College-of-Emergency-Physicians-ACEP-First-Aid-Manual.pdf 2. http://www.panola.edu/collegestore.htm 3. http://www.panola.edu/instruction/dl/testing.htm		
Course outcome			
	CO	**Course Out comes**	**Knowledge Level**
	CO1	develop knowledge about the basics measures to be taken during an emergency.	**K3**
	CO2	understand the situation and act accordingly.	**K2**
	CO3	know and Apply the first aid service for various casualties.	**K3**
	CO4	acquire skill to service for medical emergency	**K3**
	CO5	attain knowledge about uncommon health, environmental conditions and mitigation strategies.	**K2**

Mapping of COs with POs & PSOs:

CO	PO								PSO				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	S	S	M	S	S	S	S	M	M
CO2	S	S	S	M	S	S	S	S	S	S	M	M	S
CO3	S	M	M	S	M	S	S	M	S	M	S	M	S
CO4	M	S	M	S	S	M	S	S	M	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S	M	S	M

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark
No Correlation (N) - 0 mark

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MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL - 624 101
Tamil Nadu.

Curriculum Framework and Syllabus for

M.Sc. ZOOLOGY

Programme code: PG-MZO

(For the candidates to be admitted from the academic year 2021-2022 onwards)

(UNDER CHOICE BASED CREDIT SYSTEM- CBCS)

Mother Teresa Women's University, Kodaikanal

M.Sc. ZOOLOGY

1. About the Programme

M.Sc Zoology is a 2-year postgraduate programme dedicated to the study of animals. The program comprises the biology, behaviour and structure of animals. The students can acquire adequate knowledge of animal kingdom, Biodiversity, anatomy of animals, embryology, characteristics and evolution of animal life. The programme also addresses the causes in the loss of habitat and conservation of biodiversity. M.Sc Zoology is an advanced course that focuses on modern technology to study various aspects of animal life. This course equally covers theoretical and practical sessions to understand the concepts in a better way along with outdoor tours. After completing M.Sc Zoology course students can opt for various job roles in public and private sectors like academics, official in Zoological park, Ecologist, Conservation officer, field Trials officer etc.

2. Programme Educational Objectives (PEOs):

PEO1	To train the students in basic and advanced areas of Zoology, Animal Biotechnology and other related subjects along with sensitizing them to the scope for research.
PEO2	To empower the students with analytical and research skills, to nurture entrepreneurial endeavours
PEO3	To prepare a competent generation of zoologist, capable of excelling in their careers
PEO4	To develop them with good communicative skills and function effectively as an individual and as a team member in a professional environment.
PEO5	To develop potential biologist with professional ethics in order to address global and societal issues for sustainable development.

3. Eligibility:

- A candidate who has passed Graduate in Zoology and other Relevant Subject
- Candidate should have secured at least 55% in the above subject from any recognized university.
-

4. General Guidelines for PG Programme

i. **Duration:** The programme shall extend through a period of 4 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

Evaluation Pattern	Theory		Practical	
	Min	Max	Min	Max
Internal	13	25	13	25
External	38	75	38	75

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	A	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	B	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	C	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
Total Marks			**75**

*** Minimum credits required to pass: 90**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade
(Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
00-49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance less than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the PG Programmes are also applicable for this Programme.

M. Sc. ZOOLOGY CURRICULUM

Sl. No	Course Code	Course Title	Credits	Hours		CIA	ESE	Total
				T	P			
Semester I								
1.	P21ZOT11	Core I -Biology of Invertebrates	4	5	-	25	75	100
2.	P21ZOT12	Core-II- Biology of Chordates	4	5	-	25	75	100
3.	P21ZOT13	Core-III- Cell And Molecular Biology	4	5	-	25	75	100
4.	P21ZOT14	Core-IV-Animal Physiology	4	5	-	25	75	100
5.	P21ZOP11	Core-V-Practical –Biology of Invertebrates, Chordates, Cell & Molecular Biology and Animal Physiology	4	-	6	25	75	100
6.	P21CSS11	Supportive Course I- Computer Skills For Web Designing And Video Editing	2	4	-	25	75	100
		Total	**22**	**30**		**-**	**-**	**600**
Semester II								
7.	P21ZOT21	Core VI- Biochemistry	4	5	-	25	75	100
8.	P21ZOT22	Core-VII- Immunology	4	5	-	25	75	100
9.	P21ZOT23	Core-VIII- Genetics	4	4	-	25	75	100
10.	P21ZOT24	Core-IX - Applied Zoology	4	4	-	25	75	100
11.	P21ZOP22	Core-X-Practical - Biochemistry, Immunology Genetics& Applied Zoology	4	-	6	25	75	100
12.	P21ZON211/ P21ZON212	Non Major Elective	4	4	-	25	75	100
13.	P21ZOS22	Supportive Course II – Medical Laboratory Technology	2	2	-	25	75	100
		Total	**26**	**30**		**-**	**-**	**700**
Semester III								
14.	P21ZOT31	Core XI- Biotechnology & Bioinformatics	4	4	-	25	75	100
15.	P21ZOT32	Core-XII-Developmental Biology	4	5	-	25	75	100
16.	P21ZOT33	Core-XIII-Evolution, Animal Migration & Behaviour	4	4	-	25	75	100
17.	P21ZOT34	Core XIV-Ecology & Toxicology	4	4	-	25	75	100
18.	P21ZOT35	Core XV -Research Methodology and Bioethics	4	5	-	25	75	100
19.	P21ZOP33	Core-XVI- Practical- Biotechnology & Bioinformatics, Developmental Biology, Evolution, Ecology & Toxicology	4	-	6	25	75	100
20.	P21WSS33	Supportive Course III -Women	2	2	-	25	75	100

		Empowerment						
		Total	**26**	**30**				**700**
		Semester IV						
21.	P21ZOE411/ P21ZOE412	Elective-I*-Entomology/ Endocrinology/Any MOOC Courses$	4	4	-	25	75	100
22.	P21ZOE421/ P21ZOE422	Elective-II *–Biostatistics & Biophysics/Microbiology/Any MOOC Courses$	4	4	-	25	75	100
23.	P21ZOR41	Project	8	-	22	25	75	100
		Total	**16**	**30**				**300**
Total			**90**	**120**				**2300**

Non Major Elective

The candidates, who have joined the PG programme, can also undergo Non Major Elective offered by other Departments

Non Major Electives (NME) offered by Zoology:

1. NME-I: Conservation Biology-P21ZOE211
2. NME-II: Epidemiology- P21ZOE212

Additional Credit Courses

1. P21ZOV11:Value Added Program I-Two Credits (First Semester)
2. P21ZOI21:Internship/Industrial Training – Two Credits- (Second Semester)
3. P21ZOO31:Online Courses-Two Credits- (Third Semester)
4. P21ZOV41:Value Added Program II-Two Credits (Fourth Semester)

Value Added Courses

1. VAP I - Medical Transcription- P21ZOV11
2. VAP II - Fisheries Technology- P21ZOV41

*Those who have CGPA 9 and want to do the project in industry/institution during 4th semester, those two elective papers in IV semester can be opted in third semester itself.

$ For Elective –I/Elective-II, the students can also take either one 4-credit course or two 2-credit courses in MOOC, with the approval of Departmental Committee.

Outside class hours (Attendance compulsory, Certificate Mandatory)

- Health, Yoga and Physical Fitness
- Library Information access and utilisation
- Employability Training
- Students Social Responsibility

PROGRAMME OUTCOMES (POs)

On completion of M.Sc - Zoology programme students will be able to

PO1	impart knowledge to identify and signify the animal kingdom, diversity of animals, cell molecules.
PO2	understand the principles of development, evolution and ethology of different organisms.
PO3	acquire knowledge on organization and molecular effects of cell, gene, compounds, and immunity and to combat microbial infections.
PO4	enable them to maintain and improve their physiology, health and hygiene.
PO5	gain the ideas about biochemical pathways, genetic engineering, development and their disorders, biotechnology field and handling bioinstrumentation and biotechnology field.
PO6	acquire skill on beneficial insects and useful animals to develop into a successful women entrepreneur
PO7	get familiarize to promote innovative research ideas, field knowledge, scientific writing and statistical approach, involve in environmental activities for sustainable development
PO8	apply the scientific knowledge acquired for the development of scientific society and follow a line of investigation of our country.

PROGRAMME SPECIFIC OUTCOMES – (PSO)

On completion of M.Sc Zoology programme, students will be able to

PSO1	understand and acquire knowledge on the characteristic features, diversity, taxonomy, anatomy and physiology of different animals, evolution of organism
PSO2	gain the knowledge about immunity and to combat microbial infections, biochemical pathways, development and their disorders, beneficial insects, useful animals and their economical benefits.
PSO3	enlighten and receive awareness about environmental benefits and to mitigate its degradation
PSO4	learn the advancements in handling bioinstrumentation, genetic engineering and biotechnology field.
PSO5	familiarize to promote innovative research ideas, field knowledge, scientific writing and statistical approach. Enriched and empowered to clear competitive examinations and grab opportunities

SEMESTER -I

<table>
<tr><th>Course Code</th><th>P21ZOT11</th><th rowspan="2">BIOLOGY OF INVERTEBRATES</th><th>L</th><th>T</th><th>P</th><th>C</th></tr>
<tr><th colspan="2">CORE – I</th><th>5</th><th>-</th><th>-</th><th>4</th></tr>
</table>

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objectives	• To understand the taxonomy and classification of invertebrates. • To understand the taxonomy and classification of invertebrates. • To know the larval forms of invertebrates • To understand the biological description of invertebrates • To comprehend the structural peculiarities of invertebrates

Unit I | **Broad classification of the Animal Kingdom** | **12 hours**

Principals involved. Protozoa Feeding, Reproduction and Parasitic Protozoa. Economic importance of Protozoa. Origin and evolution of Metazoa - theories. Mesozoa, Porifera Interrelationship between different classes, Marine sponges and Freshwater sponges.

Unit II | **Cnidaria Origin and evolution** | **12 hours**

Polymorphism and Reproduction in cnidaria . Corals and Coral reeves, Origin of Bilateria. Importance of Rhabdocoela as a stem group. Origin and evolutionary trends in coelom formation. Platyhelminthes - Functional morphology and adaptive biology for parasitic mode of life.

Unit III | **Annelida** | **12 hours**

Archiannelida. Inter relationship between different classes of Annelida. Type study - Earth worm, External morphology, setae, nephridia, nervous system and reproductive system – Metamerism in Annelids. Arthropoda: Type study-Marine Prawn – external morphology, appendages, digestive and excretory systems, reproductive system and development—Affinities of Peripatus. Economic importance of Crustaceans, Phylogeny of Arthropoda.

Unit IV | **Mollusca** | **12 hours**

Type study- Pila – external morphology, digestive system, respiratory system, Osphridium only. Cephalopods as an advanced Mollusc. Echinodermata: Type study – Star fish - external morphology, pedicellaria, Water vascular system only. Larval forms of Echinodermata. Phylogeny of Echinoderms.

Unit V | **Minor Phyla** | **12 hours**

Structural peculiarities and affinities of Ctenophora, Nemertinea, Rotifera, Pogonophora, Phoronida and Lophophorates. Invertebrate fossils: Trilobites, Brachiopoda, Cephalopoda and Echinodermata.

Text Books

1. Nair NC, Leelavathy S, Soundara Pandian N Murugan T and Arumugam N. A Text Book of Invertebrates, Saras Publication Nagercoil, Tamilnadu.2010.
2. Nair NC. Invertebrata and Chordata, Saras Publication Nagercoil,Tamilnadu.2017.

Reference Books

1. Barnes RD, Invertebrate Zoology.7th edition, Thomson Press (India) Ltd 2010.
2. E.L.Jordan and P.S. Verma Invertebrate Zoology, S.Chand & Company Ltd,New Delhi, 2009.
3. P.S. Dhami and J.K. Dhami, Invertebrate Zoology R.Chand & Co. New Delhi, 2003 .

	4. R.L.Kotpal, Invertebrate Zoology, Rastogi Publications, Meerut, 2005. 5. M.Ekambaranatha Iyer and T.N.Ananthakrishnan, A Manual of Zoology Viswanathan Publications, Chennai, 2003.
E-Reference	1. https://nptel.ac.in/courses/102/106/102106035/ 2. https://biologydictionary.net/invertebrate 3. http://rcastilho.pt/DA/ewExternalFiles/Invertebrates_Cap_33_Cambell.pdf 4. file:///C:/Users/ACER/Downloads/invertebrates_3-4_unit_guide%20(1).pdf

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the general taxonomic rules on animal classification.	**K1**
CO2	know the origin and evolution of Cnidaria and adaptation of parasite	**K2**
CO3	acquire knowledge on Annelids and Arthropods with economic importance.	**K2**
CO4	classify phylum Molluscs and Echinodermata with taxonomic keys.	**K3**
CO5	gain knowledge about structural peculiarities of minor phyla and fossils	**K2**

Mapping of COs with POs &PSOs:

Course Outcomes	**POs**								**PSOs**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	S	M	S	M	M	S	M	M	S	S	M	M	S
CO2	S	S	S	M	M	S	S	M	S	S	M	M	S
CO3	S	M	S	S	S	S	S	S	S	M	M	S	S
CO4	S	S	S	M	M	S	S	S	S	S	M	M	S
CO5	S	M	S	M	M	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOT12</td><td rowspan="2" colspan="2">BIOLOGY OF CHORDATES-</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-II</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning Objectives</td><td colspan="7">• To comprehend the general classification of chordates taxonomy
• To learn the salient features of vertebrates
• To understand the economic importance of vertebrates and fossil bird</td></tr>
<tr><td>Unit I</td><td colspan="3">Overview Taxonomy</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Principles of Taxonomy. Nomenclature: Binomial, taxonomic keys. Outline classification of Chordates upto order level with example. Prochordata, Pisces and Amphibia, Concept of Prochordata – Hemichordata- Balanoglossus.</td></tr>
<tr><td>Unit II</td><td colspan="3">Urochordata</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Ascidians, Cephalochordata – Amphioxus - Salient features and Functions. Affinity of Cephalochordata - Origin and Adaptive radiation of bony fishes. Amphibia - Adaptive radiation from water to land.</td></tr>
<tr><td>Unit III</td><td colspan="3">Reptilia, Aves and Mammals</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Classification of class Reptilia, Aves and Mammals upto orders. Salient features with examples - Adaptive radiation of reptiles. Reptilia -Type study – Calotes, external morphology, Urinogenital system and nervous system. Poisonous and non-poisonous Snakes, identification and biting mechanism.</td></tr>
<tr><td>Unit IV</td><td colspan="3">Adaptive Radiation</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Aves- Birds as glorified reptiles, adaptive radiation in birds. Aves- Type study – Pigeon- external morphology, respiratory system, pectoral and pelvic girdles only. Flight adaptations. Migration of birds, - Flightless birds, -Fossil bird Archaeopteryx and its evolutionary importance.</td></tr>
<tr><td>Unit V</td><td colspan="3">Mammalia</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Classification of Mammals with examples, external morphology, nervous system and reproductive system. Dentition in mammals, Stomach in ruminants, Aquatic mammals and economic importance of vertebrates.</td></tr>
<tr><td>Text Books</td><td colspan="7">1. Thangamani A, Prasannakumar S, Narayanan LM, Arumugam N. A Text Book of Chordates, Saras Publication, Nagercoil, Tamilnadu. 2014.
2. KotpalRL. Mordern Text Book of Zoology Vertebrates, 4th edition, Rastogi Publications, Meerut.2019.</td></tr>
<tr><td>Reference Books</td><td colspan="7">1. E.L.Jordan and P.S. Verma, Chordate Zoology, S.Chand & Company Ltd, New Delhi, 2011.
2. Pough Harvey F, Christine M .Janis and John B. Heiser. (2002). Vertebrate Life, Pearson Education Inc. New Delhi.
3. Route and Solanki.2002.Learning Prochordata- Mammalia –Theory and Practice Dominant Pub. & Distributors, New Delhi
4. Verma.P.S.(2013).Chordate Zoology, S Chand Publishers, New Delhi.</td></tr>
</table>

E-references	1.https://nptel.ac.in/courses/102/106/102106035/ 2.http://assets.vmou.ac.in/MZO06.pdf

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	acquire depth knowledge on the principles and taxonomic keys concepts of chordates to apply the knowledge for animal classification	**K3**
CO2	learn the salient features and functions of proto chordates with fishes and amphibians.	**K2**
CO3	understand the classification and functional attributes of reptiles	**K2**
CO4	gain deep knowledge on morphology, physiology and adaptive radiation of Aves	**K2**
CO5	comprehend the classification and unique adaptations in mammals.	**K2**

Mapping of COs with POs &PSOs:

Course Outcomes	**PO**								**PSO**				
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO1	S	S	M	S	M	S	M	S	M	M	M	M	S
CO2	S	S	M	M	S	S	M	M	M	M	M	S	S
CO3	S	S	S	S	M	S	M	S	S	S	S	S	S
CO4	S	S	S	M	S	M	S	S	M	S	S	M	S
CO5	S	S	M	M	S	S	M	M	S	S	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOT13</td><td rowspan="2" colspan="2">CELL AND MOLECULAR BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-III</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1:Recall K2:Understand</td></tr>
<tr><td>Learning Objective</td><td colspan="7">• To understand the various concepts of molecular biology and the central dogma of life.
• To develop a comprehensive understanding in the mechanisms of replication, transcription and translation
• To gain extensive knowledge on gene expression</td></tr>
<tr><td>Unit I</td><td colspan="3">Cell Theory & Cell Cycle</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Cell theory, protoplasm theory, prokaryotic and eukaryotic cell differentiation, Cell cycle and regulations. Cell division: mitosis, meiosis and their significance. Cytoplasm: Physical and biological properties of cytoplasmic matrix. Plasma membrane: Chemical composition, structure and functions.</td></tr>
<tr><td>Unit II</td><td colspan="3">Structure and function of Cell Organelle</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Ribosome and Golgi bodies: Ultrastructure, types and function. Lysosome: Chemical composition, Polymorphism and Functions. Endoplasmic reticulum and plastids. Ultrastructure, types and functions, Mitochondria: Ultra structure and functions. Micro bodies peroxisomes and glyoxisomes.</td></tr>
<tr><td>Unit III</td><td colspan="3">Structure and Function of Cell Organelle</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Ultra-structure of nuclear membrane. Nucleolus, Nucleoplasm and Chromatic fibres. Microtubules, Microfilaments – Cilia and Flagella. Signal Transduction Pathways: Organisation signals, Receptors. Ion channel coupled receptors – Secondary messengers. Amplifiers, Integrators and Signal hypothesis.</td></tr>
<tr><td>Unit IV</td><td colspan="3">Nucleic acid</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Nucleic Acid as the genetic material - direct and indirect evidences – Structure and types of DNA and RNA. Eukaryotic Chromosome: Chromosome structure and organization. C-Value paradox DNA – Repetitive DNA. Mutations and DNA damage: physical, chemical and biological agents – Mutation types – Molecular basis of spontaneous and induced mutations. Environmental mutagenesis and toxicity testing: AMES test.</td></tr>
<tr><td>Unit V</td><td colspan="3">DNA replication</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Semi conservative and rolling circle. Enzymes involved in replications: types and their functions. Transcription and Translation: RNA polymerase – types, properties and functions – Transcription process in prokaryotes and eukaryotes – RNA processing, capping, polyadenylation, splicing, introns and exons. Regulation of gene expression- lac operon and trp operon, Regulation of gene expression in eukaryotes.</td></tr>
<tr><td>Text Book</td><td colspan="7">1. Frifelder, D. Molecular Biology 2nd edition. Narosa Publishing House, New Delhi. 2000.
2. Gupta, M.L. and Jangir, M.L., Cell Biology Fundamentals and Application,</td></tr>
</table>

	Student Edition, Jothpur. 2003. 3. Krebs, J.E., Goldstein, E.S., Kilpatrick, S.T. Lewin‟s Genes X, Jones and Bartlett publishers Inc, London UK.2011.
Reference Books	1. Karp G .Cell and Molecular Biology: Concepts and Experiments. 6th edition, John Wiley & Sons Ltd. New York. 2010. 2. De Roberties E.D.P and E.M.F.De Roberties. Cell and Molecular Biology. 8th edition. B.I. Publicatons Pvt. Ltd., India. 2011. 3. Haddin J. Becker‟s World of the Cell (8th Editon). Benjamin Cummings Publishing Company , New York.2011 . 4. Lewin, B., Genes-X, Oxford University Press Inc., New York.2012 5. Cooper, GM and Hawman RE. Cell a Molecular Approach (6th Edition). Sinauer Associates, Inc. 2013. 6. . Karp G. Cell and Molecular Biology Concepts and Experiments. John Wiley & Sons, Inc.2013.
E-References	1. https://nptel.ac.in/courses/102/106/102106025/ 2. https://nptel.ac.in/courses/102/103/102103012/ 3. https://swayam.gov.in/nd2 4. https://nptel.ac.in/courses/102/104/102104059

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the cell theory, cell cycle and regulation	**K1**
CO2	attain a deep knowledge on the structure and functions of cell organelles	**K2**
CO3	comprehend the ultra structure and functions of genetic material with microtubules, microfilaments and transduction pathways.	**K2**
CO4	acquire wide knowledge on the organization of genome.	**K2**
CO5	learn DNA replication, transcription, translation with regulation of gene expression.	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	M	M	S	S	S	S	M	S	M
CO2	S	S	S	M	M	M	M	S	S	S	S	S	M
CO3	S	S	S	S	M	M	M	S	S	S	M	S	M
CO4	M	S	M	S	M	S	M	S	M	S	M	M	M
CO5	S	S	M	S	M	S	M	S	S	S	M	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks

Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	**P21ZOT14**	**ANIMAL PHYSIOLOGY**	**L**	**T**	**P**	**C**
CORE IV			**5**	**-**	**-**	**4**

Cognitive Level	K1:Recall K2:Understand K3:Apply	
Learning objective	• To learn the biochemical changes and basic thermo dynamic principles. • To know the carbohydrate, Lipid and aminoacid metabolism • To learn the integration of metabolic pathways and Hormonal regulation. • To get thorough knowledge on metabolic pathways of human physiology and to apply the knowledge for biotechnological and biochemical research	
Unit I	**Digestive System (Man)**	**12 hours**
Digestion, absorption, energy balance, BMR with reference to man, Obesity. Respiratory system (Man): Transport of gases, exchange of gases, respiratory pigments. Haemoglobin as oxygen carrier, respiratory quotient, neural and chemical regulation of respiration in man. Hamperson phenomenon. SARS.		
Unit II	**Blood and Circulation**	**12 hours**
Blood and its components, haemopoiesis and formed elements, plasma function, blood volume, blood volume regulation, blood groups, haemoglobin, haemostasis, Hemophilia. Cardiovascular System: Comparative anatomy of heart structure, myogenic heart, ECG – its principle and significance, cardiac cycle, heart as a pump, blood pressure, Myocardial Infarction and CPR.		
Unit III	**Excretory System (Man)**	**12 hours**
Kidney- Structure and functions, micturition, Osmoregulation in aquatic and terrestrial environments, acid-base balance, Renal failure and Dialysis **Nervous system (Man):** Neurons, action potential, gross neuroanatomy of the brain and spinal cord, central and peripheral nervous system, Alzheimer's disease/ Stroke.		
Unit IV	**Muscles**	**12 hours**
Structure and mechanism of Muscle Contraction - Regulation and Energetics of Contraction, Muscular Dystropy. **Sense organs (Man):** Vision, hearing and tactile response, Glaucoma. **Physiology of Reproduction:** Human Reproductive Physiology- Reproductive Cycles, Hormonal Control, PCOS and Endometriosis.		
Unit V	**Ethology**	**12 hours**
Patterns and mechanism of behavior, Pheromones in colonial interactions. **Reflexes:** reflex action, types of reflexes, reflex arch, characteristics of reflexes, Reflex dysfunction.		
Text Books	1. Bijlani, R.L.Fundamentals of Physiology. I edn. JayPee brothers, New Delhi.2001. 2. Mariakuttikan, A., Animal Physiology. SARAS Publication, Nagerkoil.2011. 3. Text Book of Medical Physiology, Elsevier Inc. Hall, J.E., 2013.	

	4. Arumugam N and Mariakuttikan A..*Animal Physiology*, Saras Publications, Nagercoil, Tamilnadu.2014.
Reference Books	1. Hall, J.E., Text Book of Medical Physiology, Elsevier Inc. 2013, 2. H.R and Neeraj Kumar Animal Physiology and Biochemistry.Vishal Publishing Co, New Delhi Singh, 2009. 3. Verma, P.S., Agarwal, N.K.,Thyagi, B.S., Animal Physiology. S.Chand & Co.,New Delhi. 1980. 4. Hoar, W.S., General and Comparative Physiology, Prentice Hall. 1987, 5. Renganathan, T.S. A text book of Human Anatomy. VI edn. S. Chand and Company Ltd., New Delhi, 2002. 6. Hoar W.S General and Comparative Physiology. Prentice-Hall of India (P) Ltd. New Delhi, 2004.
E-References	1. https://www.classcentral.com/course/swayam-animal-physiology-12894 2. https://swayam.gov.in/nd1_noc20_bt42/preview 3. https://www.classcentral.com/course/edx-respiration-in-the-human-body-3050. 4. https;//swayam.gov.in/nd1_noc20_hs33/preview

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the nutrition, digestive and respiratory system of man	**K1**
CO2	compare the circulatory and cardio vascular system.	**K3**
CO3	relate the structure and function of excretory and nervous system of man.	**K3**
CO4	understand the function of muscles, sense organs and reproductive physiology .	**K2**
CO5	gain knowledge on the ethology and reflexes action of human.	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	M	S	S	S	M	M	M	S	M	S
CO2	S	S	S	M	S	S	S	M	M	M	M	M	S
CO3	S	S	S	M	S	S	S	M	M	M	S	S	S
CO4	S	S	S	M	M	S	M	S	M	S	M	S	S
CO5	S	S	S	S	S	S	M	S	M	S	M	M	S

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(W)	- 1 mark	No Correlation	(N)	- 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOP11</td><td rowspan="2">PRACTICAL-BIOLOGY OF INVERTEBRATES & CHORDATES, CELL & MOLECULAR BIOLOGY AND ANIMAL PHYSIOLOGY –</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE V</td><td>-</td><td>-</td><td>6</td><td>4</td></tr>
</table>

Cognitive Level	K2:Understand K3:Apply K4: Evaluate
Learningobjective	• To know the methods for biochemical test and enzyme activity assay • To know the chromatography techniques and develop the laboratory skills. • To train the students to analyze the enzyme properties
Experiments in Biomolecules	**TAXONOMY** Identification and Classification of at least 20 representative animals belonging to major classes of Invertebrate phyla and phylum Chordata by studying their salient features. **Mounting:** Prawn -appendages, Teleost Fish – Placoid, Cycloid / Ctenoid scales, Honey bee - Sting apparatus and Mouth parts. Mosquito – mouth parts **Spotters:** Invertebrate any three Larval forms ; Minor Phyla - *Chaetognatha*, *Phoronida*, and *Sipunculida*. **Diagrammatic representation** 1. Nervous system of Cockroach, Prawn, *Pila globosa* 2. Nervous System of Rat , Cat Fish 3. Major Organs ; Rat-heart, pancreas, liver, kidney and gonads **CELL AND MOLECULAR BIOLOGY** 1. Micrometry - Measuring the diameter of microscopic cells using ocular stage micrometer 2. Preparation of squamous epithelium to observe Barr body 3. Study of Mitosis in the Cells of Onion Root Tip 4. Observing the giant/ polytene chromosomes in the salivary glands of larva of *Chironomus* sp. 5. Isolation of mutant colonies by Gradient plate method. 6. Isolation of mutant colonies by Replica plate method. **7.** Description of -__Bacterial transformation, Conjugation experiment, Complementation test, Phage isolation. **Spotters:** Epithelial Tissues (Ciliated, Columnar, Glandular and Squamous epithelium), Smear of Frog's Blood, Muscles (Cardiac,

	Striated and Non - Striated) and Nerve cell. **ANIMAL PHYSIOLOGY** 1. Quantitative Estimation of Amylase Activity 2. Oxygen Consumption in Fish related to temperature and salinity 3. Preparation of Haemin crystals. 4. Estimation of Haemoglobin by Sahli's method 5. Total RBC count 6. Total WBC count and Differential count 7. Detection of nitrogenous wastes-Ammonia, Urea and Uric acid **Spotters:** Haemocytometer, Haemoglobinometer, Glucometer, Sphygmomanometer and Kymograph
References	1. Sinha, J., Chatterjeee A.K., Chattopadhyay P Advanced Practical Zoology , Arunabha Sen Publishers 2011 2. H.S. Bhamrah Practical Zoology Invertebrate, Dominant Publishers. 2003. 3. Preeti Guptha and Mridula Chaturvedi, Modern Experimental Zoology,. 2000 4. Verma, Manual of Practical Zoology: Chordates, S. Chand Publishing 2000. 5. Chaitanya K.V. Cell and Molecular Biology: A Lab Manual Prentice Hall India Learning Private Limited, 2013.

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Out comes**	**Knowledge Level**
CO1	acquire the knowledge of identification and classification of major classes of animals of both invertebrates and chordates and evaluate the salient features	**K4**
CO2	know the methods of mounting of appendages, mouth parts, stings and scales.	**K2**
CO3	perform the technique of micrometry, differentiate cells and invitro culture of bacteria.	**K3**
CO4	know the different methods to enumerate the cells	**K2**
CO5	handle the apparatus and devices used for molecular biology and Animal physiology.	**K3**

Mapping of COs with POs &PSOs:

Course Outcomes	**POs**								**PSOs**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**

CO1	S	M	M	S	S	S	M	M	S	M	M	S	S
CO2	S	S	S	M	S	S	S	M	S	M	M	M	S
CO3	S	M	S	S	S	S	S	M	M	S	S	S	S
CO4	S	M	S	S	S	M	S	S	M	M	S	S	M
CO5	S	S	S	S	S	S	S	S	M	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21CSS11	COMPUTER SKILLS FOR WEB DESIGNING AND VIDEO EDITING	L	T	P	C
SUPPORTIVE COURSE- I			4	-	-	2

Cognitive Level	K2: Understand K3: Apply
Learning objective	• To gain knowledge on effective web page creation using HTML tags • To create a table within a web • To gain knowledge on inserting heading levels within a web page • To learn how to insert ordered and unordered lists within a web page • To publish a web page • To learn how to combine basic design principles in video editing • To generate a video by applying her knowledge • To present the edited video • To record short clips by using camera

Unit I	Basics of Hardware and Software	12 hours

Basics of Windows Operating System – Windows Utilities. **Internet:** Concept of Internet, Applications of Internet, Connecting to the Internet, Troubleshooting – World Wide Web – Web Browsers – Search Engines: Accessing Web Browser, Downloading Web Pages, Printing Web Pages – Understanding URL – Surfing the Web: Using e-Governance Websites.

Unit II	Hyper Text Markup Language (HTML)	12 hours

Structure of HTML Script – Components: Text, Table, Image, Hyperlinks, Types of Lists – Headers and Footers. F**orms in HTML**: Label – Text Field – Radio Group – Text Area – Buttons.

Unit III	Open Element	12 hours

Introduction – Creating and Saving a Project - Basic User Interface Elements – Media Elements – Images – Carousels - Image Gallery – Videos – Project Preview in Browser.

Containers and Groups: Accordion Group – Collapsible Panel – Group of Elements – Back-End and Full Stack Development.

Unit IV	Video Recording	12 hours

Grabbing all computer activities like playing video games, browsing the net, making VoIP calls, and more - Record the desktop screen in custom or full-screen mode - Capture the computer screen with voice narrations, system audio, and PIP effects - Include annotations such as colorful texts, shapes, lines, arrows, and drawings - Edit the video by cropping, trimming, adding subtitles, applying watermarks - Conversion of Recorded Video to MP4, VOB, MTS, DV.

Unit V	Video Editor	12 hours

New Video Project – Sort Video Projects – Store Board – Project Library – Video Editing Tools: Filters, Trim, Split, Text, Motion, 3D Effects, Speed - Screen Direction - Sound Design – Continuity – Titling - Picture Management - Color Correction - Special Effects	
References	1. Jennifer Sargunar **,** Introduction to Information Technology**,** , Dorling Kindersley (India) Pvt. Ltd, 2011 2. A. Ravichandran , Fundamentals of Information Technology, , Khanna Book Publishing Co. Pvt. Ltd. First Edition, 2010. 3. Curtin, Kim Foley, Kunal Sen, Cathleen Morin, Information Technology - The Breaking Wave, Dennis P. Tata McGraw -Hill Publishing Company Limited, New Delhi, 1998. 4. Anne Boehm & Zac Ruvalcaba, HTML5 and CSS3, 4th Edition, 2018. 5. Aaron Goold, Video Editing Handbook, ISBN : 1521721041.2017

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	learn the basics of hardware and software, windows Operating System, web pages	**K2**
CO2	develop an effective web page using HTML tags	**K3**
CO3	execute the media elements, images, carousels, image gallery	**K3**
CO4	apply knowledge to generate video	**K3**
CO5	learn how to combine basic design principles in video editing	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	M	M	S	M	S	S	M	S	M
CO2	S	M	S	M	S	M	M	S	S	M	S	M	S
CO3	S	M	S	S	M	S	S	M	S	M	M	S	S
CO4	S	S	M	S	S	S	M	M	S	S	M	S	M
CO5	S	S	M	S	S	M	S	S	S	M	S	M	S

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(W)	- 1 mark	No Correlation	(N)	- 0 mark

SEMESTER II

Course Code	P21ZOT21	BIOCHEMISTRY	L	T	P	C
CORE-VI			5	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply	
Learning Objectives	• To study the hormone classification and biosynthesis • To learn the synthesis and biological functions of pituitary hormones growth hormones and thyroid hormones. • To study about function of pancreas, adrenal hormones, mechanism and role of pathophysiology. • To acquire the knowledge about hormone secretion, function and metabolic regulations	
Unit I	**Atoms & Carbohydrates**	**12 hours**
Atom, Molecules and chemical bonds, Properties of H_2O, Henderson and Hasselbach equation – Buffer solutions. Carbohydrates – Classification, Structure and properties, Biological importance .Metabolism and its regulation – Glycolysis-TCA cycle, Oxidative phosphorylation. Glycogenesis, Glycogenolysis, Gluconeogenesis, HMP shunt pathway.		
Unit II	**Lipids & Vitamins**	**12 hours**
Classification and Biological importance, Biosynthesis of fatty acids, triglycerides, phospholipids and cholesterol – Oxidation of fatty acids, Hypercholesterol disorders. Vitamins – Classifications, sources, biological importance, Hormones – Types, functions & disorders.		
Unit III	**Amino acids**	**12 hours**
Structure, Classification, properties & Biosynthesis of amino acids. Proteins- Classification and Biological significance, Level of organization - Primary, secondary, tertiary and quaternary structure; Ramachandran plot, protein metabolism and degradation-Transamination, deamination and transmethylation & Urea cycle. Peptide sequencing.		
Unit IV	**Nuclic acids**	**12 hours**
DNA & RNA – structure of purine and pyrimidine bases, nucleosides and nucleotide biosynthesis, regulation & degradation of purine and pyrimidine nucleotides – Biosynthesis of deoxyribonucleotides. Types of RNA, Structure of tRNA.		
Unit V	**Enzymes**	**12 hours**
Nomenclature and Classification – protein enzymes, coenzymes, prosthetic groups, cofactors, isoenzymes, ribozymes, abyzymes; chemical properties of enzymes, Factors influencing enzyme activity – temperature, pH, concentration of enzyme, substrate and effect of ions: Enzyme kinetics; types of enzyme inhibition – reversible, competitive, non-competitive, uncompetitive, irreversible inhibition; Allosteric enzymes.		

Text Books	**1.** Bhagavan NV.*Medical biochemistry*, fourth edition Academic Press.2010 2. Ambika Shanmugam, Fundamentals of Biochemistry for Medical Students.2003. **3.** K.Ramadevi Ambika Shanmugam's Fundamentals of Biochemistry for Medical students, Published by wolters Kluwer Health(India)2016 .
Reference Books	1. Satyanarayana, U. and Chakrapani, U. Biochemistry, Books and Allied Pvt. Ltd., Kolkat, 2009. 2. Deb, A.C, Fundamentals of Biochemistry, 10th Edition, New Central Book Agency Pvt Ltd., Kolkata, 2011. 3. Jain, J.L., Sunjay Jain and Nitin Jain. Fundamentals of Biochemistry, Fifth Edition,Chand and Company Ltd, NewDelhi, 2010. 4. David L. Nelson & Michael M. Cox, Lehninger Principles of Biochemistry, 6th edition, Worth Publishers, New York. 2011. 5. Nelson, D.L., Leninger, A.L. and Cox, M.M.. Lehninger Principles of Biochemistry, W.H. Freeman Co.,2008.
E-Reference	1. https://swayam.gov.in/nd2_cec20_bt19/preview 2. https://swayam.gov.in/nd1_noc20_cy10/preview 3. https://www.mooc-list.com/course/biochemistry-biomolecules-methods-and-mechanisms-edx

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the principles of biophysical chemistry and glucose metabolism.	**K1**
CO2	gain knowledge of lipids, vitamins and hormones in the biological system.	**K2**
CO3	understand the classification, biosynthesis and role of amino acids and use it for proteomic research	**K3**
CO4	distinguish the structure of DNA and RNA and their importance in the cells	**K3**
CO5	have a spell bound idea about enzyme activities and enzyme kinetics.	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	M	S	S	M	M	S	S	S
CO2	S	S	S	M	S	S	S	S	S	S	M	M	M
CO3	S	M	S	M	S	M	S	S	M	M	M	M	M

CO4	S	S	S	S	S	M	S	S	M	M	M	S	S
CO5	S	S	M	M	M	M	S	S	S	S	M	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOT22</td><td rowspan="2" colspan="3">IMMUNOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE –VII</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="8">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="8">• To gain in depth knowledge of human immune system
• To know the antigen and antibody reactions
• To learn the mechanism of Immuno pathology
• To acquire the knowledge on hypersensitivity and immunodeficiency diseases
• To learn various techniques of immunology</td></tr>
<tr><td>Unit I</td><td colspan="4">Lymphoid organs</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="9">History and Recent advancements in immunology. Innate and Adaptive Immune System: Lymohoid organs, Basics of Immunity- Innate immunity and Adaptive immunity-B and T cells-. Cells of the immune system. Immunological factors.</td></tr>
<tr><td>Unit II</td><td colspan="4">Antigens</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="9">Structure and function ,Antibodies: structure. Antigen and antibody reaction Types of immunoglobulin classes. Humoral and cell mediated immune responses- Interferon. - Monoclonal antibodies</td></tr>
<tr><td>Unit III</td><td colspan="4">Immunopathology</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="9">Major histocompatibility complex and its significance. HLA. Transplantation Immunology - Types of graft - Mechanism of allograft rejection.</td></tr>
<tr><td>Unit IV</td><td colspan="4">Hypersensitivity</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="9">Types of hypersensitivity. AIDS and immunity . Complement system. Immunological disorders: Use of artificial intelligence in Immunodeficiency diseases - Congenital and acquired immunodeficiency.</td></tr>
<tr><td>Unit V</td><td colspan="4">Immunotechnology</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="9">Active immunization - Passive immunization - Immunological techniques - RIA and ELISA, COVID virus and immunity. Hybridoma techniques , Vaccines -types of vaccine, immunisation schedule autoimmune Disorders.</td></tr>
<tr><td>Text Books</td><td colspan="8">1. Goldsby, R.A., Kindt, T.J., Osborne, B.A., Kuby, J. Immunology, Vth edition, W.H. Freeman and Company, New York.2002
2. Coico, R., Sunshine, G., Benjamini, E., Immunology: A Short Course, VIth edition. Wiley-Blackwell, New York.2003
3. Kannan, I., Immunology, MJP publishers, Chennai.2011.</td></tr>
<tr><td>Reference Books</td><td colspan="8">1. Arora, M.P. Immunology, Ane Books Pvt. Ltd., New Delhi.2010.
2. Delves, P.J., Martin, S.J., Burton D.R., Roitt, I.M. Roitt‟s Essential Immunology. XIIth edition. Wiley-Blackwell, Oxford, UK.2011.
3. W. Paul., Fundamentals of Immunology, Lippincott Williams & Wilkins.2012.
4. David male, Immunology VII Ed., Elsevier Health sciences, 2008.
5. Kannan, Immunology I Ed., MJP Publisher, 2007.
6. Coico, R., Sunshine, G., Benjamini, E. Immunology: A Short Course, VIth</td></tr>
</table>

	edition. Wiley-Blackwell, New York.2003.
E-Reference	1. https://www.classcentral.com/course/immunologyfundamentalsimmunitybcells-12724 2. https://swayam.gov.in/nd2_cec20_bt05/preview 3. https://www.classcentral.com/course/swayam-immunology

Course Outcome

Upon completion of this course, the students willbe		
CO	**Course Outcomes**	**Knowledge Level**
CO1	learn the importance of immune system and lymphoid organs	**K1**
CO2	know about various types of antigens and Immuno globulins, monoclonal antibodies , Hybridoma and vaccine.	**K2**
CO3	comprehend the view of hypersensitivity and graft rejection	**K2**
CO4	distinguish immunological disorders, artificial intelligence in immune deficiency disease.	**K3**
CO5	attain a deep knowledge on immunological techniques like hybridoma.	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	S	S	M	M	M	S	S
CO2	S	S	S	M	S	M	S	S	M	S	S	S	S
CO3	S	M	M	S	M	S	S	S	M	S	S	M	S
CO4	S	S	S	S	M	M	S	S	S	S	S	S	S
CO5	S	S	S	W	M	M	S	S	M	S	S	M	M

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(W)	- 1 mark	No Correlation	(N)	- 0 mark

Course Code	P21ZOT23	GENETICS	L	T	P	C
CORE VIII			4	-	-	4

Cognitive Level	K1:Recall K2:Understand 3:Apply	
Learning objective	• To get the knowledge about Mendel law • To learn about the Coupling and repulsion hypothesis and Mechanism of crossing over • To gain the knowledge regarding the Chromosome theory of inheritance. Karyotype and Idiogram • To understand the detection of chromosomal aberration and syndromes	
Unit I	**Historical Background of Genetics**	**12 hours**
Mendel‟s Study of Heredity: Monohybrid Crosses (pea plant), Mendel‟s laws of Dominance and Segregation, Dihybrid Crosses (pea plant), Mendel‟s laws of Independent Assortment. Incomplete Dominance (flower color in snapdragons and Punnet‟sgametic check board method). Multiple Allelic Inheritance**:** Blood group inheritance in Humans.		
Unit II	**Linkage and Sex Linkage**	**12 hours**
Coupling and repulsion hypothesis. Linkage in Drosophila, Linkage groups, Complete linkage, incomplete linkage, factors affecting linkage. Crossing over – Mechanism of crossing over. Cytological theories of crossing over. Germinal and Somatic crossing over. Interference and Coincidence. Construction of genetic maps (*Drosophila*).		
Unit III	**Physical basis of inheritance**	**12 hours**
Chromosome theory of inheritance. Karyotype and Idiogram. Sex Linked inheritance: X-Linked Inheritance (eye colour in Drosophila, haemophilia in humans), Y-linked inheritance (hairy pinna in males). Extra Chromosomal Inheritance / Cytoplasmic Inheritance – Mitochondrial DNA, Kappa particles in Paramecium.		
Unit IV	**Chromosomal aberration**	**12 hours**
Numerical – Euploidy (Monoploidy, Haploidy and Polyploidy) Polyploidy – Autopolyploidy and allopolyploidy. Aneuploidy – Monosomes, Nullisomes & Trisomes. Structural aberrations: Deletions, Duplications, Translocations and Inversions.		
Unit V	**Syndromes**	**12 hours**
Down, Edward,Turner and Klinefelter Syndromes. Detection of chromosomal anomalies: Pedigree analysis, Prenatal diagnostics (Amniocentesis, Chorionic Villus sampling).		
Text Books	1. Verma PS and Agarwal VK.. *Genetics*, S. Chand Publishers, New Delhi. 2010. 2. Meyyan RP. . Fundamendals of *Genetics*, Saras Publication Nagercoil, Tamilnadu.2014.	

Reference Books	1. D. Peter Snustad, Michael J. Simmons, . Principles of Genetics, 7th Edition, John Wiley & Sons, Inc. 2015. 2. D. Peter Snustad, Michael J. Simmons Principles of Genetics 7th Edition. John Wiley & Sons Ltd. New York. 2015. 3. Benjamin Lewin, , Genes IX, Oxford University Press, New York. 2008.
E-references	1. https://swayam.gov.in/nd2_cec20_bt17/preview 2. https://nptel.ac.in/courses/102/104/102104052/

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	gain more knowledge on Mendelian principles and inheritance of blood grouping in man.	**K1**
CO2	have an elaborative idea about mechanism of linkage, crossing over and gene mapping.	**K2**
CO3	understand the inheritance of traits linked with X and Y chromosomes.	**K2**
CO4	comprehend the various kinds of chromosomes aberrations	**K2,**
CO5	distinguish genetic disorders related syndromes and trace the pedigree of Mendelian traits.	**K3**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	S	M	M	M	M	S
CO2	S	S	S	S	S	M	S	S	S	S	M	S	S
CO3	S	S	S	M	S	M	S	M	S	S	M	S	S
CO4	S	M	S	S	S	S	S	S	S	M	M	S	S
CO5	S	S	S	M	S	S	S	S	M	S	M	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOT24</td><td rowspan="2">APPLIED ZOOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-IX</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2:Understand K3: Apply</td></tr>
<tr><td>Learning Objective</td><td colspan="6">• To learn the vermi compost technology,
• To provide knowledge on apiculture and sericulture.
• To understand the economic importance of silkworms.
• To know about dairy farming and livestock diseases.
• To acquire knowledge about poultry management</td></tr>
<tr><td>Unit I</td><td colspan="2">Vermiculture</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Introduction to vermiculture. Types of earthworm, Biology of Eisenia foetida. Eudrilus eugeniae, Rearing of earthworms, Equipments, devices used in vermiculture, Vermicompost Technology –Methods and Products, Small Scale Earthworm farming for home gardens, Larger scale commercial composting, Vermiwash collection, composition &use, Predators and parasites and diseases of Earthworms and their control</td></tr>
<tr><td>Unit II</td><td colspan="2">Apiculture</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Systematics, Morphology and Biology of honey bees – Honey bee species – Seasonal activities and social behaviour of honey bees – Food of the honeybees, bee flora and honey flow period – Bee keeping and ancillary industries – Newton’s Beehive- Extraction of honey-Medicinal value of honey- bee products- Importance of bee colonies in crop pollination- diseases and Predators and parasites of honeybees and their control.</td></tr>
<tr><td>Unit III</td><td colspan="2">Sericulture</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Origin and history of Sericulture, Moriculture-Mulberry cultivation methods, Silkworm – Taxonomy, Types, Biology and Lifecycle of Bombyx mori, Rearing of silkworm – Equipments, Methods, Characteristics and quality of Cocoon- Economic importance of Silk and Silk worm, Diseases and Predators and parasites of Silkworm and their control.</td></tr>
<tr><td>Unit IV</td><td colspan="2">Dairy farm Management</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Introduction and scope of dairy farming, livestock in India, Dairy animals management and a model dairy farm. Livestock diseases, nutritive value of milk, milk products and dairy industry.</td></tr>
<tr><td>Unit V</td><td colspan="2">Poultry</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Breeds of fowl, Housing and equipment, deep litter system, laying cages, Methods of brooding and rearing, debeaking. Management of growers, layers, broilers – Feed formulations for chicks, growers, phase I to phase III layers and broilers. Diseases and enemies affecting fowl. Nutritive value of egg and meat, factors affecting egg size, storage and preservation of egg, marketing, incubation and hatching of eggs. Economics of poultry production units.</td></tr>
</table>

Text Books	1. Gnanamani, M.R., Modern Aspects of Commercial Poultry Keeping, Deepam Publications, Madurai. 2010. 2. Seethalakshmi.M, and Shanthi.R., Vermitechnology, Saras Publications, Nagercoil,2014.
Reference Books	1. Ashan, J. and S.P. Sinha – A hand book of Economic zoology – S. Chand & Co-2010. 2. Zade, S.B., Khune, C.J., Sitre, S.R., and Tijare, R.V., Principles of Aquaculture, Himalaya Publishing House, Mumbai. 2011. 3. Ismail. S , Vermiculture, Orient Longman Ltd., Chennai, 2001.
E-Reference	1. https://swayam.gov.in/nd2_cec20_ge23/preview 2. https://www.classcentral.com/course/swayam-indian-agricultural-development-14119

Course Outcome

Upon completion of this course,the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	practice vermicompost technology	**K3**
CO2	acquire knowledge on Aviary and Honey extraction.	**K2**
CO3	understand the process of Silk production and its economy.	**K2**
CO4	acquire the management skills in animal behaviour.	**K2**
CO5	apply and manage a poultry farm to become potential entrepreneur	**K3**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	M	S	S	W	S	S	M	M	M	S	S	S
CO2	S	M	M	M	M	M	W	S	M	S	M	M	M
CO3	M	M	M	M	S	M	S	M	S	M	S	S	S
CO4	S	S	S	M	S	M	M	S	M	M	M	S	S
CO5	S	S	M	S	S	S	S	S	M	S	S	M	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOP22	PRACTICAL – II - BIOCHEMISTRY, IMMUNOLOGY, GENETICS and APPLIED ZOOLOGY	L	T	P	C
CORE- X			-	-	6	4
Cognitive Level	K2:Understand K3:Apply					
Learning objective	• To learn the biochemical techniques • To observe the microbial populations. • To gain hands on training on blood group and Rh typing • To know the simple Mendelian traits • To find out adulteration and silkworm disease					

BIOCHEMISTRY-

1. Qualitative / Quantitative analysis of Carbohydrates, Proteins (Lowry's & Bradford's method) and Lipids and Preparation of standard graph.
2. Isolation and identification of aminoacids using paper chromatography.
3. Determination of pH using pH paper and pH meter.
   Determination of glucose level in blood & urine.

Spotters – Thin Layer Chromatography, Chromatogram, pH-Meter, Colorimeter, Spectrophotometer, Centrifuge, Models - Heamoglobin and ATP.

(Study Tour / Field Trip to animal farm, sanctuary, research lab or industrial area should be arranged to equip practical knowledge.)

IMMUNOLOGY

1. Preparation of Serum and Plasma
2. Determination of human blood group and Rh typing by haemagglutination test.
3. Virtual dissection and Display of Lymphoid organs of mice and chicken.
4. Protein estimation from serum by Biuret method

Spotters: Autoclave, Petridish, Inoculation loop, Colony counter, Laminar Air Flow Chamber. Immunoelectrophoresis, ELISA reader, Model - Antibody structure.

GENETICS

1. Recording Mendelian Traits among students.
2. Study of polygenetic inheritance among students using finger print.
3. Identification of Colour blindness among the students using Isihara‟s colour chart.
4. Mendelian traits and pedigree analysis in man.

Spotters: Normal Human Karyotype, Down syndrome, Klinefelter's syndrome, Turner's syndrome, Edward Syndromes.

APPLIED ZOOLOGY

1. pH and microbial study of vermicompost
2. Milk test for adulteration.

	3. Cocoons, egg cords, Different silkworms. 4. Diseases of silkworm
References	1. Sinha, J., Chatterjeee A.K., Chattopadhyay P., Advanced Practical Zoology Arunabha Sen Publishers, 2011. 2. H.S. Bhamrah, Practical Zoology Invertebrate Dominant Publishers. 2003. 3. Preeti Guptha and Mridula Chaturvedi, Modern Experimental Zoology . 2000. 4. Jain J.L, Sunjay Jain, Nitin Jain, Fundamentals of Biochemistry, 2007. 5. Richard L. Myers Immunology: A Laboratory Manual. McGraw-Hill Inc., US; 2nd Revised edition. 1994.

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	perform the quantitative and qualitative estimation of biomolecules; and understand various biochemical instrumentation methods	**K3**
CO2	Learn the bacterial culture techniques	**K2**
CO3	practice immunological techniques	**K3**
CO4	carry out pedigree analysis and predict mendelian traits	**K3**
CO5	perform microbial study on compost and milk test	**K3**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	S	M	M	S	S	S	M
CO2	S	S	M	S	S	S	S	M	S	M	S	S	M
CO3	M	M	S	M	S	S	S	M	M	M	S	S	M
CO4	S	M	S	M	S	M	S	S	M	M	S	S	M
CO5	M	M	S	S	S	M	M	S	M	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	**P21ZOS22**	**MEDICAL LABORATORY TECHNOLOGY**	**L**	**T**	**P**	**C**
SUPPORTIVE COURSE- II			**2**	**-**	**-**	**2**

Cognitive Level	K1:Recall K2:Understand K3:Apply	
Learning objective	• To learn the proper procedure for the collection, safe handling and analysis of biological specimens. • To understand the medical diagnostics methods used for analysis of Blood. • To know the urine test, blood test and important human diseases. • To enlighten the skills of basic medical techniques. • To mould in clinical testing procedures to fetch job opportunities	
Unit I	**Introduction to Medical Diagnostics and its Importance**	**6 hours**
Diagnostics Methods Used for Analysis of Blood- Blood composition, Preparation of blood smear and Differential Leucocyte Count (D.L.C) using Leishman's stain, Platelet count using haemocytometer, Erythrocyte Sedimentary Rate (E.S.R), Packed Cell Volume (P.C.V.)		
Unit II	**Urine analysis**	**6 hours**
Physical characteristics; Abnormal constituents, Detection of sugar, albumin, deposits and pregnancy test, (b) Blood analysis – Blood grouping, Haemoglobin estimation, Cell counts DC/TC.		
Unit III	**Diseases**	**6 hours**
Causes and diagnosis of– typhoid, malarial fever, dengue, SARS, Helminthes diseases. Glucose Tolerance Test, LFT -Liver Function Tests and Serum Amylase Estimation Increase of bilirubin and levels of SGOT, SGPT, Bilirubin tests, Alkaline phosphatase tests, Prothrombin Time, Coomb's , Liver biopsy		
Unit IV		**6 hours**
Post-Exercise or Sleeping GH levels, Clonidine Stimulation Test, Insulin **Stress Test:** Thyroid Function Test , Thyroid Stimulating Hormone (TSH) Serum Total and Free Thyroxine (T4) Metyrapone Test. Pregnancy test		
Unit V	**Tumours**	**6 hours**
Types Benign/Malignant, Detection and metastasis; Medical imaging: X-Ray of Bone fracture, PET, MRI and CT Scan.		
Text Books	1.Ochei, Medical Laboratory Science. Theory and practice, Tata McGraw Hill publ. Co, Noida, India, 2000. 2. Dubey R. C. and Maheshwari D. K. S A text book of Microbiology,. Chand & Co. Publ. New Delhi, India, 2007.	
Reference Books	1. Ashok, R. 2000.Antimicrobials in Laboratory Medicine, B.I. Churchill Livingstone. New Delhi 2. Root & I. Samuel. M. K. G.Notes on Clinical Lab Techniques, Iyyer & Sons Publ. Co, Chennai, 1992. 3. 3.Mukherjee. Medical Laboratory Technology Vol. 1,2& 3, Tata McGraw Hill publ. Co, Noida, India, 2006.	

E- Reference	1. https://www.cartercenter.org/resources/pdfs/health/ephti/library/lecture_notes/med_lab_tech_students/medicallabtechnology.pdf 2. https://scert.kerala.gov.in/wp-content/uploads/2020/06/16-mlt.pdf 3. https://www.coloradomesa.edu/iris/documents/MedLabTech.pdf

Course Out come

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	learn the medical diagnostics and its importance	**K1**
CO2	get familiarized with urine analysis and blood analysis and able to perform	**K3**
CO3	know causes and diagnosis of– typhoid, malarial fever, dengue, SARS, Helminthes diseases	**K2**
CO4	acquire a sound knowledge in sleeping GH level and thyroid function test	**K2**
CO5	develop the knowledge about tumors types and its diagnosis	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	M	S	S	S	M	M	S	S	S
CO2	S	S	S	M	S	S	M	S	S	S	S	S	M
CO3	S	S	S	M	S	S	S	M	S	S	S	M	S
CO4	S	M	S	S	S	S	M	S	M	S	S	S	S
CO5	S	S	M	S	M	S	S	S	M	S	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

SEMESTER III

<table>
<tr><td>Course Code</td><td>P21ZOT31</td><td rowspan="2" colspan="2">BIOTECHNOLOGY & BIOINFORMATICS</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-XI</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K2:Understand K3:Apply K4:Evaluate K5: Analyze</td></tr>
<tr><td>Learning objective</td><td colspan="7">To learn various tools and techniques in biotechnology
To gain knowledge in different areas like animal, industries, medical, agriculture biotechnology
To learn about the applications of cell culture
To acquire knowledge about internet, e-mail, e-book and youtube applications in biology
To understand genomics, proteomics and bioinformatics tools and data bases</td></tr>
<tr><td>Unit I</td><td colspan="3">Tools and Techniques of Genetic Engineering</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Basic Principles of Genetic Engineering; Restriction enzymes, Linkers/Adaptors; Cloning Vectors - Salient Features and Types; Techniques – Strategies of rDNA Technology, Gene Library, Insertion of a Foreign DNA into a Vector; Transfer of rDNA into a Bacterial Cell, Selection & Screening of Recombinants, Recovery of Cells containing rDNA, Expression of Cloned DNA.</td></tr>
<tr><td>Unit II</td><td colspan="3">Industrial, Medical & Environmental Biotechnology</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Fermentation - Types, Upstream and Down Stream Processing; Production of Alcohol, Antibiotics, hormones, vaccines and interferons, Biofuels, Bioremediation, Biodegradation, Biomining & Biosorption. Bioplastics.</td></tr>
<tr><td>Unit III</td><td colspan="3">Animal and Plant biotechnology</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Equipments for animal cell culture, Types of tissue culture medium, Primary culture, Stable cell line, Cultivation of Animal Cells; Somatic Cell Fusion, Applications of Cell Culture– , Blood Factor VIII and Erythropoietin; Organ Culture; Transgenic Animals and their application; Micropropagation of plants, Transgenic plants. Biosafety and bioethics.</td></tr>
<tr><td>Unit IV</td><td colspan="3">Bioinformatics</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Scope and applications of Bioinformatics. Biological/specilalized databases- Nucleic acid databases (Genbank,DDBJ and EMBL), NCBI, EBI, Protein databases - primary, composite, secondary; Specialized databases-SGD,TIGR, Structural databases -PDB, CATH ModBASE. Genomics - Proteomics.</td></tr>
<tr><td>Unit-V</td><td colspan="3">Applications</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Similarity search (FASTA, BLAST), Multiple sequence alignment-Clustal W (Conserved domains search), Mult Align, Homology modelling, Phylogenetic analysis – MEGA, phylogenetic tree construction (Neighbor Joining method and Maximum parsimony). Data mining tools for Biomedical applications-SNP analysis, drug designing and docking.</td></tr>
<tr><td>Text Books</td><td colspan="7">Dubey, R.C., A Text book of Biotechnology, S.Chand & Co., New Delhi, 2015.
Gupta, P.K, Elements of Biotechnology, Rastogi Publications, Meerut, 2006 .
Sathyanarayana, Biotechnology, Uppala Author-Publisher Interlinks,Vijayawada,A.P.2015</td></tr>
</table>

References Books	1. Lewin, B., Gene XI , Oxford University Press, New York, 2002. 2. Brown, T.A. Gene Cloning & DNA Analysis: An introduction. V edn. Blackwell publishing USA, 2006.. 3. Balasubramanian, D, C.F.A. Bryce, K.Dharmalingam, Y.Green, Kunthala Jeyaraman, Concepts in Biotechnology. Universities (P) ltd. Hyderabad, 2004. 4. Baxevanis, A.D. and Quellette, B.F.F.. Bioinformatics. A practical guide to the analysis of genes and proteins. II edn. Wiley-Intern Science Publication, New York, 2009. 5. Lesk, M.A. Introduction to Bioinformatics. Oxford Univ. Publishers, 2008. 6. Attwood, T.K. and Parry, D.J – Smith, D.J. Introduction to Bioinformatics. Pearson Education (Singapore) Pvt. Ltd, 2005. 7. Twyman, R.H, Instant notes on Bioinformatics. Viva Books Pvt. Ltd., NewDelhi, 2003 8. Mount, W. Bioinformatics sequence and genome analysis. Cold Spring harbour Laboratory Press, New York, 2005.
E-References	1. https://swayam.gov.in/nd1_noc20_bt31/preview 2. https://swayam.gov.in/nd1_noc19_bt33/preview 3. https://swayam.gov.in/nd1_noc19_bt15/preview

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	know the various techniques used in genetic engineering	**K2**
CO2	learn the methods used in manufacturing of industrial, medical products, waste removal and pollution control field	**K2**
CO3	understand the animal and plant tissue culture techniques along with the bio safety methods	**K2**
CO4	analyse the nucleotide and amino acid sequences of DNA and proteins by using bioinformatics tool	**K5**
CO5	Compare and evaluate the similarity of species and their phylogenetic relations	**K4**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	S	M	M	S	S	S
CO2	S	S	M	S	S	S	S	M	S	S	S	S	S
CO3	S	M	M	S	S	M	S	M	S	S	S	S	M
CO4	S	S	M	M	S	S	S	S	S	M	S	S	M
CO5	S	S	M	S	S	S	S	S	M	M	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mar

<table>
<tr><td>Course Code</td><td>P21ZOT32</td><td rowspan="2">DEVELOPMENTAL BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">COREXII</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To acquire knowledge about basic concepts of development
• To understand the events of gametogenesis, fertilization and early development
• To learn the mechanism of differentiation and organogenesis
• To study regeneration and screening of genetic disorders
• To learn about assisted reproductive technology (ART)</td></tr>
<tr><td>Unit I</td><td colspan="2">Theories</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Introduction historical perspective, Theories – preformation, epigenesis, recapitulation and germplasm, Gametogenesis- Spermatogenesis, Oogenesis. Fertilization - Physiological and biochemical pathway, Parthenogenesis - types, (natural and artificial) and significance.</td></tr>
<tr><td>Unit II</td><td colspan="2">Cleavage</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Salient features, Planes of cleavage, Patterns of cleavage and factors affecting cleavage. Gastrulation- Salient features, Metabolic and Molecular changes during gastrulation, gastrulation in amphioxus. Fate-map: construction of fate-map in amphibians- artificial and natural markings.</td></tr>
<tr><td>Unit III</td><td colspan="2">Organogenesis</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Organogenesis in Vertebrates – brain, eye, heart, kidney, skin and its derivatives, Regulation and development. Placentation: Classification and physiology of placenta. Teratogenesis - Teratogenic agents.</td></tr>
<tr><td>Unit IV</td><td colspan="2">Metamorphosis and regeneration</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">Morphological and biochemical changes during amphibian metamorphosis and its hormonal control. Neuro endocrine control of insect metamorphosis - Biochemistry and mechanism of action of hormones during metamorphosis. Process and factors influencing regeneration.</td></tr>
<tr><td>Unit V</td><td colspan="2">Programmed cell death, aeging and senescense</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="7">- Asexual reproduction – assisted reproductive technology(ART) – Male infertility – sperm abnormalities – super ovulation – IVF – ICSI – GIFT – Screening genetic disorders. Contraceptive devices.</td></tr>
<tr><td>Text books</td><td colspan="6">1. Arumugam, N., A Text book of Embryology, Saras Publications, Nagercoil. 2012.
2. Arumugam NA. Text Book of Embryology, Saras Publication Nagercoil.2014.
3. Balinsky, B.K.,.An introduction to embryology, saunders Philadelphia.1981.</td></tr>
<tr><td>References Books</td><td colspan="6">1. Gilbert, S.F., Developmental Biology, 7th Ed., Sinamer Associates Inc., Publishers, Saunderland, Massachusettes, USA. 2003.
2. Arora M.P. Embryology , Himalaya Publishing House, New Delhi . 2009.
3. Gilbert SF . Developmental Biology, IX Edition, Sinauer Associates, Inc., Publishers, Sunderland, Massachusetts, USA.2010.</td></tr>
<tr><td>E-references</td><td colspan="6">1. https://nptel.ac.in/courses/102/106/102106084/]</td></tr>
</table>

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Out comes**	**Knowledge Level**
CO1	know the history of embryology.	**K1**
CO2	understand the functions of gonads and gametogenesis.	**K2**
CO3	gain in depth knowledge about the organogenesis.	**K2**
CO4	differentiate the progressive and retrogressive metamorphosis.	**K3**
CO5	attain knowledge on the IVF and other important aspects of animal reproduction.	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	M	S	S	S	M	M	M	M	S	M
CO2	M	S	S	M	S	S	S	S	S	W	S	S	M
CO3	M	S	M	M	M	S	S	S	M	M	S	S	S
CO4	S	S	S	S	S	S	S	M	M	M	S	S	M
CO5	M	S	S	S	S	S	S	S	M	M	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOT33	EVOLUTION,ANIMAL MIGRATION AND BEHAVIOUR	L	T	P	C
CORE XIII			4	-	-	4
Cognitive Level	K1:Recall K2:Understand K3:Apply					
Learning objective	• To study the different evolutionary theories • To understand the role of gene in evolution • To be acquainted with the species concept and phylogeny • To gain the knowledge on animal behaviour. • To know the importance of migration					
Unit I	Concepts		12 hours			
Early ideas of evolution- The nature of evolutionary units Darwinism. Lamarckism. Natural selection. The causes of evolution; Hardy-Weinberg equilibrium: - Genetic drift and Non-random breeding-Reproductive isolating mechanisms.						
Unit II	Models of population growth		12 hours			
Phenetics and cladisticts, molecular clock. Ontogeny and phylogeny: Evolutionary innovations and the origin of higher taxa-Evolution of *Homo sapiens* and molecular biological and immunological evidences for evolution. Impact of DNA bar coding in modern Evolutionary studies.						
Unit III	Species concepts		12 hours			
The Biological Species concept and Theories of Evolution. A general theory of speciation and its impacts. Historical perspective; allometry and Species selection. Population genetics and ecology. Metapopulations - Monitoring natural populations – Extinction of small populations - Loss of genetic variations - Conservation of genetic resources in diverse taxa – Artificial evolution (in vitro).						
Unit IV	Animal behavior & Evolution		12 hours			
Importance of animal behaviour studies – patterns of behaviour – daily and seasonal cycles of behaviour – physiological basis of behaviour. Environmental modification of behaviour – developmental changes in behavior – Genetic differences in behavior – behavioral disorders						
Unit V	Migratory animals		12 hours			
Importance of bird migration – behaviour – special reference to bird pollinations – migratory fishes and crustaceans – importance of migration. Group formation- Social relationship, process of socialization, locality and behaviour – practical application – behavioral characters for management practices.						

TERESA WOMEN'S UNIVERSITY EQUAL STATUS

Text Books	1. Hoshang S. Gunderia and Hare Govind Singh. The text book of Animal behaviour ., S. Chand & Co.) .2005. 2. Himanshu Arora and Mohan P. Arora . A Text Book of Organic Evolution, third edition. Himalaya Publications, New Delhi. 2013. 3. Arumugam NA and Natarajan P. Animal Behaviour – Ethology, Saras Publication Nagercoil,Tamilnadu.2012. 4. The text book of Animal behaviour by Hoshang S. Gunderia and Hare Govind Singh, S. Chand & Co.) 2005
Reference Books	1. Himanshu Arora and Mohan P. Arora. A Text Book of Organic Evolution, third edition. Himalaya Publications, New Delhi, 2013. 2. Veer Bala Rastogi, Organic Evolution. Kannan publications, Meerut, 2012. 3. Peter E. Rosenbaum. Volpe‟s Understanding Evolution, McGraw-Hill, New York.2010. 4. Peter E. Rosenbaum. 2010. Volpe‟s Understanding Evolution, McGraw-Hill, New York.2010. 5. Veer Bala Rastogi, *Organic Evolution*. Knrn publications, Meerut.2012. 6. Animal Behaviour (Ethology), V.K. Agarwal, S. Chand & Company Ltd, New Delhi.2009.
E-references	1. https://www.classcentral.com/course/early-vertebrate-evolution-5417 2. https://www.classcentral.com/course/molecularevolution-3555

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Out comes**	**Knowledge Level**
CO1	understand the ideas of Darwinism, Lamarckism and Natural Selection	**K1**
CO2	comprehend the Phylogeny, Ontogeny and knowledge on evidences of Evolution.	**K2**
CO3	gain knowledge on species concept and Theories of Evolution	**K2**
CO4	describe the students to understand animal behaviour and developmental changes in behaviour.	**K2**
CO5	acquire the knowledge of importance of animal behavior and migration.	**K2**

Mapping of COs with POs &PSOs:

CO	Pos								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	S	S	S	M	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	M	S	S	S	M	S	S	S	S	M	S	S	M
CO5	S	S	S	S	S	S	S	S	S	M	S	S	S

Strongly Correlating S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOT34	ECOLOGY AND TOXICOLOGY	L	T	P	C
CORE-XIV			4	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply
Learning objective	• To understand different habitat and niche • To acquire the knowledge on interactions between organisms and their environments, dynamics of populations and communities • To know the different types of pollution and their management to protect the environmental health • To gain knowledge about biomes in biogeography

Unit I	**Concepts of Environmental studies**	**12 hours**

Renewable and non-renewable resources. Conservation of natural resources, Use of alternate energy sources. Ecosystems: concept, types, structure, components and functions. Energy flow, Review of Bio-geo Chemical cycles. Energy cycles in the ecosystems and ecological succession. Food chains, webs and ecological pyramids.

Unit II	**Concept of Limiting factors**	**12 hours**

Liebig's law of the minimum – Shelford's law of tolerance. Population and Community Ecology: Basic concepts, characteristics, dynamics and regulation of population density. Characteristics, composition, structure, development and classification of communities.Succession, Homeostasis.

Unit III	**Environmental Pollution**	**12 hours**

Air, water, soil and land pollution. Radioactive pollution Impact of pollutants on general fauna, flora and ecosystems. Factors influencing physiology due to concentration of toxicants. Toxicity: Pesticides and Types: insecticides, herbicides, fungicides, rodenticides, nematicides, fumigants. Properties and effects of pesticides: Mechanism of action Ecotoxicology and its environmental significance, Environmental monitoring of pollutants Environmental policy in control of pollution.

Unit IV	**Toxicology**	**12 hours**

Definition – Types – Scope of toxicology –Routes of Entry and Testing Procedures: Absorption – distribution – Excretion – Bio-transformation-Bioassay – Acute toxicity – Chronic toxicity. Assessment of safety /risk. K3Pesticide. Margin of safety, Toxicity curves, cumulative toxicity and toxicity of chemical mixtures. Food Additives: Types and functions of food additives, hazards of food additives.. Toxicology of metals – Arsenic, cadmium, chromium, lead, mercury. Metabolism, Storage and Excretion of Xenobiotic

Unit V	**12 hours**	**12 hours**

Acute, Sub acute, Chronic and Special tests (Metabolic, neurotoxicity and reproductive toxicity, Carcinogenicity and Mutagenicity). Synergism and antagonism, Dose-Response relationships, determination of LD50 and ED50, Statistical concept of toxicity-concentration,- SPSS software to determine LC50 –Computers in Toxicology and Risk Assessment	
Text Books	1. Verma PS and VK. *Cell Biology, Genetics, Evolution and Ecology*, S Chand Publishers, New Delhi.2004. 2. Arumugam N. *Concepts of Ecology*, Saras Publication, Nagercoil, Tamilnadu.2014. 3. Agarwal.K.C. Textbook for Environmental Studies, Erach Bharucha, UGC, New Delhi.2018. 4. P. D. Sharma. Environmental Biology and Toxicology Rastogi Publications, Meerut.2018
References Books	1. M.Kato. The Biology of Diversity- Springer 2012 2. S. N. Prasad & Vasantika Kashyap, Introduction to Toxicology: S. Chand & Co., New Delhi.1991 3. M. Manivasakam Environmental Pollution :, National Book Trust, New Delhi 2017 4. Gupta, P. K. and Salunkhe. D. K Modern Toxicology: Vol. I, II, III:. Metropolitan Book Co. Pvt. Ltd. New Delhi.1985. 5. S. N. Prasad & Vasantika Kashyap, Introduction to Toxicology: S. Chand & Co., New Delhi. 2008. 6. M. Manivasakam, Environmental Pollution : National Book Trust, New Delhi .2001 7. Modern Toxicology: Vol. I, II, III: Gupta, P. K. and Salunkhe. D. K. Metropolitan Book Co. Pvt. Ltd. New Delhi.2002.
E-References	1. https://swayam.gov.in/nd1_noc19_ge23/preview 2. http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_pg.php/697

Course Outcome

Upon completion of this course, the students will be		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the ecosystem and bio-geo chemical cycles.	**K1**
CO2	obtain sound knowledge on population and community ecology .	**K2**
CO3	get an in depth knowledge on environmental populations and its impacts.	**K2**
CO4	learn about the toxicological testing methods and to perform the test	**K3**
CO5	know the effects of toxicants, metabolism and control measures	**K2**

Mapping of COs with POs &PSOs:

CO	Pos								PSOs				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	M	S	S	S	S	S	M	M	S
CO2	S	S	S	M	M	S	S	S	M	S	S	S	M
CO3	M	S	S	S	M	M	S	S	S	S	M	M	M
CO4	S	S	S	S	M	M	M	M	M	S	S	S	S
CO5	M	M	S	M	S	M	M	S	M	S	S	M	S

Strongly Correlating (S) - 3 marks   Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark   No Correlation (N) - 0 mark

Course Code	P21ZOT35	RESEARCH METHODOLOGY AND BIOETHICS	L	T	P	C
CORE-XV			5	-	-	4

Cognitive Level	K1:Recal K2:Understand K3:Apply	
Learning objective	• To acquire knowledge on dissertation writing and publishing of research papers. • To learn laboratory hazards and safety measures • To study the variables in biology • To understand the hypothesis testing, significance of correlation. Regression and application of SPSS in biology	
Unit I	Importance of scientific research	12 hours
Identification of research problems and research gaps–Sources, Extensive Literature Review, Developing the objectives, Preparing the Research Design, Types, Approaches, Methods of Research (Survey, Observation, case study, experimental, historical and comparative methods) collection and review of literatures– Planning and implementation of Research work – Journals database: Web of science- Scopus- UGC Care list Pubmed-Google scholar		
Unit II	Presentation, publishing research report	12 hours
Dissertation writing – Preparation of research papers- Scientific Journals- Ethics in thesis writing- Plagiarism Impact factor of journals- Articles citations, h-index- i10 index. PowerPoint preparation for presentation Research funding promoting agencies- State-TANSCHE, TNSCST, National (ICMR, ICAR, DAE,CSIR, UGC, DST, DBT)		
Unit III	Principles of microscopy	12 hours
fluorescent microscope, UV-visible spectrophotometer- SEM-TEM-GCMS- HPLC- AAS-PCR- DNA sequence- NGS Dosimetry: Ionization chamber, GM counter, Solid and liquid scintillation counters, Autoradiography, Radio Immuno Assay, Enzyme Linked Immuno Sorbent Assay (ELISA); SDS-PAGE, Agarose Gel Electrophoresis, 2D Gel Electrophoresis, Gel Documentation.		
Unit IV	Bioethics, GLP and CPCSEA Guidelines	12 hours
Introduction to Bioethics-Positive effects – Negative effects - Biotechnology examples – Rice , Vitamin A - Slow Ripening Fruits- Saving the Banana- Toxic Soils-Fast Growing fish- The Monarch Butterfly Story- Consumer traits – food safety- Environmental concerns- Economic and Social Concerns. Bioethics regulation frame work in India. GLP introduction – National Good Laboratory Practice (GLP) Programme. CPCSEA Guidelines for Laboratory Animal Facilities.		
Unit V	Intellectual Property Rights	12 hours
Origin of the Patent Regime- Early patents Act. History of Indian Patent System– Basis of Patentability –Patent Application Procedure in India- Patent Granted Under copy right, trade mark, Convention Agreement- Opposition to Grant of Patent-Grant and Sealing- Exclusive Rights - Special Provision for selling or distribution - Suits relating to infringements – Compulsory License- Relief under TRIPS agreement.		

Text Books	1. Gurumani, Research Methodology, MJP Publishers, Chennai. 2006. **2.** Kothari C.R.,. Research Methodology. 2nd edition, New Age International Publishers, 2004.
Reference Books	1. Sood (O.P), Rattan (Ashok),Ethics in animal experimentation .Ranbaxy science foundation and Design.2004. 2. Leedy, P.D. and Ormrod, J.E., Practical Research: Planning, Prentice Hall.2004. 3. Fink, A., Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications.2009. 4. Veerakumari, L. Bioinstrumentation. MJP Publishers, Chennai.2009. 5. Ghatak K.L.Techniques and Methods in Biology. PHI Learning Pvt. Ltd. New delhi.2011. **6.** Shaleesha A.Bioethics. Stanley Wisdom Publication .2018.
E-references	https://www.mooc-list.com/course/understanding-research-methods-coursera https://swayam.gov.in/nd2_ugc19_ge04/preview

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the research problems	**K1**
CO2	understand the method of thesis and research paper writing	**K2**
CO3	learn the principles and mechanism of various research instruments and able to handle them for research	**K3**
CO4	understand the laboratory practices and animal usage with reference to bioethics	**K2**
CO5	know about the patent rights and its regulations.	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	M	M	S	S	M	M	M	M	S	M	S	S
CO2	M	M	S	M	S	S	M	M	M	M	M	M	S
CO3	M	S	S	S	S	S	M	S	M	S	S	S	S
CO4	S	S	M	S	S	S	S	S	M	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks   Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark   No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZOP33</td><td colspan="2">PRACTICAL-III</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -XVI</td><td colspan="2">BIOTECHNOLOGY & BIOINFORMATICS, DEVELOPMENTAL BIOLOGY, EVOLUTION, ECOLOGY & TOXICOLOGY</td><td>-</td><td>-</td><td>6</td><td>4</td></tr>
<tr><td colspan="2">Cognitive Level</td><td colspan="6">K2:Understand K3:Apply</td></tr>
<tr><td colspan="2">Learning objective</td><td colspan="6">• To learn the techniques of DNA isolation and safe handling of microorganisms
• To acquire the skill to use Bioinformatics tool for analysis of sequence
• To know the various stages involved in embryo
• To estimate the physico-chemical parameters of the water and lethal dose of toxic chemicals</td></tr>
<tr><td colspan="2">Experiments in Biomolecules</td><td colspan="6">BIOTECHNOLOGY
• Laboratory demonstration on safe handling of microorganisms.
• Isolation of DNA from saliva.
• Isolation of yeast DNA and Transformation of E-Coli.
• Trypan blue exclusion method for cell viability estimation.
• Production of penicillin and testing of antimicrobial activity.
BIOINFORMATICS
• Multiple Sequence Alignment.
• Construction of Phylogenetic Trees for DNA and Proteins.
• Sequence Retrieval from Databases.
• Building of Molecules.
• BLAST, FASTA programs for sequence database search.
DEVELOPMENTAL BIOLOGY
• Temporary mounting of chick blastoderm (24, 48,72 and 96 hrs).
• Observation of frog spermatozoa.
• Study of life cycle /early embryogenesis of frog.
• Effect of hormones in amphibian metamorphosis
Spotters
Frog's / Human's sperm
Frog's Egg, 8-Celled Stage, 16 Celled Stage, Yolk Plug Stage, Blastula, Gastrula
• T.S of testis and ovary of frog and mammal
• Chick Embryo: Primitive Streak, 24 hrs, 48 hrs and 72 hrs Chick Embryo.
EVOLUTION:
• Observation of forelimbs and hindlimbs -Frog, Calotes, Bird and Mammal)
• Observation of fossils. Peripatus, Archaeyopteryx ,Physa princepii
• Observation of leaf insects and stick insects , Monarch and Viceroy butterflies
• Study of polygenetic inheritance among students using finger print.</td></tr>
</table>

- Hardy - Weinberg Law & Calculation of Gene Frequency of Dominant and Recessive using two different colour beads.

ECOLOGY & TOXICOLOGY

- Estimation of Chlorides, Total Hardness
- Determination of pH, DO and Co2
- Collection and Mounting of any three Zoo planktons-
- Estimation of primary productivity
- Estimation of LC50 or LD50 of an organo phosphorous pesticide.
- Physico-chemical analysis of soil pH, moisture, temperature, organic matter.

Spotters: Secchi Disc, BOD incubator, Wet and Dry bulb Thermometer, , Hygrometer, Rain Gauge, Sandy, Muddy and Rocky Shore Fauna (each five).
Report on Ecological Collection of Fauna representing Different Habitat

(Study Tour/Field Trip to animal farm, sanctuary, research lab or industrial area should be arranged to equip practical knowledge.

COURSE OUTCOME

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	perform the techniques, isolation of DNA and antimicrobial test	**K3**
CO2	use bioinformatics tool for research analysis	**K3**
CO3	differentiate various stages of development of chick blastoderm	**K3**
CO4	compare the fore limbs and hind limbs of different vertebrates on evolutionary pattern	**K2,**
CO5	gain practical knowledge on toxicolological techniques –LC_{50} / LD_{50} and water quality test	**K3**

Mapping of COs with POs &PSOs:

CO	POs								PSOs				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	S	S	S	M	S	S	S	S	M
CO2	S	S	S	S	S	S	S	M	S	S	S	S	M
CO3	S	S	M	S	S	S	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	M
CO5	S	S	M	S	S	S	S	S	S	S	M	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21WSS33	WOMEN EMPOWERMENT	L	T	P	C
SUPPORTIVE- COURSE- III			2	-	-	2
Cognitive Level	K2: Understand K3: Apply K5:Analyse					
Learning objective	• To know the objectives, types, determinants of women Empowerment. • To learn the various national and international agencies for women empowerment. • To uplift women in socially, economically and politically as empowered. • To make aware of women rights and enhance their life • To know the women entrepreneurship development in India					
Unit I	Fundamentals of Women's Studies	6 hours				
Meaning and Definition of the concept of Women's studies - Need and Scope - Women's studies as an academic discipline - Women's Studies – theories and Achievements- International Women's Year 1975 - International Women's Decade 1975 -1985; Towards Equal Status 1976 – Current trends-Importance of women's education – Efforts of various Committees –Life Skill Education to build capacity - Education as a tool of Women Empowerment - Obstacles to Women Education – Social, Economic, Cultural and other factors, limitations of Formal system of education-Role of educational institutions, Parents and Community						
Unit II	Issues of Women	6 hours				
Girl Children and Women in Society: Social Networking- Influencing factors of Social Networking-Types of Social Networking- impact and consequences of networking- Remedial measures and strategies for solution- NCW: Initiatives to overcome Women's issues - Ministry of Home Affairs and Networking with State Women Commissions: Cyber Crime Prevention against Women and Children (CCPWC)-challenges - efforts & effective measures to prevent crime against women and children - create awareness for social issues. Motherhood - Single Parent - Widows – Multiple Roles of Women - Role conflict, Role change - Social Responsibility and Gender Empowerment.						
Unit III	Achievement and Rights of Women	6 hours				
Gender Equality: Achievement of Women - Educational, Political, Economic, Social - Panchayat Raj - Political role and participation - National and International Levels; Women's Rights - Property Rights - Redressal mechanism at different levels - Rights of Women with Disability: Case Studies on Women Achievers in the field of politics, education, arts science, law etc.						
Unit IV	Empowerment of Women	6 hours				
Empowerment of Women: Alternative approaches - Women in Development (WID) - Women and Development (WAD) - Women's Development- Definition, Meaning and Scope, Gender and Development (GAD), Human Development Index (HDI) vs Gender Development Index (GDI). Types of Empowerment: Social, Educational, Political, Economical, Legal to Holistic levels-Role of Govt. and NGOs - Help line numbers in promoting women's empowerment - National and International Funding Agencies in promoting research on women.						
Unit V	Women Entrepreneurship	6 hours				

Women Entrepreneurship:– Types of Entrepreneurs Opportunities and Risk – Push and Pull Factors –financial Assistance and credit facilities-Micro finance- Entrepreneurship Skill and Competencies - Women Entrepreneurship Development in India: TRYSEM – NABARD – NMEW - Support to STEP – TREAD – Rural Entrepreneurship Development Programme – Gramia Bank –Mahila bank and supportive measures- Industrial Development Bank of India (IDBI) – Small Industries Development Bank of India-SHG and Entrepreneurship opportunities	
Text Books	1. Rani Sandhya, "Development of Women – Issues and Challenges", Discover Publishing House Pvt Ltd, New Delhi, 2012. 2. Anil Kumar Jha, "Gender Inequality and Women Empowerment", Axis Books, New Delhi, 2012. 3. Nandal Santosh , "Women and Development", A Mittal Publications, New Delhi, 2012
Reference Books	1. Rao Pulla, "Political Empowerment of Women in India – Challenges and Strategies", ABD Publishers, New Delhi, 2012. 2. Jenny Edwards, Andrea Cornwall, et al., "Feminisms, Empowerment and Development: Changing Women's Lives", Kindle Edition, 2014. 3. Elson Diane, et al. "Gender Equality and Inclusive Growth: Economic Policies to Achieve Sustainable Development", UN Women, 2019 4. Priyanka Sharma Gurnani, "Women Entrepreneurship – Emerging Dimension of Entrepreneurship in India" Educreation Publishing House, New Delhi, 2016.
E-Reference links	1. https://asiapacific.unwomen.org/en/focus-areas/governance/political-participation-of-women

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	gain knowledge about the concept, need and scope of women's studies	**K2**
CO2	acquaint and analyze issues of women in various contexts	**K5**
CO3	understand changing role of women in society and issues related to it	**K2**
CO4	understand the importance of women's education.	**K2**
CO5	comprehend empowerment of women and their achievement	**K3**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	M	S	S	S	M	S	S	M	S	M

CO2	S	M	M	S	M	S	S	M	S	M	S	S	M
CO3	M	M	M	S	S	S	S	M	S	S	S	M	S
CO4	S	M	S	M	S	S	M	S	S	M	S	S	M
CO5	M	S	M	S	S	S	S	S	S	M	M	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

SEMESTER-IV

Course Code	P21ZOE411	CHOICE -I	L	T	P	C
ELECTIVE – I		ENTOMOLOGY	4	-	-	4
Cognitive Level	K2:Understand K3:Apply					
Learning objective	• To learn the classification of insects • To comprehend the external morphological features of insects • To understand the various internal organs systems of insects • To gain deep knowledge in insects relationship between abiotic and biotic factors • To understand the pest of various crops					
Unit I	Taxonomy		12 hours			
Basics of Insect Classification, Classification up to Order Level, Key Characteristics with South Indian Examples.						
Unit II	External anatomy and Growth		12 hours			
External Anatomy of a Typical Insect - Exoskeleton, Head, Thorax, and Abdomen. Mouth Parts of Insects, Different Types of Larvae and Pupae - Growth and Metamorphosis of Insects.						
Unit III	Physiology of Insects		12 hours			
Digestive System, Excretory System, Respiratory System, Circulatory System, Nervous System and Sense organs, Reproductive System of a typical insect. Endocrine System and Pheromones in ants.						
Unit IV	Ecology of Insects		12 hours			
Abiotic Factors Affecting Insects - Temperature, Moisture, Air-currents, Diapause, Light, Food. Habit & Habitat - Terrestrial and aquatic. P rotection, Competition, Parental Care, Trophyllaxis, Commensalism, Captives, Food Storage, Natural Enemies, Insects and Plant associations. Brief note on social insects.						
Unit V	Agricultural Entomology		12 hours			
Insect Pest of Crops and their control measures: Paddy, Groundnut, Coconut, Cotton. Sugarcane, Brinjal, Lady's finger and Pests of Stored grains. Pest Control: Prophylatic, Mechanical, Chemical and Biological Control measures. Integrated Pest Management.						
Text Books	1. Ambrose Dunston P.The Insects: Structure, Function and Biodiversity, Kalyani Publishers, Ludhiana. 2004. 2. Vasantharaj David, B. and Kumaraswami, T., Elements of Economic Entomology, Popular Book Depo, Chennai. 1995					
Reference Books	1. Tembhare, D.B.,Modern Entomology, Himalaya Publishing House, Mumbai. 2012 2. Ambrose Dunston P., The Insects: Structure, Function and Biodiversity, Kalyani Publishers, Ludhiana. 2004, 3. Chapman, R.F., The Insects: Structure and Function, Cambridge University Press. 2012. 4. T.N. Ananthakrishnan, and B.V.David, General and Applied Entomology, Tata McGraw Hill Publishing House, New Delhi.1986 5. Wigglesworth, V.B., , Principles of Insect Physiology, 9th Ed. Chapman & Hall, London. 2001.					

E-references	1.https://onlinecourses.swayam2.ac.in/cec20_bt02/preview 2.https://www.classcentral.com/course/swayam-endocrinology-19855

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Out Comes**	**Knowledge Level**
CO1	classify and group the insects according to their taxonomy.	**K3**
CO2	understand the characteristic features of insects	**K2**
CO3	learn the importance of beneficial insects	**K2**
CO4	know the physiology and significance of pheromones	**K2**
CO5	know the vector and pest management practices.	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	M	S	S	S
CO5	S	S	S	S	S	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOE412	CHOICE -II	L	T	P	C
ELECTIVE-I		ENDOCRINOLOGY	4	-	-	4

Cognitiv eLevel	K1:Recall K2:Understand
Learning Objectives	• To have a knowledge on the functions of neuroendocrine systems • To get a thorough knowledge on various glands and related hormones • To know the role of hormones in metabolism • To understand the hormonal regulation in reproduction
Unit I	**Hormone:** Nature, function and classification of hormones – Feedback control of hormone secretion – Organisation and functions of neuroendocrine systems- Hypothalamo– hypophyseal interactions- Bioactive peptides.
Unit II	**Pituitary gland:** Structure and functions, role of hormone secretions - Thyroid gland – Structure, function and biosynthesis of thyroid hormone – Parathyroid – Structure and PTH – Calcitonin – Role of hormones in calcium and phosphate metabolism.
Unit III	**Gastrointestinal hormones**: secretion, control and function – Insulin and glucagons – Adrenal hormones and Stress management – Catecholamines as emergency hormones- their role in the regulation of carbohydrate, protein and lipid metabolisms.
Unit IV	**Adrenal Hormone:** Adrenal gland – Structure and role played its hormones in glucose metabolism – Aldosterone and the rennin- angiotensin system – Pineal gland- structure and its influence on reproduction and pigmentation – Thymus gland – Structure and thymic hormones – their functions in brief
Unit V	**Steroid hormone**: Biosynthesis in the ovary and testis – Hormonal regulation of ovarian cycles in mammals – Folliculogenesis, ovulation, corpus luteum formation and regression – Hormones in pregnancy and lactation. Gonadal steroid action on spermatogenesis and spermiogenesis – Role of hormones in sex accessory gland growth and functions.
Text Books	1.Yadav, Text book of Endocrinology, 2009, Sonali Publications, New Delhi - 2009.
Reference Books	1.Yadav, Text book of Endocrinology, 2009, Sonali Publications, New Delhi 2. M.P. Goswami, Endocrinology and Molecular Cell Biology, Gaurav book centre Pvt Ltd, Delhi .2013 3. George Griffing, Endocrinology,Stat Pearls Publishing, USA .2015 4. Mac E. Hadley, Endocrinology, Prentice Hall .2001

E-Reference	https://www.classcentral.com/course/swayam-endocrinology-19855

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	understand the hormone classification and function of hormones	**K1**
CO2	know the structure of Pituitary glands and its hormone function	**K2**
CO3	comprehend the gastrointestinal hormones functions on the regulation of macromolecules metabolism	**K2**
CO4	learn the importance of adrenalin and thymic hormones	**K2**
CO5	get deep knowledge on ovarian cycles and sex hormones	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	M	S	S	M	S	M	S
CO2	S	S	S	S	M	S	S	S	S	S	M	S	S
CO3	S	S	M	S	S	S	S	S	S	M	M	S	S
CO4	M	S	S	S	M	S	S	S	S	M	S	S	M
CO5	S	S	S	M	S	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOE421	CHOICE -I	L	T	P	C
ELECTIVE- II		BIOSTATISTICS AND BIOPHYSICS	4	-	-	4
Cognitive Level	K1:Recall K2:Understand K3:Apply					
Learning objectives	• To learn the variables in biology • To explore the use of statistical methodology in designing, analyzing,interpreting and presenting biological experiments and observations. • To understand the basic concepts of Biophysics					
Unit I	**Data collection & presentation:** Variables in Biology, Collection, classification and tabulation of data. Frequency distribution, Diagrammatic and Graphical presentation of statistical data, Sampling techniques. Measures of Central Tendencies: Mean, Median and Mode; Measures of Deviation: Standard Deviation, Quartile deviation, Mean deviation and Standard Error					
Unit II	**Normal Distribution:** Data distribution – Normal, Binomial and Poisson Distribution. Skewness and Kurtosis. Correlation Analysis - types, methods - Scatter plot, Karl Pearson's Correlation Coefficient, Spearman's Rank correlation. Simple regression Analysis - predicting X on Y and Y on X.					
Unit III	**Hypothesis Testing and estimation:** H_0 and $H_{1,}$ Hypothesis testing, significance level, degrees of freedom. Definitions and applications of Chi-square test, 't' and 'f' test. Analysis of variance (ANOVA)-One way and two way classified data; Application of SPSS in biology.					
Unit IV	**Biophysics:** Introduction – Scope of biophysics.-I, II, III laws of Thermodynamics, Concepts of free energy, Entropy, Enthalpy, biological oxidation reduction reaction – redox potentials in biological system. Molecular structure of water–Non-covalent bonding: Hydrogen bond, electrostatic interaction-Vander Waals forces thermal, solvent properties, ionization of water – colligative properties of aqueous solution					
Unit V	Biological significance of Osmosis, Electrical conductivity, Diffusion, Surface tension, Adsorption, Hydrotropic, Precipitation, Viscosity and Colloids, - Donnan Equilibrium in Living systems. Diffusion – Fick"s laws, constant laws–exergonic and endergonic reaction – rate of reactions – energy activation – Arrhenius expression- LASER and its applications in Biology.					

Text Books	1.Pillai, R.S.N. and Bagavathi,V. S. Statistics theory and practice. Chand & Co.Ltd, New Delhi. 2010. 2.Gupta, S.P. Statistical Methods. S. Chand & Co. Ltd, New Delhi.2014. 3.Kothari,C.R. and Garg,G. Research methodology –Method and techniques. NewAge International (P) Ltd. New Delhi. 2010.
Reference Books	1. Arora, P.N and P.K.Malhan. Biostatistics. Himalaya Publications, Mumbai.2008. 2. Daniel, W.W. Biostatistics-A foundation for analysis in health sciences, John Wiley (Asia) & sons, Singapore.2006 3. Gupta S.P.. Statistical Methods. 40th edition, S.S. Chand Publishers, New Delhi.2011. 4. Subramanaiam, M.A., Biophysics. MJP Publishers, Chennai. 2002 5. Daniel, M., Basic Biophysics for Biologists, Agro-Botanical Publisher, Bikaner, India.2001
E-References	1. https://swayam.gov.in/nd2_ugc19_ma03/preview 2. http://rijuebookbiostatistics.blogspot.com/2008/06/biostatistics-ebooks-free-download.html

Course outcomes

Upon completion of this course, the students will be able to

CO	Course Out comes	Knowledge Level
CO1	understand to collect the data , arrange and interpret it.	**K1**
CO2	differentiate the normal and skewed data., correlation between different variables.	**K3**
CO3	comprehend the significanceof testing, for their present statistical results and understand the importance of statistical software in research.	**K3**
CO4	understand the thermodynamic laws and type of bonding lying between different biological atoms.	**K2**
CO5	get thorough knowledge on osmosis and diffusion	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	S	S	S	M	S	S	S
CO2	S	S	S	S	M	S	S	S	S	S	M	S	S
CO3	S	M	S	S	S	M	S	S	S	S	S	M	S
CO4	M	S	S	S	M	S	S	S	S	M	S	S	M

CO5	S	S	S	M	S	S	S	S	S	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOE422	CHOICE -II	L	T	P	C
ELECTIVE-II		MICROBIOLOGY	4	-	-	4

Cognitive Level	K1:Recall K2:UnderstandK3:Apply	
Learning objectives	• To understand the basics of microbiology and its classification • To comprehend the various pathways of microbial metabolism • To get knowledge about food spoilage and food poisoning by micro organisms • To know the techniques of production of various microbial commercial products • To learn the microbial role for the treatment of sewage and agricultural	
Unit I	History and Microbial Growth	6 hours
History and scope of Microbiology, Microbial Culture: Sterilization Isolation of Pure Culture, Microbial growth -Synchronous. Bacterial growth - Growth curve, Measurement of Bacterial Growth. – Cell, count method and Turbido metric method. Staining Techniques - Simple, differential and Gram Staining.		
Unit II	Microbial Metabolism	6 hours
Glycolysis, Pentose Phosphate Pathway (HMP), Entner-Doudoroff pathway,TCA cycle, Glyoxylate cycle and Fermentation. Bacterial Photosynthesis-Classification of photosynthetic Bacteria, Mechanism of photosynthesis.		
Unit III	Food and Medical Microbiology	6 hours
Microbiology of Milk,Dairy Industry ; Dairy Products-Yoghurt, Butter Milk, Butter, Cheese. Microbial Spoilage of food: Microbial Contamination and Spoilage of Poultry, Fish and Sea.Preservation of Food - Physical and Chemical Methods.Bacterial diseases: Diphtheria, Meningitis, Pertusis, Streptococcal Pneumonia.Sexually Transmitted Diseases - Gonorrhea and Syphilis,Contact Disease – Leprosy. Viral diseases - Influenza, Hepatitis - B, Rabies.		
Unit IV	Industrial Microbiology	6 hours
Alcohol production – Ethanol:Production of Acids - Lactic acid and Vinegar,Production of Antibiotics – Penicillin and Streptomycin ;Production of Amino acid - L-lysine, L- glutamic acid. Production and Application of Microbial Enzymes.		
Unit V	Agricultural and Environmental Microbiology	6 hours
Role of Ti Plasmid and Nif gene in Agriculture. Biofertilizers and Biopesticides, Bacterial Insecticides - Bacillus thuringenesis and Viral Insecticides. Potable water and Sewage treatment. Water Pollution Management – Bioaugmentation and Bioremediation		
Text Books	1. Ananda narayanan, T. and Jayram Paniker, C.K., 2000, Textbook of Microbiology, 6th Ed. Orient Longman Ltd., Chennai. 2. 2. Tortora, G.J., Funke, B.R. and Case, C.L. Microbiology: An Introduction. 9th Edition, Pearson Education, Singapore .2009. 3. Dr.R.C.Dubey .Dr.D.K.Maheswari, A Text book of Microbiology, S.Chand & CO Ramnager, New Delhi. 2010.	

	4. Kanika Sharma. Textbook of Microbiology – Tools and Techniques. 1st Edition, Ane Books Pvt. Ltd., New Delhi. 2011. 5. .Dr.R.C.Dubey .Dr.D.K.Maheswari, A Text book of Microbiology, S.Chand& CO Ramnager, New Delhi, 2010.
Reference Books	1. Pelczar, M.J., E.C.S. Chan and N.R. Kreig. 2009. Microbiology, fifth edition. McGraw-Hill. Book Co. Singapore . 2009. 2. Samuel Baron , Medical Microbiology, II Ed., Wesley publishing company-2008. 3. Black, J.G. Microbiology-principles and explorations, 6th edition. John Wiley & Sons, Inc. New York .2005. 4. Prescott, L.M., Harley, J.P. and Klein, D.A. Microbiology (7th edition) McGraw Hill, Newyork.2008. 5. Madigan, M.T., Martinkl, J.M. and Parker, J. Brock Biology of Microorganisms, 12th Edition, MacMillan Press, England,2009.
E-references	1. https://onlinecourses.swayam2.ac.in/cec20_ag09/preview 2. https;//onlinecourses.swayam2.ac.in/cec20_bt14/preview

Course Outcomes

Upon completion of this course, the students will be able to		
CO	**Course Out comes**	**Knowledge Level**
CO1	learn the development and advancements of microbiology	**K1**
CO2	understand the microbial feature and immune system.	**K2**
CO3	gain knowledge on food preservation, infectious diseases and to overcome infection.	**K3**
CO4	learn the production of microbial products from industries	**K2**
CO5	attain knowledge about microbial role in environment and agricultural sector.	**K2**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	S	S	S	S	M	S	S	S
CO2	S	S	S	M	S	M	M	M	S	S	M	S	S
CO3	M	S	M	S	S	S	S	M	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S	S	M	S
CO5	S	S	M	M	M	S	M	M	M	S	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOR41	MAJOR PROJECT	L	T	P	C
			-	-	22	8

All the candidates of M.Sc (Zoology) are required to undergo a Major project and submit the following:

1. Dissertation/Thesis based on the work done by the student.
2. Soft copy of the project on CD/DVD

Project Evaluation Guidelines.

The project is evaluated on the basis of following heads:

Presentation - 25% of total marks

Viva - 20% of total marks.

Thesis/ Dissertation - 30% of total marks.

Learning outcome: Empowering students to carryout individual research projects.

NON-MAJOR ELECTIVES

Course Code	P21ZON211	CONSERVATION BIOLOGY	L	T	P	C
NME -I			4	-	-	4

Cognitive Level	K1:Recall K2:Understand K3:Apply		
Learning objective	• To update the knowledge of current status of biodiversity and its extinction • To understand the significance of biodiversity • To identify the ways to conserve the biodiversity • To obtain knowledge about the conservation of Biodiversity		
Unit I	**Components of Biodiversity**	**12hours**	
(Ecosystem, Genetic and Species diversity) – Assigning values to biodiversity – Species concepts – Animal diversity: (Distribution inventory, species richness) – Biodiversity Hotspots (Western Ghats, Indo-Burma region). Biogeography of India – patterns and distribution of ecosystems, ecological succession, biotic and abiotic factors of an ecosystem. Conservation ethics and values of wildlife.			
Unit II	**Extinctions**	**12hours**	
Past rates of Extinctions – Concepts of Island biogeography and extinction rates on Islands – Human induced, Modern and local extinctions – Population reduction-threats to wildlife (examples) – Habitat loss, degradation and fragmentation. Threats to animal diversity in India – Status of species: Rare, endemic and threatened species – Measuring status of species in the wild – IUCN Red list (Assessments and methodologies) – Status of Indian animals.			
Unit III	**In situ conservation of Indian animals**	**12hours**	
(Case studies). Ex situ: Captive breeding programme – people participation in conservation – Successes and failures of conservation actions in India (Case study) – Tools in Conservation: GIS – remote sensing – Landscape model – PVA – VORTEX. Red listing process: categories and criteria, SIS. Wildlife conservation in India importance of conservation – methods of wildlife conservation			
Unit IV	**Economics of biodiversity conservation**	**12hours**	
Wildlife (Protection) Act of India (1972) – Protected Area network – forest policy – Prevention of cruelty to Animal Act – Convention on Biological diversity, International Trade in endangered species – Zoo policy- Laws and their applications in Zoological parks, wildlife sanctuaries and biosphere reserves – Economics of biodiversity conservation. The world Conservation Union (IUCN) – World wildlife fund (WWF) – Indian Board for Wildlife (IBWL).			
Unit V	**Wildlife / Animal magazines**	**12hours**	
Journals- How to write popular and Scientific articles – Magazine and Journal information – Wildlife, nature, environment games (examples) – Role of NGO's and Government organizations in wildlife conservation – Wildlife celebration days in India. Technical writing and reporting of field studies. Public presentation. Field Project/ Report – visit to Zoological parks, wildlife sanctuaries and biosphere reserves.			

Text Books	Peter H. Raven, Navjot S. Sodhi, Luke Gibson, Conservation Biology: Voices from the Tropics, Willey Online library.2013.
Reference Books	1. Meffe, G. K. and C. R. Carroll.Principles of Conservation Biology, Sinauer Associates, USA .1994 2. Michael, P. Ecological Methods for Field and Laboratory Investigations. Tata Mc Graw Hill Publishing Company Limited, New Delhi. 2001. 3. Peter H. Raven, Navjot S. Sodhi, Luke Gibson. Conservation Biology: Voices from the Tropics, Willey Online library.2013
E-references	1. https://nptel.ac.in/courses/102/104/102104068/ 2. https://swayam.gov.in/nd1_noc20_bt39/preview 3. https://swayam.gov.in/nd1_noc20_bt38/preview

Course Outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	understand the types of biodiversity and conservation ethics	**K1**
CO2	know the causes of biodiversity extinction and IUCN-Red list	**K2**
CO3	learn the insitu and exsitu biodiversity conservation methods	**K2**
CO4	know the wild life protection act and organization	**K2**
CO5	obtain the knowledge on wild life animal magazines and role of NGOs for the conservation of biodiversity	**K3**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	S	S	M	S	S	S
CO2	S	S	S	M	S	S	S	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	M	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	M	S	S	M
CO5	S	S	S	M	S	S	S	M	S	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>P21ZON212</td><td colspan="2" rowspan="2">EPIDEMIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NME-I</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1:Recall K2:Understand</td></tr>
<tr><td>Learning Objectives</td><td colspan="7">• To understand the basic principle of Epidemiology
• To know the concepts of infectious diseases, non-infectious diseases and sexually transmitted diseases</td></tr>
<tr><td>Unit I</td><td colspan="3">History</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Historical aspects of Epidemiology and evolution - Definition and understanding - Natural history of disease - Survey methodology including census procedures and Sampling.</td></tr>
<tr><td>Unit II</td><td colspan="3">Tools of Epidemiology</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">measuring disease Frequency (Prevalence, incidence, morbidity rates, attack rates etc.</td></tr>
<tr><td>Unit III</td><td colspan="3">Epidemiological aspects of diseases of national importance</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Diarrhoea - Vaccine preventable disease - Tuberculosis - Visual impairment/blindness - Malaria - Filariasis - Coronary Heart disease.STD</td></tr>
<tr><td>Unit IV</td><td colspan="3">Non-infectious Diseases</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">Localized or widespread rise in a various type of cancer, birth defects. Infectious disease- Food borne illness, Influenza, Pneumonia and COVID.</td></tr>
<tr><td>Unit V</td><td colspan="3">National Programmes</td><td colspan="4">12 hours</td></tr>
<tr><td colspan="8">National Programmes related to Communicable and Non Communicable diseases, Dengue, Swine Flu, Chikungunya,COVID etc.</td></tr>
<tr><td>Text Books</td><td colspan="7">1. Gordis, L. Epidemiology. Third edition. Philadelphia: Elsevier Saunders. (The second edition is also acceptable.)2004
2. Pagano, M. and Gauvreau, K. Principles of Biostatistics. Belmont, CA: Wadsworth. 2000.
3. Aschengrau A & Seage GR. Essentials of Epidemiology in Public Health. 3 rd Edition.2014</td></tr>
<tr><td>Reference Books</td><td colspan="7">1. Robert H. Friis and Thomas A. Sellers. Epidemiology for Public Health Practice, Fourth Edition. Jones and Bartlett Publishers, 2009
2. Aschengrau A & Seage GR. Essentials of Epidemiology in Public Health. Sudbury, Massachusetts: Jones and Bartlett Publishers, 2013.
3. Gordis L. Epidemology, 3rd Ed. Philadelphia, PA. Elsevier Saunders: 2004
4. Last JM, editor. Dictionary of epidemiology. 4th ed. New York: Oxford University Press; 2001.
5. Cates W. Epidemiology: Applying principles to clinical practice. Contemp Ob/Gyn. 1982.</td></tr>
<tr><td>E-Reference</td><td colspan="7">1. http://www.phppo.cdc.gov/PHTN/catalog/pdffile/Epi_Course.pdf
2. http://www.pitt.edu/~super1/
3. https://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated/1-what-epidemiology</td></tr>
</table>

Course outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	know the concept of epidemiology	**K2**
CO2	acquire knowledge on tools of epidemiology	**K2**
CO3	construct clinical life table in epidemiologic studies	**K2**
CO4	gain knowledge on vaccine preventable diseases	**K2**
CO5	clearly understand the national programme for various diseases	**K1**

Mapping of COs with POs &PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	S	S	M	S	S	S
CO2	S	S	S	S	S	S	S	M	S	S	S	M	M
CO3	M	S	M	S	S	M	S	S	S	S	M	S	S
CO4	S	S	S	S	M	S	S	S	M	M	S	S	M
CO5	S	M	S	M	S	S	S	M	S	M	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

VALUE ADDED COURSE

Course Code	P21ZOV11	MEDICAL TRANSCRIPTION	L	T	P	C
VALUE ADDED COURSE-1			4	-	-	2

Cognitive Level	K1:Recall K2:Understand K3:Apply	
Learning objective	• To understand the fundamental concepts of medical transcription • To learn medical theories and legal responsibilities • To gain basics of computer for preparing medical reports	
Unit I	**Medical terminology**	**6 hours**
Pharmacology and Anatomy of humans , General medical terms, surgical terms, diseases , Human body parts, systems and functions , Medication terminology, treatments, drug reactions, pharmacology legalities, medication handling and doctor's orders.		
Unit II	**Theory**	**6 hours**
Medical Theories and Techniques Ethical and Legal Responsibilities Medical Transcription Equipment and Technology, Diagnostic and therapeutic procedure terms and practices, Surgical procedure terms and practices, Lab procedures: patient preparation and blood drawing techniques.		
Unit III	**Basic Transcription**	**6 hours**
Medical Grammar and Style, Medical Reports Formatting, Transcribing audio files into typed format. Healthcare Documentation formats, American Medical Association stylistic standards.		
Unit IV	**Computer Information Systems**	**6 hours**
Speech Recognition Editing, Basics of Microsoft Office software, including Word, PowerPoint, Excel, Basic formatting practices and e-mail and Internet usage and file organization.		
Unit V	**Software**	**6 hours**
Speech recognition software to transcribe dictation and taking dictation with background noise.		
Reference Books	1. Medical Transcription: Fundamentals and Practice, Prentice Hall,2007. 2. Linda Campbell, The Medical Transcription.,Paper back, 2011	
E-References	1. https://hlcuomtdn.firebaseapp.com/aGxjdW9tdGRuMDEzMTg4MTQzNA.pdf 2. https://www.yumpu.com/en/document/view/64011468/pdf-download-medical-transcription-fundamentals-where-success-takes-root-full-online	

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Outcomes**	**Knowledge Level**
CO1	learn and familiar with medical terminology and medication handling	**K1**
CO2	comprehend the medical theories, therapeutic, surgical and lab procedures	**K2**
CO3	know the basic transcription and medical reports	**K1**
CO4	handling computer for preparation of necessary reports and documents	**K3**
CO5	acquire knowledge in software for transcription.	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	M	S	M	S	M	S	M	S
CO2	M	S	S	M	S	S	S	S	S	S	S	M	S
CO3	S	M	M	S	S	M	S	M	S	S	S	S	S
CO4	M	M	S	S	M	S	S	S	S	M	M	S	M
CO5	M	S	S	M	S	S	S	M	S	M	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	P21ZOV41	FISHERIES TECHNOLOGY	Total Hours	C
Value Added Course-2			30	2

Cognitive Level	K1:Recall K2:Understand K3:Apply	
Learning Objective	• To understand the basics of fisheries • To know the aquarium fish culture • To learn construction of fish farm and management	
Unit I	**Basics of Fisheries**	**6 hours**
Scope and importance of Fisheries - Development of fish culture. Indian Fisheries – Research and career opportunities.		
Unit II	**Aquarium Setting**	**6 hours**
Freshwater and Marine Ornamental Fisheries Ornamental Fish Trade- Disease Management for Aquarium Fishes.		
Unit III	**Culture of Edible Fishes**	**6 hours**
Biology of Carps – Culture of Indian Major Carps Integrated Fish Farming – Fish Culture in Rice Fields– Induced Breeding – Procedure of Induced Breeding Hypophysation.		
Unit IV	**Aqua Feed Formulation Methods**	**6 hours**
Nutritional Requirement of Finfish - Types of Fish Feeds – Formulated Feeds – Preparation of Supplementary Feed – Immunostimulants-Diet Processing – Management of Feeding – Preparation of Natural Food In Fish Pond		
Unit V	**Construction of a Fish Farm**	**6 hours**
Site Selection – Size and Depth of the Ponds – Water Quality (Physical Chemical and Biological Factors) Pond Renovation – Harvesting – Post Harvesting – Fish Preservation – Hatchery seed production- Fish Products and by Products.		
Text Books	Omprakash Sharma, Handbook of Fisheries and Aquaculture,Agrotech publishing Academy,Udaipur,2009.	
Reference Books	1. Faridi.A.Z.Textbook of Fish Processing, Technology,2014.ISBN: 9789353147167 **2.** Dr. D. K. Belsare,Text Book of Fish, Fisheries and Aquaculture, Kindle Edition,2019. 3. Claude E. BoydAaron A. McNevin, Aquaculture, Resource Use, and the Environment, John Wiley & Sons, 2014.	
E-References	1. https://content.kopykitab.com/ebooks/2016/05/7035/sample/sample_7035.pdf 2. https://www.cmfri.org.in/ebooks	

Course Outcome

Upon completion of this course, the students will be able to		
CO	**Course Out comes**	**Knowledge Level**
CO1	understand the importance of fish culture	**K1**
CO2	develop skills for setting aquarium	**K3**
CO3	know the principles and methods involved in the induced breeding of fishes	**K2**
CO4	acquire knowledge on the aqua feed Formulation	**K2**
CO5	apply knowledge of Construction of a Fish Farm and become potential entrepreneur	**K2**

Mapping of COs with POs &PSOs:

CO	**Pos**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	M	S	M	S	M	S	M	S
CO2	S	M	S	M	S	S	S	S	S	S	S	M	S
CO3	S	M	M	S	S	M	S	M	S	S	S	S	S
CO4	S	M	S	S	M	S	S	S	S	M	M	S	M
CO5	S	M	S	M	S	S	S	M	S	M	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

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Department of Botany

MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL – 624 101

B.Sc. BOTANY

Curriculum Framework and Syllabus for

B.Sc. BOTANY

(For the candidates to be admitted from the academic year 2021-2022 onwards)

(UNDER CHOICE BASED CREDIT SYSTEM- CBCS)

Mother Teresa Women's University, Kodaikanal
Choice Based Credit System (CBCS)
(2021-2022 onwards)
B.Sc. Botany

1. About the Programme

This is a 3 year long undergraduate programme which is generally divided into six semesters. It deals with the basic principles of plant biology and related fields. It covers topics like plant kingdom, Taxonomy, microbiology, genetics and ecology etc. The course incorporates core courses, electives and practical. The delivery methods for B.Sc. Botany courses involve theoretical classes, lab work and hands-on practical training, outdoor tours etc. The students completing this programme generally go for higher education to build a career in academics, public and private sectors.

2. Programme Educational Objective

1. Develop the curriculum for fostering discovery-learning and know the importance of discipline
2. Inculcate interest in nature with its myriad living forms
3. Impart knowledge of Science as the basic objective of Education
4. Create a scientific approach to make students open-minded, critical, curious and make aware of natural sciences
5. Develop the ability to work hard and produce students to become entrepreneur who are fit for society

3. Eligibility

i. Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Examination, Govt. of Tamilnadu or any other Examination accepted by the syndicate as equivalent there to with at least one of the following subject Biology/Botany

ii. Candidate should have secured atleast 55% in the above subject and above in the aggregate.

iii. A relaxation of 10% in the total percentage will be given to SC, ST candidates

4. General Guidelines for UG Programme

i. **Duration:** The programme shall extend through a period of 6 consecutive semesters and the duration of a semester shall normally be 90 days or 450 hours. Examinations shall be conducted at the end of each semester for the respective subjects.

ii. **Medium of Instruction:** English

iii. **Evaluation:** Evaluation of the candidates shall be through Internal Assessment and External Examination.

- **Evaluation Pattern**

Evaluation Pattern	Theory		Practical	
	Min	Max	Min	Max
Internal	**10**	**25**	**10**	**25**
External	**30**	**75**	**30**	**75**

- **Internal (Theory): Test (15) + Assignment (5) + Seminar/Quiz(5) = 25**
- **External Theory: 75**

- **Question Paper Pattern for External examination for all course papers.**

Max. Marks: 75 **Time: 3 Hrs.**

S.No.	Part	Type	Marks
1	**A**	**10*1 Marks=10** Multiple Choice Questions(MCQs): 2 questions from each Unit	**10**
2	**B**	**5*4=20** Two questions from each Unit with Internal Choice (either / or)	**20**
3	**C**	**3*15=45** Open Choice: Any three questions out of 5 : one question from each unit	**45**
		Total Marks	**75**

*** Minimum credits required to pass: 156**

- **Project Report**

A student should select a topic for the Project Work at the end of the third semester itself and submit the Project Report at the end of the fourth semester. The Project Report shall not exceed 75 typed pages in Times New Roman font with 1.5 line space.

- **Project Evaluation**

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 25 Marks; External (Viva): 75 Marks).

5. Conversion of Marks to Grade Points and Letter Grade
(Performance in a Course/ Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
40-49	4.0 – 4.9	C	Satisfactory
00-39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

6. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance less than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

7. Maternity Leave

The student who avails maternity leave may be considered to appear for the examination with the approval of Staff i/c, Head of the Department, Controller of Examination and the Registrar.

8. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

9. PROGRAMME OUTCOMES (POs)

On completion of B.Sc., Botany Programme, the students will be able to

1. enrich the fundamental concepts of botany and plant science.
2. apply the knowledge of biology to make scientific queries and enhance the comprehension potential.
3. demonstrate comprehensive knowledge about plants, current research, scholarly and professional literature of advanced learning areas of Botany
4. gain proficiency and skills in different topics of module of Botany use, principles of basic science and fundamental process to study and analyze the plant forms.
5. apply the acquired scientific knowledge to the development of Indian economy
6. pertain skills in science and apply in life for sustainable environment
7. enhance their capacity to obtain employment and higher studies in science

PROGRAMME SPECIFIC OUTCOMES (PSOs):

On completion of B.Sc., Botany Programme, the students will be able to

1. enrich knowledge on diversity, life patterns of plants and their importance to other life forms.
2. utilize the theoretic and practical knowledge of Botany in achieving a successful career.
3. impart knowledge obtained from the programme to develop their entrepreneurship skills in self supported or funded business /giving consultancy
4. communicate appropriately and effectively in botanical science and also interact productively with people from diverse background
5. impart the basic laboratory experiments and hands on training perceived will pave way to advanced research and higher studies

MOTHER TERESA WOMEN'S UNIVERSITY, KODAIKANAL
Common Course structure for UG programmes under CBCS
B.Sc., BOTANY (candidates admitted from 2021-2022 onwards)

Sl. No.	Course Code	Title of the Course	Credits	Hours		Maximum Marks		
				T	P	CIA	ESE	Total
	FIRST SEMESTER							
1.	U21LTA11	Part I-Tamil I	3	6		25	75	100
2.	U21LEN11	Part II-English I	3	6		25	75	100
3.	U21BOT11	**Core- I -** Algae, Fungi and Lichens	4	5		25	75	100
4.	U21BOP11	**Core-II-** Practical - Plant Diversity I	4		6	25	75	100
5.	U21 ZOA11	**Allied- I-**Zoology	4	5		25	75	100
6.	U21EVS11	Environmental Studies	2	2		25	75	100
7.	U21PEPS11	Professional English-I	4	6		25	75	100
		Total	**24**	**30**	**6**			**700**
	SECOND SEMESTER							
8.	U21LTA22	Part I-Tamil II	3	6		25	75	100
9.	U21LEN22	Part II-English II	3	6		25	75	100
10.	U21BOT21	**Core- III -** Bryophytes, Pteridophytes, Gymnosperm and Paleobotany	4	5		25	75	100
11.	U21BOP22	**Core- IV-**Practical - Plant Diversity-II	4		5	25	75	100
12.	U21ZOA22	**Allied-II-**Practical-Zoology	4		5	25	75	100
13.	U21VAE21	Value Education	3	3		25	75	100
14.	U21PEPS22	Professional English-II	4	6		25	75	100
		Total	**25**	**26**	**10**			**700**
	THIRD SEMESTER							
15.	U21LTA33	Part I-Tamil III	3	6		25	75	100
16.	U21LEN33	Part II-English III	3	6		25	75	100
17.	U21BOT31	**Core- V-**Cell and molecular biology	4	5		25	75	100
18.	U21CHA33	**Allied- III** –Chemistry	4	5		25	75	100
19.	U21BOE311/ U21BOE312	**Elective-I-**Bioprospecting of plants / Biodiversity conservation	3	4		25	75	100
20.	U21MSS31	**Skill Based Elective-I-**Managerial skill	2	2		25	75	100
21.		**Non Major Elective – I**	2	2		25	75	100
22.	U21PEPS33	Professional English-III	4	6		25	75	100
		Total	**25**	**36**		**-**	**-**	**800**

	FOURTH SEMESTER							
23.	U21LTA44	Part I-Tamil- IV	3	6		25	75	100
24.	U21LEN44	Part II-English- IV	3	6		25	75	100
25.	U21BOT41	**Core-VI** – Morphology and Taxonomy of Angiosperms	4	4		25	75	100
26.	U21BOP43	**Core- VIII-** Practical - Taxonomy of Angiosperms	4		4	25	75	100
27.	U21 CHA44	**Allied-IV**- Practical Chemistry	4		4	25	75	100
28.	U21BOE421/ U21BOE422	**Elective – II** - Wood Technology / Silviculture	3	3		25	75	100
29.	U21CSS42	**Skill Based Elective -II-** Computer Skills for Office Management	2	2		25	75	100
30.		**Non Major Elective –II**	2	2		25	75	100
31.	U21PEPS44	Professional English-IV	4	6		25	75	100
		Total	**29**	**29**	**8**	**-**	**-**	**900**

	FIFTH SEMESTER							
32.	U21BOT51	**Core VIII- Genetics and Evolution**	4	5		25	75	100
33.	U21BOT52	**Core IX – Plant physiology**	4	5		25	75	100
34.	U21BOT53	**Core X – Plant Biochemistry**	4	5		25	75	100
35.	U21BOT54	**Core XI –Plant Anatomy and Embryology**	4	5		25	75	100
36.	U21BOP54	**Core XII-** Practical - Genetics and Evolution ,Plant physiology, Plant Biochemistry, Plant Anatomy and Embryology	4		5	25	75	100
37.	U21BOE531/ U21BOE532	**Elective –III –** Ethano Botany and Ethanopharmacognosy / Biofertiliser and Waste management	3	3		25	75	100
38.	U21BOS531/ U21BOS532	**Skill Based Elective-III**-Organic farming /Food processing & preservation	2	2		25	75	100
		Total	**25**	**25**	**5**	**-**	**-**	**700**

	SIXTH SEMESTER							
39.	U21BOT61	**Core - XIII** – Basics of Plant Biotechnology	4	5		25	75	100
40.	U21BOT62	**Core - XIV** – Environmental Biology and Phytogeography	4	5		25	75	100
41.	U21BOT63	**Core- XV**– Fundamentals of Microbiology and Plant Pathology	4	5		25	75	100

42.	U21BOT64	**Core-XVI**- Biostatistics, Bioinstrumentation and Biophysics	4	5		25	75	100
43.	U21BOP65	**Core-XVII** – Practical -Plant Biotechnology, Environmental Biology, Microbiology and Plant Pathology	4		5	25	75	100
44.	U21BOE641/ U21BOE642	**Elective –IV** –Forestry / Seed technology	3	3		25	75	100
45.	U21BOS641/ U21BOS642	**Skill Based Elective-IV-** Horticulture Techniques & Plant Breeding / Microtechnique and Histochemistry	2	2		25	75	100
46.	U21EAS61	**Extension Activities** (NSS/NCC/RRC/YRC/Physical Education)	3			100		100
		Total	**28**	**25**	**5**	**-**	**-**	**800**
		Grand Total	**156**	**205**				**4600**

Non Major Elective

The candidates, who have joined the UG programme, can also undergo Non Major Elective offered by other Departments

S.No	Code	NME Title
1	U21BON311	Forest Botany
2	U21BON312	Mushroom Cultivation
3	U21BON421	Horticulture
4	U21BON422	Pomology

Additional Credit Courses (Two credit courses)

1. **U21BOO31**: Online Course – III Semester
2. **U21BOI41** : Internship – IV Semester
3. **U21BOV51** : Value added course – V Semester (**Spirulina Cultivation)**

SEMESTER-I

COURSE CODE	U21BOT11	ALGAE, FUNGI AND LICHENS	L	T	P	C
CORE I			5	-	-	4

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To comprehend the major classes of algae, fungi and their important features. • To understand the distribution and life cycle pattern of algae, fungi and lichens • To learn in detail about the ecological and economic importance of algae, fungi and lichens • To enumerate the key points for identifying important algae and fungi
Unit I	**Algae**
Distribution and general characteristics of algae. Classification of Algae by F.E. Fritsch (1945). Thallus organization, Structure and reproduction of the Class Chlorophyceae (*Volvox)*	
Unit II	**Structure and reproduction of the Classes**
Phaeophyceae (*Sargassum*), Rhodophyceae(*Gracilaria*)andCyanophyceae (*Nostoc*). Economic Importance of algae.	
Unit III	**Fungi**
General Characteristics of the Fungi. Classification of Fungi by C.J. Alexopoulos (1962).Structure and reproduction of Myxomcetes (*Stemonites*) and Phycomycetes (*Albugo*).	
Unit IV	**Fungi**
Structure and reproduction of Ascomycetes (*Peziza*), Basidiomycetes (*Saccharomyces*) and Deuteromycetes (*Puccinia*). Economic importance of Fungi.	
Unit V	**Lichens**
General characteristics and classification of lichens. Structure and reproduction of *Usnea*. Role of Lichens in succession and monitoring pollutants. Economic importance of Lichens.	
Text books	1. Pandey, P.B. College Botany - 1: Including Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. Chand Publishing, New Delhi. 2014. 2. Bilgrami, K.S. A Textbook of Algae. CBS Publisher & Distributors, New Delhi, ISBN: 978-8123900490. 2010. 3. Johri, R.M., Smeh Lata, Kavitha Tyagi. A Text Book of Fungi, Dominant Publishers and Distributors Pvt. Ltd., New Delhi. 2011. 4. A.V.S. Sambamuty, A text book of Algae,I.K.International publishing house, Pvt. Ltd 2005.
Reference books	1. Kevin K. Fungi biology and Application, 3rd Edition, Wiley Blackwell. 2018 2. Vashista B.R.Algae, S.Chand & Co.Ltd, New Delhi. 2012. 3. Power and Dagainwala. General Microbiology, Himalayan publishing House,New Delhi.2012 4. Sharma, P. D. Microbiology, Rastogi & Co., Meerut. 2011. 5. Alexopoulos, C.J., C.M. Mims and M. BlackMell. Introductory Mycology. IV Edition. Miley India (P) Ltd., Daryaganj, New Delhi. 2007

<table>
<tr><td rowspan="2"><u>E-References</u></td><td colspan="3">1. http://deskuenvis.nic.in/pdf/PhycologyLee.pdf
2. http://deskuenvis.nic.in/pdf/WEBSTER30521807395.pdf
3. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loYjQvamQxTUhmT2lQTE1JT3BVeUVjTUtIdGEySlVIRzlrMjdpUkRNR3hUeQ</td></tr>
</table>

<table>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>understand the general features and classification of algae</td><td>K2</td></tr>
<tr><td>CO2</td><td>enumerate the life cycle of major classes of algae and their economic importance</td><td>K2</td></tr>
<tr><td>CO3</td><td>acquire a deep knowledge on principles of fungi classification to apply in the field</td><td>K3</td></tr>
<tr><td>CO4</td><td>know the life cycle of major classes of fungi and their economic importance</td><td>K2</td></tr>
<tr><td>CO5</td><td>have clear idea about lichens including their economic importance</td><td>K1</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	M	S	S	M	S	S
CO2	S	S	S	M	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	M	S	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	S	S	S	M	S	S

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark	No Correlation	(N)	- 0 mark

COURSE CODE	U21BOP11	ALGAE, FUNGI AND LICHENS	L	T	P	C
CORE II			-	-	6	4

Cognitive Level	K1: Recall K2: Understand K3: Apply K4: Evaluate
Learning objective	• To observe the vegetative structures of algae, fungi and lichens through microscope and study it's structure • To learn thallus structure of lower plants • To develop skills on identification of lower plants through morphological characters
	<u>Observation on</u> 1. Microscopic observation of thallus structure and reproductive organs in selected group of microalgae 2. Analysis of thallus structure, anatomical features and reproductive structure of selected macro algae 3. Mycelial morphology, organization, fruiting bodies and structure of spores in selected group of fungi 4. Morphology, anatomy and reproductive parts of crustose, foliose and fruticose lichen. Biochemical test to determine the genus or species of various lichens. 5. Two to three days field trip to collect of algae/fungi/lichen specimen 6. Submission of 10 algae/fungi/lichen herbarium specimens and maintenance of record book
Text books	1. Sivakumar, K. Algae- A Practical Approach. MJP Publishers, Chennai, India. 2016. 2. Gupta, V.K., Tuohy, M.G., Ayyachamy, M., Turner, K.M. and O'Donovan, A. Laboratory Protocols in Fungal Biology: Current Methods in Fungal Biology. Springer, London, UK. 2013. 3. Chmielewski, J. G. and Krayesky, D. General Botany laboratory Manual. AuthorHouse, Bloomington, USA. 2013.
Reference books	1. Bendre, A. M. A Text Book Of Practical Botany – 1. Rastogi Publications, Meerut, India. 2010. 2. McMahon, K., Levetin, E. and Reinsvold, R. Laboratory Manual for Applied Botany. McGraw-Hill Education, New York, USA. 2001.
<u>E-References</u>	1. http://assets.vmou.ac.in/MBO10.pdf 2. http://ndl.iitkgp.ac.in/document/NXpzbzZQcHVvTFUrTGdYcTF0VlQxczVoUDhzOE9FOXg2MnN1bHhjSUNmOD0 3. https://WWW.researchgate.net/profile/Barry-Rosen/publication/235654691_Aquaculture_Manual/links/02bfe512518c53a0de000000/Aquaculture-Manual.pdf

	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
Course outcome	CO1	perform microscopic examination of algae and fungi	**K3**
	CO2	understand the thallus structure and anatomical structure of macro algae	**K1**
	CO3	examine the fruiting bodies and structure of spores of selected fungi	**K4**
	CO4	identify the genus or species of various lichens through biochemical test	**K3**
	CO5	have a clear idea on morphological characters of lower plants	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	M	S	S	S	S	S	S	S
CO2	S	S	M	S	S	S	S	M	S	S	S	M	S
CO3	S	S	M	S	S	M	M	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

COURSE CODE	U21ZOA11	ZOOLOGY	L	T	P	C
ALLIED-I			5	-	-	4

Cognitive Level	K2: Understand K3: Apply
Learning objective	• To know the diagnostic characters of phyla • To understand the classification of chordates with their diagnostic characters • To acquire knowledge on cell division and cell cycle • To understand the origin of life and cell
Unit I	**Invertebrata**
Study of the following types with their diagnostic characters of the phyla and classes to which they belong. a) Paramecium b) Ascaris c) Starfish Life history, transmission and control measures of plasmodium, Morphology and appendages f prawn	
Unit II	**Chordata**
Classification of chordates up to classes with their diagnostic characters with few examples from each class. Mammalian representative – Rabbit. Digestive, Respiratory, structure of Heart, Brain and Reproductive system. Identification and significance of any 5 edible fishes. Snakes- Identification of poisonous and non-poisonous Snakes-Mechanism of bite-venom and action, first aid for snake bite.	
Unit III	**Cyto genetics**
Mitosis, Meiosis cell division, cell cycle and control Laws of Mendel and common Mendelian traits in man.	
Unit IV	**Physiology & Embryology**
Endocrine glands – Pituitary and thyroid. Excretion-Structure of nephron-Physiology of excretion. Development of frog upto gastrulation. Test tube babies-Birth control-Aritificial insemination-IVF.	
Unit V	**Evolution**
Introduction to evolution, A Short History of Evolutionary Thought , Origin of Life and Cells, Theories of Lamarck, Darwinism and Neo-Darwinism.	
Text books	1. Ayyar, E.K. and T.N. Ananthakrishnan, Manual of Zoology Vol. I (Invertebrata). Parts I & II.S. Viswanathan (Printers and Publishers) Pvt Ltd. Madras. 1992. 2. Power, C.B. Cell Biology Himalayan Publishing House, New Delhi.2009 3. A Text Book of Genetics Rastogi V.B, Kedar Nath Ram Nath. Meerut.1997. 4. Animal Physiology. S.Chand & Co.,New Delhi. Verma, P.S., Agarwal, 1980, 5. Chordate Embryology -P.S .Verma & V.K.Agarwal---S. Chand & Co.1995. 6. Organic Evolution, Rastogi. V.B. - Kadar Nath & RaNath, 7th edtion, 1988 – 89, Meerut

Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	identify the classes of different phyla by analysing its diagnostic characters	**K3**
	CO2	differentiate poisonous and non-poisonous snakes	**K3**
	CO3	enumerate the identification characters of fishes	**K2**
	CO4	understand the Mendelian traits in man	**K2**
	CO5	Learn the techniques of artificial insemination	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	S	S	S	S	M	M	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	M	S
CO4	S	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	M	S	S	S	S	S	S	S	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

SEMESTER-II

Course Code	U21BOT21	BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERM AND PALEOBOTANY	L	T	P	C
CORE III			5	-	-	4

Cognitive Level	K1: Recall K2: Understand
Learning objective	• To understand the general characters of major groups of plants such as Bryophytes, Pteridophytes and Gymnosperms • To have knowledge on classification, structure, reproduction and economic importance of Bryophytes, Pteridophytes and Gymnosperms • To find the significance of these plant groups to human welfare • To acquire knowledge and interest in the study of fossil plants
Unit I	**Bryophytes**
General Characteristics, classification by Reimers (1954). Morphology, occurrence, structure and reproduction of *Riccia*, *Marchantia* and *Polytrichum* (Need not study developmental aspects). Economic importance of Bryophytes.	
Unit II	**Pteridophytes**
General characteristics and classification by Smith (1955). Morphology, structure, reproduction and life-cycle of *Lycopodium* and *Selaginella.*	
Unit III	**Pteridophytes**
Structure, reproduction and life-cycle of *Equisetum* and *Marselia.* Stelar evolution in Pteridophytes. Economic importance of Pteridophytes.	
Unit IV	**Gymnosperms**
General characteristics and classification of Gymnosperms by Sporne (1965). Morphology, structure, reproduction and life-cycle of the following: *Cycas* and *Pinus*. Economic importance of Gymnosperms.	
Unit V	**Paleobotany**
Brief study of geological time scale. Methods of fossilization. A brief study on *Rhynia, Lepidodendron, Lyginopteris* and *Williamsoniella*	
Text books	1. Parihar, N.S. An Introduction to Embryophyta Pteridophytes. 5th Edition, Surjeet Publication, Delhi.2019. 2. Sharma, O.P. Pteridophyta. Tata McGraw-Hill Education, Delhi. 2017. 3. Johri , RM, Lata S , Tyagi K, A text book of Gymnosperms , Dominate pub and Distributer, New Delhi. 2005.
Reference books	1. Sharma, O.P. Bryophyta. MacGraM Hill Education (Pvt) Limited, New Delhi. 2017. 2. Vasishta, P.C., Sinha, A.K. and Anil Kumar. Botany for Degree Students, Pteridophyta. S.Chand &Company ltd., New Delhi. 2016. 3. Vashishta, Sinha A.K, Adarsh Kumar. Bryophytes, S.Chand &Company ltd., New Delhi. 2011. 4. Pandey B.P.A textbook of Botany (Bryophyta, Pteridophyta and Gymnosperms) S.Chand & Co., P.Ltd., Ram Nagar, New Delhi. 2010.

E-References	1. http://ndl.iitkgp.ac.in/document/OEYMeXpIRmlkYURkM3JkbUdtKy9UU3NFQ1BtNlk5dURFdUo2TM9Ec2V0aGJxRXJlNTdmTnBScMJlSmkrYk5ZQmxsUmJyMGYxUDY4MXFoOXlTV0hxaFE9PQ 2. https://WWW.ias.ac.in/article/fulltext/reso/009/06/0056-0065 3. http://ndl.iitkgp.ac.in/document/Z3dSNXd5OEtFblFDcMRPUk9LNVZIRElXaHQycVRlbkM4TnJvU2hDRDgxMD0 4. http://ndl.iitkgp.ac.in/document/RDB5OXNIdXBlRTBmUTNpODk4OS9zT3lId0tTQlI3YnBudE96OG9MMzRMUT0 5. http://ndl.iitkgp.ac.in/document/eVZ0Ky92RFRRc29LVDBqM1ZGZ1NLV2Q1blFNN2pUbUFMY2JDNUc4OTI5TT0		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	have a clear idea about the characters and life cycle of Bryophytes and their economic importance	**K1**
	CO2	describe the features and life cycle of Pteridophytes	**K2**
	CO3	understand the stellar evolution and economic potential of Pteridophytes	**K2**
	CO4	gain knowledge on features, classification, life cycle and economic importance of Gymnosperms	**K2**
	CO5	have better understanding on fossilization process and fossil plants	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	M	S	S	S	M	S	S
CO2	S	S	S	M	S	M	S	M	S	S	M	S	S
CO3	S	S	S	M	S	S	S	S	S	S	M	S	S
CO4	S	S	S	M	S	M	M	S	S	S	M	S	S
CO5	S	S	S	S	S	S	M	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOP22	BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERM	L	T	P	C
CORE IV			-	-	5	4

Cognitive Level	K1: Recall K2: Understand K3: Apply K6: Create
Learning objective	• To observe the thallus structure of microscopic lower plants • To understand the vegetative structure of Bryophytes • To learn morphology and anatomical features of Pteridophytes • To analyze the anatomical characters of Gymnosperms
	<u>Observation on</u> 1. Morphology and anatomy of thallus and reproductive parts of various groups of Bryophytes; *Riccia*, *Marchantia*, *Funaria*, *Polytrichum*, *Anthoceros* 2. Morphology and anatomy of sporophytes and spore producing organs of selected Pteridophytes; *Psilotum*, *Lycopodium*, *Selaginella*, *Equisetum*, *Adiantum*, *Pteris*, *Marselia* 3.Morphology and anatomy of vegetative parts and reproductive structure of selected Gymnosperms; *Cycas*, *Pinus*, *Gnetum* 4. Microscopic observation on various plant fossils 5.Two to three days field trip to collect of Bryophytes/Pteridophytes/Gymnosperms specimen 6. Submission of 10 Bryophytes/Pteridophytes/Gymnosperms herbarium specimens and maintenance of record book
Text books	1. Sivakumar, K. Algae- A Practical Approach. MJP Publishers, Chennai, India. 2016. 2. Gupta, V.K., Tuohy, M.G., Ayyachamy, M., Turner, K.M. and O'Donovan, A. Laboratory Protocols in Fungal Biology: Current Methods in Fungal Biology. Springer, London, UK. 2013. 3. Chmielewski, J. G. and Krayesky, D. General Botany laboratory Manual. AuthorHouse, Bloomington, USA. 2013.
Reference books	1. Bendre, A. M. A Text Book of Practical Botany – 1. Rastogi Publications, Meerut, India. 2010. 2. McMahon, K., Levetin, E. and Reinsvold, R. Laboratory Manual for Applied Botany. McGraw-Hill Education, New York, USA. 2001.
E-References	1. http://assets.vmou.ac.in/MBO10.pdf 2. http://ndl.iitkgp.ac.in/document/NXpzbzZQcHVvTFUrTGdYcTF0VlQxczVoUDhzOE9FOXg2MnN1bHhjSUNmOD0 3. https://WWW.researchgate.net/profile/Barry-Rosen/publication/235654691_Aquaculture_Manual/links/02bfe512518c53a0de000000/Aquaculture-Manual.pdf

<table>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>perform microscopic examination of thallus structure</td><td>K3</td></tr>
<tr><td>CO2</td><td>understand the sporophytic character of Pteridophytes</td><td>K2</td></tr>
<tr><td>CO3</td><td>examine the internal features of typical Gymnosperms</td><td>K2</td></tr>
<tr><td>CO4</td><td>identify species of bryophytes based on morphological characters</td><td>K1</td></tr>
<tr><td>CO5</td><td>prepare wet specimen as herbarium</td><td>K6</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	M	S	S	S	S	S	S	S
CO2	S	S	M	S	S	S	S	M	S	S	S	M	S
CO3	S	S	M	S	S	M	M	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21ZOA22</td><td rowspan="2">PRACTICAL ZOOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED-II</td><td>-</td><td>-</td><td>5</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To understand the mounting method
• To acquire knowledge on virtual dissection
• To know the preparation of blood smear
• To identify specimen based on their characteristics</td></tr>
<tr><td></td><td colspan="6"><u>Mounting</u>
Paramecium - Whole Mount
Earthworm - Body and Penial setae
Prawn - Appendages
Fish - Cycloid scale or Placoid scale
Virtual dissection.
Cockroach - Nervous system
Starfish - Water vascular system .
Rabbit - Heart and Brain.

Spotters and specimen
Amoeba
Plasmodium
Ascaris Entire (male & female)
Prawn
Starfish oral and aboral view
Amphioxus.
Narcine.
Clarius.
Rhacophorus.
Chamaeleon.
Poisonous snakes.- Naja naja, Krait
Non poisonous snakes-Water snake, Wolf snake
Pigeon and parrot -beak and feet
Rabbit

Physiology
Mitosis in Onion root tip cells
Observation of simple mendelian traits
Human blood smear
Demonstration of blood pressure using Sphygmomanometer.
Examination of excretory products of fish, bird and mammal
Endocrine glands – Pituitary and thyroid

Embryology - Frog cleavage, blastula and gastrula.
Evolution - Vestigial Organs- Pinna.
Fossils: Peripatus, Limulus
Analysis of variation - Finger prints.</td></tr>
</table>

Reference Books	1. Sinha, J., Chatterjeee A.K., Chattopadhyay P Advanced Practical Zoology , Arunabha Sen Publishers 2011 2. H.S. Bhamrah Practical Zoology Invertebrate, Dominant Publishers. 2003. 3. Preeti Guptha and Mridula Chaturvedi, Modern Experimental Zoology,. 2000 4. Verma, Manual of Practical Zoology: Chordates, S. Chand Publishing 2000.		
Course outcome	Upon completion of this course, the students will be able to		
	CO1	prepare specimens of different organism	**K1**
	CO2	check blood pressure by Sphygmomanometer	**K1**
	CO3	understand variations occur in finger prints	**K2**
	CO4	explain the dissection and identification of organs in specimens	**K3**
	CO5	describe the stages in mitosis	**K2**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	M	S	M	M	M	S
CO2	S	S	S	S	S	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	M	S	S	S	S	S	M	S
CO4	S	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M
CO5	S	S	S	S	S	S	S	M	S	S	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

SEMESTER III

<table>
<tr><td>Course Code</td><td>U21BOT31</td><td rowspan="2" colspan="3">CELL AND MOLECULAR BIOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE –V</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="8">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="8">• To learn the basic structure and function of cell and cell organelles
• To understand different stages of cell division
• To figure out the structure and organization of DNA
• To improve the knowledge of Genetics and Molecular basis of life</td></tr>
<tr><td>Unit I</td><td colspan="8">Basic structure of Plant cell:</td></tr>
<tr><td colspan="9">Structure and function of cell wall and cell membrane. Membrane models (Unit membrane model, Fluid Mosaic Model and Davson–Danielli Model)</td></tr>
<tr><td>Unit II</td><td colspan="8">Structure and function of cell organelles</td></tr>
<tr><td colspan="9">Chloroplast, mitochondria, ribosomes, peroxisomes, golgi apparatus, nucleus and endoplasmic reticulum.</td></tr>
<tr><td>Unit III</td><td colspan="8">Non –living cell inclusions</td></tr>
<tr><td colspan="9">Raphides, cystolith and granules. Cell divisions; Mitosis and meiosis, Cell cycle and cytokinesis.</td></tr>
<tr><td>Unit IV</td><td colspan="8">Chromosomes</td></tr>
<tr><td colspan="9">Morphology, chromatin organization. Watson and crick model of DNA. DNA synthesis and replication. Transposons and plasmids. C- Value paradox. Central dogma of Molecular Biology - Protein synthesis.</td></tr>
<tr><td>Unit V</td><td colspan="8">General principles of gene regulation</td></tr>
<tr><td colspan="9">Gene regulation in prokaryotes, Operon concepts; lac Operon, trp Operon. Eukaryotic gene regulation. PCR- Sanger's DNA Sequencing Method.</td></tr>
<tr><td>Text books</td><td colspan="8">1. Pawar, Cell Biology, Himalaya Publishing House, Mumbai. 2019.
2. Rastogi, S.C. Cell and Molecular Biology. New Age International Publishers, New Delhi. 2016.</td></tr>
<tr><td>Reference books</td><td colspan="8">1. Derobertis E.D. and De Robertis E.M.F. Cell and Molecular Biology 8th Edition. Lee and Fab International edition, Philadelphia.2017.
2. Verma P.S.and Agarwal V.K.Cell Biology(Cytology,Biomolecules,Molecular biology),Paper back,S.chand and Company .Ltd. 2016.
3. Buchanan B.B. Gruissem M., Jones R.L. Biochemistry and Molecular Biology. American Society of Plant Physiologist, Maryland, USA. 2015.
4. Cooper G. The cell – A molecular approach. ASM Press, Washington.2015.
5. Sheeler P and Binachi D. Cell and Moecular Biology, Third edition, Miley New York, USA. 2009.</td></tr>
<tr><td>E-References</td><td colspan="8">1. http://ndl.iitkgp.ac.in/document/eXF1YzdhQ2RxM3hPUm8ra0k0NHZGUT09
2. http://ndl.iitkgp.ac.in/document/SFBhRUg0cDg3MTJyRXE0OVB5RkpLZz09
3. https://epgp.inflibnet.ac.in/Home/VieMSubject?catid=4
4. http://ndl.iitkgp.ac.in/document/OEYMeXpIRmlkYURkM3JkbUdtKy9UZXgvY1pnaUtMUG4vNUhiMnZ5R2NkaWWWZ3FVNTFkeVhtRkUzd1JGSmNJMEgxOTNJSXlyQ2ZnT3pHZMtmVE5LRGc9PQ</td></tr>
</table>

<table>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>understand the organization of Plant cell, cell wall and its Membrane</td><td>K2</td></tr>
<tr><td>CO2</td><td>describe the structure and role of cell organelles</td><td>K3</td></tr>
<tr><td>CO3</td><td>know the stages and types of cell divisions K2</td><td>K1</td></tr>
<tr><td>CO4</td><td>know the organization and structure of plant genetic material</td><td>K2</td></tr>
<tr><td>CO5</td><td>differentiate the prokaryotic and eukaryotic gene regulation</td><td>K3</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	S	M	S	S	S	M	S
CO2	S	S	M	S	S	M	M	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	M	S	S	S	M	S
CO4	S	S	M	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	M	S	S	S	M	S

Strongly Correlating	(S)	- 3 marks
Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark
No Correlation	(N)	- 0 mark

Course Code	U21CHA33	CHEMISTRY	L	T	P	C
ALLIED-III			5	-	-	4

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To understand the handling of chemicals and errors in chemical analysis • To get knowledge in chemical bonding and hybridization • To acquire knowledge in volumetric analysis • To understand the basic concept of chemistry of thermodynamics and kinetics
Unit I	**Handling of chemicals and Data analysis**

a) Storage and handling of chemicals: Handling of acids, ethers, toxic and poisonous chemicals. Antidotes, threshold vapour concentration and first aid procedure.

b)Errors in chemical analysis: Accuracy, precision. Types of error-absolute and relative errors.Methods of eliminating and minimizing errors.

c) Separation techniques–Solvent extraction. Principle of adsorption and partition chromatography, column chromatography, thin layer chromatography (TLC), paper chromatography and their applications.

Unit II	**Chemical bonding**

a) Ionic Bond: Nature of Ionic bond. Structure of NaCl, KCl and CsCl. Factors influencing the formation of ionic bond.

b) Covalent Bond: Nature of covalent bond. Structure of CH_4, NH_3, H_2O based on hybridization.

c) Coordinate Bond: Nature of coordinate bond. Coordination complexes. Werner's theory. Geometrical and optical isomerism in square planar and octahedral complexes. Mention of structure and functions of chlorophyll and hemoglobin.

d) Hydrogen Bond: Theory and importance of hydrogen bonding. Types of hydrogen bonding. Hydrogen bonding in carboxylic acids, alcohol, amides, polyamides, DNA and RNA.

e) van der Waal's forces: Dipole – dipole and dipole - induced dipole interactions.

Unit III	**Volumetric analysis**

a) Methods of expressing concentration: normality, molarity, molality, ppm.

b)Primary and secondary standards: preparation of standard solutions

c)Principle of volumetric analysis: end point and equivalence points.

d)Strong and weak acids and bases - Ionic product of water , pH, pKa, pKb. Buffer solutions - pH of buffer solutions. Mention of Henderson equation & its significance.

Unit IV	**Kinetics & Thermodynamics**

Chemical Kinetics: Rate, rate law, order and molecularity. Derivation of rate expressions for I and II order reactions.

Catalysis-Homogeneous and heterogeneous catalysis. Enzyme catalysis, enzymes in biological system and in industry.

Thermodynamics: Introduction, scope and importance of thermodynamics- system and surrounding-isolated, closed and open systems- state of the system- intensive and extensive variables. Thermodynamic process- reversible and irreversible, isothermal and adiabatic process- First law of thermodynamics- statement- definition of internal energy (E),enthalpy (H), applications of first law of thermodynamics.

Unit V	**Chemistry of biomolecules**

<table>
<tr><td colspan="4">a) Fats – Occurrence and composition. Hydrolysis of fats.
b) Vitamins – Source, provitamin, properties and classification. Structure and functionof vitamin A, C, D, K and E
c) Hormones – Thyroxin, adrenaline and sex hormones (structure and functions only)</td></tr>
<tr><td>Text books</td><td colspan="3">1. R. Gopalan, S. Sundaram, Allied Chemistry, Sultan Chand and Sons, 1995.</td></tr>
<tr><td>Reference books</td><td colspan="3">1. U. Sathyanarayana, Biochemistry, Books and Allied (p) Ltd, 1999.
2. B.R.Puri and L.R.Sharma, Principles of physical chemistry, Shoban Lal Nagin Chand and Co. 33rd ed., 1992.</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>gain the knowledge on the handling of chemicals and errors in chemical analysis</td><td>K1</td></tr>
<tr><td>CO2</td><td>learn chemical bonding and hybridization</td><td>K2</td></tr>
<tr><td>CO3</td><td>learn the calculations of preparing standard solutions</td><td>K2</td></tr>
<tr><td>CO4</td><td>understand and appreciate the advanced concepts and rate equations in chemical kinetics.</td><td>K2</td></tr>
<tr><td>CO5</td><td>calculate the change in thermodynamic properties, equilibrium constants, partial molar quantities, chemical potential.</td><td>K3</td></tr>
</table>

Mapping of Cos with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	M	S	S	M	S	S
CO2	S	S	S	M	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	M	S	S	M	S	M	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOE311	BIOPROSPECTING OF PLANTS	L	T	P	C
ELECTIVE –I			4	-	-	3

Cognitive Level	K1: Recall K2: Understand
Learning objective	• To understand the current practices in bioprospecting for conservation of biodiversity and genetic resources. • To know the basics and concepts of medicinal plants bioprospecting/ pharmaceutical bioprospecting. • To be familiar with the isolation and cultivation and bioactive compounds and their applications of marine bioresources • To learn the isolation of microbial metabolites products and its applications
Unit I	**Bioprospecting**
Definition, introduction, current practices in bioprospecting for conservation of Biodiversity and Genetic resources. Bioprospecting Act: Introduction, phases of bioprospecting, exemption to Act. Fields of bioprospecting	
Unit II	**Medicinal plants bioprospecting / pharmaceutical bioprospecting**
for new drugs, assays in bioprospecting. Antioxidant assay – NO free radical scavenging assay, antigenotoxicity assay – MTT assay, antiviral activities of plants – SRB assay	
Unit III	**Marine bioprospecting**
Sources of marine planktons and their bioprospecting, Isolation and cultivation of marine bioresources, isolation of marine yeast and its industrial applications, Bioactive chemicals from seaweeds and their applications	
Unit IV	**Microbial bioprospecting**
Isolation of microbial metabolites and their bio-activity. Endophytic microbial products as antibiotics	
Unit V	**Economic crops**
Origin, evolution, botany, cultivation and uses of food, fodder, fibers, oil yielding crops, wood and timber, non-wood forest products(NWFPS): Bamboos, gums, dyes, resins, fruits etc	
Text books	1. Arora, R.K. and Nayar, E.R. Wild relatives of crop plants in India, NBPGR Science MonographNo.7. 1984. 2. Baker, H.G. Plants and civilization. Ill Ed. (A. Wadsworth, Belmount). 1978. 3. Thakur, R.S., Puri, H.S. and Husain, A. Major medicinal plants of India, Central Institute of medicinal and aromatic plants, Lucknow. 1969. 4. Swaminathan, M.S. and Kocchar, S.L. (Es.) Plants and Society, MacMillan Publication Ltd., 1989.
Reference books	1. Bole, P.V. and Vaghani, Y. Field guide to common Indian trees, Oxford University Press, Mumbai. 1986. 2. Kocchar, S.L. Economic Botany of the tropics, II Edn. MacMillan India Ltd.1998. 3. CSIR. The useful plants of India Publication and Information directorate, CSIR, New Delhi. 1986.

<table>
<tr><td rowspan="2">E-References</td><td colspan="3">1. https://www.researchgate.net/publication/264238213_Bioprospecting
2. https://www.researchgate.net/publication/266948374_Bioprospecting_medicinal_plants_for_antioxidant_components
3. https://www.researchgate.net/publication/335714642_Biodiversity_Bioprospection_with_Respect_to_Medicinal_Plants</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>comprehend the basic concepts of bioprospecting</td><td>K2</td></tr>
<tr><td>CO2</td><td>understand the basics of medicinal plant bioprospecting</td><td>K2</td></tr>
<tr><td>CO3</td><td>know the basics of marine bioprospecting and their applications</td><td>K2</td></tr>
<tr><td>CO4</td><td>learn about the basics of microbial bioprospecting</td><td>K2</td></tr>
<tr><td>CO5</td><td>Gain knowledge on the basics of forest products</td><td>K1</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	M	S	S	M	S	S
CO2	S	S	S	M	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	M	S	S	M	S	S	S	S	S
CO4	S	S	S	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOE312</td><td rowspan="2">BIODIVERSITY CONSERVATION</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE –I</td><td>4</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To learn the biodiversity and geographical regions of India.
• To know the conservation strategies of Biodiversity.
• To learn the origin of crop plants.
• To understand international agreements like MTO and GATT.</td></tr>
<tr><td>Unit I</td><td colspan="6">Biodiversity and conservation</td></tr>
<tr><td colspan="7">Categories of biodiversity – species concepts: keystone, flagship, dominant and co-dominant species. Biogeography: major terrestrial biomes, theory of island biogeography, biogeographical zones of India. Principles and approaches of conservation – In situconservation: National parks, wildlife sanctuaries and biosphere reserves – Ex situ conservation: Botanical and herbal gardens, zoological parks and gene banks etc.</td></tr>
<tr><td>Unit II</td><td colspan="6">Values of biodiversity</td></tr>
<tr><td colspan="7">Ecosystem services, screening plants for medicines, New agricultural and industrial products from the tropics. Origin of agricultural crops. Centres for origin of domesticated crops. Speciation- species area relationship and productivity- diversity relationship. Biodiversity hotspots</td></tr>
<tr><td>Unit III</td><td colspan="6">Extinction and conservation</td></tr>
<tr><td colspan="7">Effect of global climatic change on natural communities. Causes for species extinction. IUCN Red list categories. Red data book. Impact of exotic species on native vegetation. GMOs and biosafety – Intellectual property rights- GATT,MTO, farmers and breeders rights. Biodiversity act -2002</td></tr>
<tr><td>Unit IV</td><td colspan="6">Remote sensing</td></tr>
<tr><td colspan="7">Introduction-Analysis techniques-Digital image processing, role of remote sensing in biodiversity management, GIS and biodiversity, water security. Environment assessment and monitoring</td></tr>
<tr><td>Unit V</td><td colspan="6">Information management for the conservation of biodiversity</td></tr>
<tr><td colspan="7">cryobiology, agro-ecology and in situ conservation of native crop diversity- International and indian initiatives of biodiversity conservation. Role of biotechnology in biodiversity conservation</td></tr>
<tr><td>Text books</td><td colspan="6">1. Gillson, L. Biodiversity Conservation and Environmental Change, Oxford University Press, Oxford.2015.
2. Poul V.I. Biodiversity: Issues, Impact, Remediations and Significance 1st Edition. V L Media Solution.2013.
3. Bawa K.S., Primack, R.V. and Oommen, M.A. Conservation biology: A Primer for South Asia, ATREE, Bangalore.2011.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Smith T M Smith R L. Elements of ecology, 8th edition, Benjamin Cummins.2012
2. Sharma.B.K. Environmental Chemistry,Krishna Prakash Media (P) Ltd.2019.
3. Cunningham, M.P. and Cunningham, M.A. Principals of environmental</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">science. Tata McGraw-Hill Publishing Company Ltd., New Delhi.2002.
4. Jeffries, M.J. and M.J. Jeffries. Biodiversity and Conservation, Routledge Taylor & Francis Group, UK.2005.</td></tr>
<tr><td><u>E-References</u></td><td colspan="3">1. http://ndl.iitkgp.ac.in/document/N2tzeE1aMMpUMm04b2l1VVZEdSsvKzNKdEtyMHI2RkVFQko0ak42amJMRT0
2. https://ncert.nic.in/textbook/pdf/lebo115.pdf
3. https://WWW.researchgate.net/publication/277124537_Biodiversity_Conservation_in_India</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>gain knowledge on categories of biodiversity and conservation methods of biodiversity</td><td>K2</td></tr>
<tr><td>CO2</td><td>understand the centre’s of origin of crop plants and biodiversity hotspots</td><td>K2</td></tr>
<tr><td>CO3</td><td>find the causes of species extinction and the value of IUCN categories</td><td>K3</td></tr>
<tr><td>CO4</td><td>gain knowledge on the role of remote sensing in biodiversity management</td><td>K2</td></tr>
<tr><td>CO5</td><td>have idea about cryobiology and role of biotechnology in conservation</td><td>K1</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**					**PSOs**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BON311</td><td colspan="2" rowspan="2">FOREST BOTANY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NME - I</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objectives</td><td colspan="7">• To understand the benefits of forest on mankind
• To comprehend the forest resources and utilization
• To know the role of forestry in Indian economy
• To understand about forest law</td></tr>
<tr><td>Unit I</td><td colspan="7">Forest laws</td></tr>
<tr><td colspan="8">Necessity, general principles, Indian forest act 1927 and their amendment. Forest types of India-world. Forest influences and Protection-Social and community forestry - Role of forestry in Indian economy.</td></tr>
<tr><td>Unit II</td><td colspan="7">Biodiversity conservation strategies</td></tr>
<tr><td colspan="8">Rare and endangered species - conservation strategies - exotics and its significance - tropical, temperate, evergreen, semi-evergreen, deciduous forests.</td></tr>
<tr><td>Unit III</td><td colspan="7">Regeneration of forest</td></tr>
<tr><td colspan="8">Concept, scope and study of natural and artificial regeneration of forests. Social forest-Avenue plantation-Sacred plants-definition, importance of sacred trees.</td></tr>
<tr><td>Unit IV</td><td colspan="7">Forest resources and utilization</td></tr>
<tr><td colspan="8">Forest products - timber, pulp wood, secondary timbers, non-timber forest products(NTFPs); Gums, resins, fibres, oil seeds, nuts, rubber, canes, bamboos, medicinal plants.</td></tr>
<tr><td>Unit V</td><td colspan="7">Social and Agro forestry</td></tr>
<tr><td colspan="8">policy on Agro forestry and Social forestry-Tree production: seed orchards; Remote sensing and GIS in forestry.</td></tr>
<tr><td>Text books</td><td colspan="7">1. Mehta,T. A handbook of forest utilization, Periodical Expert book Agency, New Delhi.1981,
2. Dhiman, A.K, Sacred plants and their medicinal uses. Daya Publishing house, New Delhi.2003
3. Sagreiya, K.P. Forest and Forestry (Revised by S.S.Negi), National Book Trust, New Delhi.1994</td></tr>
<tr><td>Reference books</td><td colspan="7">1.Tiwari, K.M, Social Forestry in India. Nataraj Publishers, Dehra Dun. 1983.
2. De Vere Burton L. Introduction to Forestry Science, Delmar Publishers, New York.2000</td></tr>
<tr><td>E-References</td><td colspan="7">1.http://www.westbengalforest.gov.in/upload/development/cm4.pdf
2.http://herba.msu.ru/shipunov/school/biol_154/textbook/intro_botany.pdf</td></tr>
<tr><td rowspan="5">Course outcome</td><td colspan="7">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td colspan="4">Course Outcomes</td><td colspan="2">Knowledge Level</td></tr>
<tr><td>CO1</td><td colspan="4">understand the importance of forest law and necessity</td><td colspan="2">K1</td></tr>
<tr><td>CO2</td><td colspan="4">know the different aspects of forestry</td><td colspan="2">K2</td></tr>
<tr><td>CO3</td><td colspan="4">learn about the forest resources and its</td><td colspan="2">K2</td></tr>
</table>

		utilization	
	CO4	gain knowledge about the benefits of forest products to use health of human	**K3**
	CO5	learn and evaluate the tree production methods	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**					**PSOs**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	S	M	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S
CO5	S	M	S	S	S	S	S	S	S	S

Strongly Correlating	(S)	- 3 marks
Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark
No Correlation	(N)	- 0 mark

<table>
<tr><td>Course Code</td><td>U21BON312</td><td rowspan="2">MUSHROOM CULTIVATION</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NME - II</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To have knowledge on general identification characteristics of mushroom
• To know about the types of edible mushroom
• To know about the mushroom cultivation techniques
• To learn the skills of mushroom cultivation
• To understand the medicinal value of mushroom</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction to mushrooms</td></tr>
<tr><td colspan="7">History and Scope of mushroom cultivation - classification of mushrooms - Edible and Poisonous Mushrooms-Vegetative characters</td></tr>
<tr><td>Unit II</td><td colspan="6">Nutritional Values of Mushroom</td></tr>
<tr><td colspan="7">Nutritional and dietary values of mushrooms as source such as protein, carbohydrates, fibre, vitamins and minerals, therapeutic properties.Mushroom cultivation techniques- Spawn production - culture media preparation- production of pure culture, harvesting. Sterilization of substrates- composting technology, mushroom bed preparation.</td></tr>
<tr><td>Unit III</td><td colspan="6">Cultivation of edible mushrooms</td></tr>
<tr><td colspan="7">Substrate preparation, growth, packing, and maintenance of suitable environmental conditions for Button mushroom (Agaricus bisporus) and Oyster mushroom (Pleurotus sajorcaju). Factors influencing mushroom cultivation and harvesting.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Pest Management</td></tr>
<tr><td colspan="7">Pest management and problems in cultivation - diseases, pests and nematodes, weed moulds and their management strategies. Post harvest technology- Preservation of mushrooms - freezing, dry freezing, drying, canning, quality assurance and entrepreneurship.</td></tr>
<tr><td>Unit V</td><td colspan="6">Value added products</td></tr>
<tr><td colspan="7">Value added products of mushrooms and mushrooms recipes- mushroom Soup, mushroom omelet, mushroom biryani, mushroom pickle. Medicinal values of mushrooms.</td></tr>
<tr><td>Text books</td><td colspan="6">1. C.D.Thapa Dr. V. Prakasam Sh. Mohinder Singh. Mushroom culture. College of Horticulture, YSPUH&F Nauni, Solan (HP). https://www.agrimoon.com/wp-content/uploads/Mashroom-culture.pdf.2016.
2. Tripathi. Mushroom Cultivation, D.P Oxford & IBH Publishing Co. PVT.LTD, New Delhi. .2005
3. Pathak Yadav Gour. Mushroom Production and Processing Technology, Published by Agrobios (India). 2010
4. V.N. Pathak, Nagendra Yadav and Maneesha Gaur.Mushroom Production and Processing Technology/ Vedams Ebooks Pvt Ltd., New Delhi.· 2000.</td></tr>
<tr><td>Reference books</td><td colspan="6">1.Singh, M., Vijay, B., and Kamal, S., and Wakchaure, G.C. Mushrooms:Cultivation, Marketing and Consumption. Directorate of Mushroom Research,Indian Council of Agricultural Research, Solan, India. 2011.
2.S.Kannaiyan and K.Ramasamy.A hand book of edible mushroom. Today &Tomorrows printers & publishers, New Delhi.1980.</td></tr>
</table>

<table>
<tr><td><u>E-References</u></td><td colspan="3">1.https://www.researchgate.net/publication/316967767_Mushroom_Cultivation_Book_Preprint_version
2.https://content.kopykitab.com/ebooks/2013/11/2269/sample/sample_2269.pdf</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>differentiate edible and poisonous mushrooms</td><td>K3</td></tr>
<tr><td>CO2</td><td>know about the production methods of Spawn</td><td>K2</td></tr>
<tr><td>CO3</td><td>explain the culturing methods of Mushrooms</td><td>K3</td></tr>
<tr><td>CO4</td><td>know the value added products of mushrooms and mushroom recipes</td><td>K2</td></tr>
<tr><td>CO5</td><td>uunderstand the medicinal values of mushrooms</td><td>K2</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	POs					PSOs				
	1	2	3	4	5	1	2	3	4	5
CO1	S	S	S	S	S	S	M	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	M	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	M	S	S	S	S	S	S	S	S	S

Strongly Correlating	(S)	- 3 marks
Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark
No Correlation	(N)	- 0 mark

SEMESTER IV

Course Code	U21BOT41	MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS	L	T	P	C
CORE-VI			5	-	-	4

Cognitive Level	K1: Recall K2: Understand K3: Apply K6: Create
Learning objective	• To know the general morphological characters of Angiosperms • To know the different system of classification • To have knowledge on various aspects of plant nomenclature • To improve their skills to identify selected flowering plants with their salient features • To understand the economic importance of various groups of Angiosperms
Unit I	**General morphology of Angiosperms**
Stem, root, leaf and inflorescences. Modifications of stem, root, leaf and inflorescence.	
Unit II	**Taxonomy**
Scope and importance; Various Systems of Classification of Angiosperms – Artificial System (Linnaeus), Natural System (Bentham and Hooker), Phylogenetic System (Engler and Prantle) and Modern system (Taktajan's 1980).	
Unit III	**Botanical Nomenclature**
ICBN Principles, rules and recommendations, citation of names. Typification. Herbarium techniques and its uses. Cytotaxonomy, Chemotaxonomy, Numerical taxonomy and Molecular taxonomy.	
Unit IV	**Angiosperm Families**
General, vegetative and sexual characteristics of Rutaceae, Leguminosae, Cucurbitaceae, Apiaceae, Rubiaceae, Solanaceae, Amaranthaceae, Euphorbiaceae and their economic importance.	
Unit V	**Angiosperm Families**
General, vegetative and sexual characteristics of Asteraceae, Apcoynaceae, Acanthaceae, Verbenaceae, Orchidaceae, Liliaceae, Zingiberaceae, Poaceae and their economic importance.	
Text books	1. Parihar, N.S. An Introduction to Embryophyta, Pteridophytes. 5th Edition, Surjeet Publication, Delhi. 2019. 2. Sharma, O.P., Plant Taxonomy. Tata McGraw-Hill Education (Pvt) Limited, New Delhi. 2017. 3. Sharma, O.P. Pteridophyta. Tata McGraw-Hill Education, Delhi. 2012
Reference books	1. Vasishta, P.C., Sinha, A.K. and Anil Kumar. Botany for Degree Students, Pteridophyta. S. Chand &Company ltd., New Delhi. 2016. 2. Singh V and D.K.Jain, Taxonomy of angiosperms, Rastogi Publication, Meerut.2012. 3. Panday, B.P.Taxonomy of angiosperms, S. Chand & Co., (P) Ltd.2011. 4. Vasudevan Nair R. Taxonomy of Angiosperms, APH Publishing Corporation.2011. 5. Vardhana, R. Economic Botany. 1st ed. Sarup Book Publishers Pvt Ltd., New Delhi.2010.

<table>
<tr><td rowspan="2">E-References</td><td colspan="3">1. https://WWW.researchgate.net/publication/267510854_The_Flowering_Plants_Handbook
2. http://ndl.iitkgp.ac.in/document/ZTVLVjRMQ01OV01qNkVJcUx4V2xnTTJJSDhBMkJMU3RONnArZEZ4UHMMdz0
3. http://ndl.iitkgp.ac.in/document/QkszM1UzbMVYMDZtVG44VXE0OUtrVjQMek94UU5sTVpnUUhTQ0dGeVhVUT0</td></tr>
<tr><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td rowspan="6">Course outcome</td><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>learn the general morphology of flowering plants</td><td>K2</td></tr>
<tr><td>CO2</td><td>know different systems of classification of angiosperm plants</td><td>K1</td></tr>
<tr><td>CO3</td><td>understand the nomenclatural rules and herbarium techniques</td><td>K2</td></tr>
<tr><td>CO4</td><td>identify plant species with specific key characters</td><td>K3</td></tr>
<tr><td>CO5</td><td>establish the skills to prepare description of plant species</td><td>K6</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	M	S	M	M	S	S	S	M	S	S
CO2	S	S	S	S	S	S	S	M	S	S	S	S	S
CO3	S	S	S	S	S	M	S	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	M	S	S	S	S	S

Strongly Correlating	(S)	- 3 marks
Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark
No Correlation	(N)	- 0 mark

<table>
<tr><td>Course Code</td><td>U21BOP43</td><td rowspan="2">TAXONOMY OF ANGIOSPERMS-</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE VII</td><td>-</td><td>-</td><td>4</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To learn the technical terms of Angiosperms
• To develop skills on identification of angiosperm plants through morphological characters
• To learn herbarium technique
• To have knowledge on sexual characters of selected species</td></tr>
<tr><td></td><td colspan="6">1. Detailed study on vegetative and sexual features of selected plant families; Rutaceace, Leguminosae, Cucurbitaceae, Apiaceae, Rubiaceae, Solanaceae, Amaranthaceae, Euphorbiaceae, Asteraceae, Apcoynaceae, Acanthaceae, Verbenaceae, Orchidaceae, Liliaceae, Zingiberaceae, Poaceae
2.Two to three days to collect various angiosperm specimen
3.Visit to various botanical research institutes handling plant taxonomy research (BSI, JNTBGRI, IFGTB etc.)
4.Submission of 15 herbarium specimen and maintenance of record</td></tr>
<tr><td>Text books</td><td colspan="6">1. Sivakumar, K. Algae- A Practical Approach. MJP Publishers, Chennai, India. 2016.
2. Gupta, V.K., Tuohy, M.G., Ayyachamy, M., Turner, K.M. and O’Donovan, A. Laboratory Protocols in Fungal Biology: Current Methods in Fungal Biology. Springer, London, UK. 2013.
3. Chmielewski, J. G. and Krayesky, D. General Botany laboratory Manual. AuthorHouse, Bloomington, USA. 2013.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Bendre, A. M. A Text Book Of Practical Botany – 1. Rastogi Publications, Meerut, India. 2010.
2. McMahon, K., Levetin, E. and Reinsvold, R. Laboratory Manual for Applied Botany. McGraw-Hill Education, New York, USA. 2001.</td></tr>
<tr><td><u>E-References</u></td><td colspan="6">1.http://assets.vmou.ac.in/MBO10.pdf
2.http://ndl.iitkgp.ac.in/document/NXpzbzZQcHVvTFUrTGdYcTF0VlQxczVoUDhzOE9FOXg2MnN1bHhjSUNmOD0
3.https://WWW.researchgate.net/profile/Barry-Rosen/publication/235654691_Aquaculture_Manual/links/02bfe512518c53a0de000000/Aquaculture-Manual.pdf</td></tr>
<tr><td rowspan="5">Course outcome</td><td colspan="6">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td colspan="3">Course Outcomes</td><td colspan="2">Knowledge Level</td></tr>
<tr><td>CO1</td><td colspan="3">comprehend the morphological characters of angiosperm species</td><td colspan="2">K1</td></tr>
<tr><td>CO2</td><td colspan="3">understand the technique for the preparation of herbarium</td><td colspan="2">K2</td></tr>
<tr><td>CO3</td><td colspan="3">identify plant families by observing key characters</td><td colspan="2">K3</td></tr>
</table>

	CO4	understand the economic uses of selected families	**K2**
	CO5	illustrate species by analyzing the characteristic features	**K3**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	M	M	S	S	S	S	S	S	S
CO2	S	S	M	S	S	S	S	M	S	S	S	M	S
CO3	S	S	M	S	S	M	M	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	M	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks
Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark
No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21CHA44</td><td rowspan="2">PRACTICAL CHEMISTRY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ALLIED–IV</td><td>-</td><td>-</td><td>4</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To enable the students to acquire knowledge in Organic Estimation
• To understand the basics of the course and gain knowledge in organic analysis</td></tr>
<tr><td></td><td colspan="6">Acidimetry and alkalimetry: Titration acids used: hydrochloric acid, sulphuric Standard solutions prepared: sodium carbonate, sodiumbicarbonate, oxalic acid.
Oxidation and reduction titration: Oxidising agents: Potassium permanganate (permanganimetry). Reducing agents: Ferrous sulphate, ferrous ammonium Sulphate, oxalic acid .
Standard solutions prepared: Ferrous Sulphate, ferrous ammonium Sulphate and oxalic acid.
Iodometry titrations: titrations of liberated iodine against sodium thiosulphate using acidified potassium permanganate, potassium dichromate and copper Sulphate solutions.
Standard solutions: potassium dichromate, copper sulphate.</td></tr>
<tr><td>Text books</td><td colspan="6">1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996.
2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel’s Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. N.S. Gnanapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.
2. Practical Chemistry by A.O. Thomas, Scientific Book Centre, Cannanore, 2003.
3. Basic Principles of Practical Chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, Sultan Chand & Sons, New Delhi, 2nd Edn., 2004.</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="6">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td colspan="3">Course Outcomes</td><td colspan="2">Knowledge Level</td></tr>
<tr><td>CO1</td><td colspan="3">learn the concept of Titration methods and various titrations.</td><td colspan="2">K1</td></tr>
<tr><td>CO2</td><td colspan="3">understand the acidimetry and alkalimetry titrations</td><td colspan="2">K2</td></tr>
<tr><td>CO3</td><td colspan="3">learn the preparation of standard solutions</td><td colspan="2">K2</td></tr>
<tr><td>CO4</td><td colspan="3">learn the calculations of molarity, molality and normality of the solutions</td><td colspan="2">K2</td></tr>
<tr><td>CO5</td><td colspan="3">understand the concept of iodometry titrations</td><td colspan="2">K3</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	M	S	M	S	S	M	S	S
CO2	S	S	S	M	S	S	S	S	S	S	M	S	S
CO3	S	S	S	S	M	S	S	M	S	S	S	S	S
CO4	S	M	S	S	S	S	M	S	S	S	S	S	S
CO5	S	S	S	M	M	M	S	S	S	S	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

COURSE CODE	U21BOE421	WOOD TECHNOLOGY	L	T	P	C
CORE I			3	-	-	3

Cognitive Level	K2: Understand K3: Apply
Learning objective	• To comprehend the basic concepts and principles of wood technology • To understand the Microscopic structure of wood, chemical composition of wood. • To learn in detail about the Mechanical properties of wood and Wood preservation • To understand the use and scope of improved wood-Compressed wood, Chemically modified wood and densified wood
Unit I	**Microscopic structure of wood**
Vessels, Tyloses, Tracheids, Fibres, Wood parenchyma - Wood rays, Grain and Texture. Organization of the cell wall - Microfibrils - Orientation, cell wall pit – structure. Detailed anatomical structure of a few Indian hard woods, bamboos and canes.	
Unit II	**Chemical Composition of Wood**
Chemical composition of wood, structure and properties of Cellulose - Hemicellulose - Wood polysaccharides and Lignin. Distribution of chemical constituents in wood. Physical properties of wood - Colour - Lustre - Fluorescence - Odour and Weight	
Unit III	**Mechanical properties of wood**
Bending properties - Composition - Hardness - Shear. Properties of Dicot and monocot wood. Growth rings in wood - Annual rings, early wood and late wood, soft wood and hard wood, pycnoxylic and manoxylic wood. Dendro - chronology	
Unit IV	**Wood Preservation**
Wood preservation - Non-pressure processes - Pressure process - Chemical processing of wood - Commercial wood species and identification, Synthetic woods, Marine plywood, Fuel wood, pulp and paper making woods, matchstick wood. Economic importance of pulp and wood	
Unit V	**Wood Preservation**
Compressed wood, Impregnated wood, Compregnated wood, Heat stabilized wood, Chemically modified wood, densified wood. Uses and scope.	
Text books	1. Vaux, H. J. 1952. Textbook of Wood Technology. Vol. II. McGraw Hill, New York. 2. Brown .1981. Textbook of Wood Technology. Tata McGraw-Hill, New Delhi. 3. Brown, H. P. (1985). Manual of Indian Wood Technology. International Books and Periodicals Supply Service, New Delhi.

<table>
<tr><td>Reference books</td><td colspan="3">1. Chowdhury, K. A. and Ghose, S. S. (1958). Indian Woods. Publication Division, Government of India, New Delhi
2. Franz, F. P., Kollmann and Wilfred A. Cote, Jr. 1968. Principles of Wood Science and Technology. Vol. I: Solid Wood. Springer-Verlag, New York.
3. Franz, F. P. Kollmann .1988. Wood Science and Technology. Vol. I and II. Springer Verlag, New York.
4. Pearson and Brown .1984. Commercial Timbers of India. Government of India Publication, New Delhi.
5. Wadoo MS. 1992. Utilization of Forest Resources. IDRIS Publ.
6. Wilson, K and White, D.J.B.1986. The Anatomy of Wood: Its Diversity and Variability. Stobart and son Ltd</td></tr>
<tr><td><u>E-References</u></td><td colspan="3">1. https://is.muni.cz/th/gdxwb/Textbook_glossary_final.pdf
2. https://files.eric.ed.gov/fulltext/ED099473.pdf</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>understand the general anatomical features of wood</td><td>K2</td></tr>
<tr><td>CO2</td><td>enumerate the physical and chemical properties of wood</td><td>K2</td></tr>
<tr><td>CO3</td><td>acquire a deep knowledge on mechanical properties of wood</td><td>K2</td></tr>
<tr><td>CO4</td><td>learn and apply the wood preservation techniques</td><td>K3</td></tr>
<tr><td>CO5</td><td>have a clear idea about uses and scope of various wood</td><td>K2</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	M	S	S	S	S	M	M	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S	S	M	S
CO4	S	S	S	S	S	S	M	S	M	S	S	M	S
CO5	S	S	M	S	S	S	S	S	S	S	S	S	M

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

COURSE CODE	U21BOE422	SILVI CULTURE	L	T	P	C
CORE I			3	-	-	3

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To acquire knowledge on composition and structure of forest. • To know the techniques in establishment, growth and quality of forest vegetation. • To understand the role of forests in environmental sustenance. • To learn about the manipulations in management and establishment of forest vegetation.
Unit I	**Principles of silviculture**
Definition, objectives and scope of Silviculture. Status of forests in India and their role. General Silvicultural Principles : methods of propagation, grafting techniques; site factors; nursery and planting techniques-nursery beds, polybags and maintenance, water budgeting, grading and hardening of seedlings; special approaches; establishment and tending.	
Unit II	**Types of Trees**
Introduction to trees and their general classification under different forest types. Important tree families and their peculiar characters. Types of trees and canopy structure. Coniferous and broad leaved tree species. Trees in tropical, sub-tropica, temperate and alpine regions	
Unit III	**Forest soils**
Forests Soils, classification, factors affecting soil formation; physical, chemical and biological properties. Soil conservation - definition, causes for erosion; types - wind and water erosion; conservation and management of eroded soils/areas, wind breaks, shelter belts; sand dunes; Role of forests in conserving soils.	
Unit IV	**Forest Management**
Forest Management and Management Systems : Objective and principles; techniques; stand structure and dynamics, sustained yield relation; rotation, normal forest, growing stock; regulation of yield; management of forest plantations, commercial forests, forest cover monitoring. Approaches viz., (i) site-specific planning, (ii) strategic planning, (iii) Approval, sanction and expenditure, (iv) Monitoring (v) Reporting and governance.	
Unit V	**Injuries and Pest**
Injuries to forest - abiotic and biotic, destructive agencies, insect-pests and disease. Role of afforestation and forest regeneration in absorption of CO2. effect of wild animals on forest regeneration, human impacts; encroachment, poaching, grazing, live fencing, shifting cultivation and control.	
Text books	1. Aranya Bhavan, Basu Ray Chaudhuri, N K Pandey**,** Chairman, SPMU, Forest Department. General silviculture, 2016. Published by Development Circle,Directorate of Forests, Government of West Bengal. 2. Shiva, M.P. A Handbook of Systematic Botany, 1986.IBD Publisher, Dehradun. Sagreiya, K.P. Forests and Forestry, 1997. National Book Trust India. 3. Stephen F, Textbook of silviculture, Copy Right 2021, Austin state university, Nacogdoches, Texes.

Reference books	1. Dwivedi, A. P. 1992. Principles and Practice of Indian Silviculture, Surya Publication, 420p. 2. Khanna, L. S. 1984.Principles and Practice of Silviculture, Khanna Bhandu, Dehra Dun. P. 476. 3. Ram Prakash and L.S. Khanna. 1991. Theory and Practice of Silvicultural systems. International Book Distributors, Dehra Dun. 298p. 4. Dwivedi, A.P. 1993. A Text Book of Silviculture, International Book Distributors, Dehradun.
E-References	https://www.uou.ac.in/sites/default/files/slm/FR-01.pdf https://www.ggu.ac.in/download/Syllabus/B.Sc.%20Forestry%20New%20CBCS%2023.09.19.pdf https://goalclaw.xyz/?asin=1119270952 https://royalvidslog.blogspot.com/2019/01/download-ecology-and-silviculture-of.html

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	understand the general features and classification of algae	**K2**
CO2	enumerate the life cycle of major classes of algae and their economic importance	**K2**
CO3	acquire a deep knowledge on principles of fungi classification to apply in the field	**K3**
CO4	know the life cycle of major classes of fungi and their economic importance	**K2**
CO5	have a clear idea about lichens including their economic importance	**K1**

Mapping of COs with POs & PSOs:

CO	PROGRAMME OUTCOMES (PO)								PROGRAMME SPECIFIC OUTCOMES (PSO)				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	S	S	M	S	S	S	S	M	M	M	S
CO2	S	S	S	S	M	S	S	S	S	M	S	S	S
CO3	M	S	S	S	S	S	S	S	S	S	S	M	M
CO4	S	S	S	M	S	S	M	S	M	S	S	M	S
CO5	S	S	M	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

Course Code	U21BON421	HORTICULTURE	L	T	P	C
NME - II			2	-	-	2

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To learn the basic of horticulture technique • To know the commercial importance of horticulture • To understand the different composting methods • To know the role of bonsai in plant propagation
Unit I	**Objectives**
Introduction to horticulture; nature and scope. Objectives of horticulture.	
Unit II	**Principles of Horticulture**
Principles of land scape gardening. Gardening: ornamental and indoor- Gardens kids gardens and vertical and roof top- gardens. Garden adornments. Role of orchids in gardening.	
Unit III	**Composting**
aerobic, anaerobic and vermicomposting; Mist chamber, green house and glass house. Effect of pollution on indoor plants. Commercial products of horticulture. Olericulture: Home and market - gardening and truck farming.	
Unit IV	**Floriculture**
Introduction, nature and scope. Fresh and dry flower arrangements. production of cut flowers, foliage potted plants and bedding plants. Future prospects of floriculture.	
Unit V	**Bonsai**
making and selection of plants for bonsai. Physical control of plant growth in bonsai preparation. Preparation of terrarium, Aquaponics and arbori culture. Components of high-tech farming	
Text books	1. Adams, C.R. and M. P. Early. Principles of horticulture. Butterworth – Heinemam, Oxford University Press. 2004. 2. Bansil. P.C. Horticulture in India. CBS Publishers and Distributors, New Delhi. 2008.
Reference books	1. Kumar, N. Introduction to Horticulture, Rajalakshmi Publication, Nagercoil. 2001. 2. Bhattacharjee.S.K. Amenity Horticulture, Biotechnology and Postharvest technology. Pointer publishers. Jaipur. 2006.
E-References	1. https://agrimoon.com/fundamentals-of-horticultur-pdf-book/ 2. https://www.iaritoppers.com/2019/06/Principles-Of-Plant-Breeding-ICAR-Ecourse-Free-PDF-Book-Download-e-krishi-shiksha.html

Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the importance of horticulture technique for commercial production	**K2**
	CO2	describe the importance of gardening and types of gardens	**K3**
	CO3	know indoor and outdoor plants and their propagation	**K1**
	CO4	know the economic value of floriculture	**K1**
	CO5	make and selection of plants for bonsai	**K3**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	S	M	S	S	S	M	S
CO2	S	S	M	S	S	M	M	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	M	S	S	S	M	S
CO4	S	S	M	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	M	S	S	S	M	S

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark	No Correlation	(N)	- 0 mark

<table>
<tr><td>Course Code</td><td>U21BON422</td><td rowspan="2">POMOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">NME-II</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To gain knowledge on basics of pomology
• To learn the cultivation techniques of fruit bearing plants
• To acquire knowledge to establish commercial orchards thereby become successful entrepreneur</td></tr>
<tr><td>Unit I</td><td colspan="6">Introduction</td></tr>
<tr><td colspan="7">Importance, history, origin, area and distribution of fruit varieties and their classification. Climatic and soil requirements, propagation, root stocks and problem of multiplication</td></tr>
<tr><td>Unit II</td><td colspan="6">Establishment of commercial orchards</td></tr>
<tr><td colspan="7">planting and aftercare. Nutrition management, nutritional disorders, training, pruning, irrigation, weed control and intercropping. Vegetative and reproductive phases, fruit set and fruiting.</td></tr>
<tr><td>Unit III</td><td colspan="6">Disease Management</td></tr>
<tr><td colspan="7">Techniques for high productivity, Physiological disorders causes and remedies, Pest, diseases and their management, Post-harvest handling.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Classification of fruit species</td></tr>
<tr><td colspan="7">Description, classification and identification of fruit species and varieties with special reference to important fruits grown in India. Botanical description of families, genera and species covering various tropical, sub-tropical and temperate fruits and nuts upto varietal level; Cultivation fruit crops– Pineapple, Grapes and Guva - spacing, irrigation, field disease control.</td></tr>
<tr><td>Unit V</td><td colspan="6">Systematic Pomology and its significance</td></tr>
<tr><td colspan="7">Industrial and export potential, Agri. Export Zones (AEZ) and industrial supports of the following crops Mango, Banana, Papaya, Sapota, Pineapple, Jackfruit, Annonaceous crops, Jamun, Tamarind, Avacado, Passion fruit, Mangosteen, Carambola, Bilimbi.</td></tr>
<tr><td>Text Books</td><td colspan="6">1. Bal, J.S. Fruit Production, Kalyani Pubulishers, New Delhi Bose. 1977.
2. Singh, Amar, Fruit Physiology land Production, Kalyani Publishers, New Delhi.1980.
3. Chattopadhyay, T.K. (ed). A Textbook on Pomology vol. II & III, Kalyani Publishers, Calcutta.1998.</td></tr>
<tr><td>Reference Books</td><td colspan="6">1. Production Technology Of Fruit Crops,Tamil Nadu Agricultural University,2017,
2. Mitra, S.K., Rathore D.S., and Bose, T.K, Temperate fruits, Horticulture and Aallied Publishers, Kolkatta.1991.
3. TS.K.Mitra and D. Sanyal (Ed). Fruits-Tropical and SubTropical, Naya Udyog, Calcutta. 2001.</td></tr>
<tr><td>E-References</td><td colspan="6">1. http://fvzqvwfwtbhuy.servehttp.com/pomology-book-pdf.html
2. http://cbseacademic.nic.in/web_material/publication/cbse/19Pomology-pdf
3. https://agrimoon.com/production-technology-of-fruit-crops-pdf-book/</td></tr>
</table>

<table>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>understand the scope and importance of Indian medicinal system</td><td>K2</td></tr>
<tr><td>CO2</td><td>know the uses of traditional medicinal plants</td><td>K1</td></tr>
<tr><td>CO3</td><td>learn the processing and preparation of Indian drugs</td><td>K2</td></tr>
<tr><td>CO4</td><td>know the value added products obtained from medicinal plants K3</td><td>K1</td></tr>
<tr><td>CO5</td><td>understand the preparation of herbal formulations</td><td>K2</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**					**PSOs**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	M	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	S	S	S	S	M	S	S	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

SEMESTER V

<table>
<tr><td>Course Code</td><td>U21BOT51</td><td rowspan="2">GENETICS AND EVOLUTION</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE -VIII</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To understand the basics of Mendelian genetics
• To learn the genetic recombination and its effects
• To learn the significance of plant genetic recombination
• To comprehend the evolution and equilibrium concepts</td></tr>
<tr><td>Unit I</td><td colspan="6">Mendelian inheritance</td></tr>
<tr><td colspan="7">Laws of dominance, segregation and independent assortment. Monohybrid and Dihybrid Ratios. Incomplete dominance and co-dominance, lethal factor, complementary factor and epistasis (dominant), multiple alleles with reference to ABO blood group in man.</td></tr>
<tr><td>Unit II</td><td colspan="6">Recombination</td></tr>
<tr><td colspan="7">Linkage and crossing over. Mapping of genes on the chromosomes. Cytoplasmic inheritance. Sex linked inheritance and diseases.</td></tr>
<tr><td>Unit III</td><td colspan="6">Sex determination</td></tr>
<tr><td colspan="7">Mechanism of sex determination and sex determination in plants. Chromosomal aberrations; changes in chromosome structure, number, behavior and their genetic effects. Polyploidy and its types.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Gene Transfer & Microbial genetics</td></tr>
<tr><td colspan="7">Structure of Ti plasmid and applications of plant genetic recombination. Human Genome Project. Microbial genetics with reference to bacterial recombination: Transformation, transduction and conjugation.</td></tr>
<tr><td>Unit V</td><td colspan="6">Evolution</td></tr>
<tr><td colspan="7">Introduction, evidences of evolution, Brief account of theories of evolution. Species concept, Speciation; population genetics and Hardy-Weinberg Equilibrium</td></tr>
<tr><td>Text books</td><td colspan="6">1. Fundamentals of Genetics by B.D.Singh - kalyani Publishers .January 2014.
2. Genetics By Veer Bala Rastogi –March 2019 MEDTECK
3. Boston. 3 Pierce, B. A. Genetics: A conceptual approach. 4 th ed. W H Freeman and Company Ltd. 2008.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Verma, P.S. and Agarwal, V.K. Genetics. S.Chand Publications, New Delhi. 2012.
2. Pankaj Kumar. A textbook of Genetics. Lalitha Publishers, India. 2021.
3. Veer Bala Rastogi . Genetics, Medtech Publishers. Delhi. 2019.
4. Gardner, E. J., Simmons, M.J. and D. P. Snustad, Principles of Genetics. Miley India (Pvt.) Ltd. New Delhi. 2018.
5. Hartl, D.L and Jones E. W. Genetic analysis of Genes and Genomes. 2nd ed. Jones and Bartlett Pub, 2017.
6. Neil Ingram, Sylvia Hixson Andrews and Jane still, Evolution, Oxford Biology Primers, Paperback, 2021.</td></tr>
</table>

E-References	1. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loMHQvQUpTNDZXM2pZS1l6bFFuR0tnR0F6TE14RFJFYlNMNFI1c3ZYMMgrMg 2. http://ndl.iitkgp.ac.in/document/cGlkTnFCS2ZRN09ONGxmVjN4QUMyUT09 3. http://ndl.iitkgp.ac.in/document/K2F6YjJpSGxxVMx0MmxoM25GOUJXQzRnY2hqS1p2Mmg4Yi9QL2ZDRzBNaz0 4. https://epgp.inflibnet.ac.in/Home/VieMSubject?catid=4 5. https://teach.genetics.utah.edu/content/dna/tx-tl_teacher-guide.pdf 6. https://global.oup.com/ukhe/disciplines/bioscience/evolution/?cc=in&lang=en&

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	have a thorough understanding on Mendelian genetics and expression of alleles	**K1**
CO2	comprehend the recombination of eukaryotic genome and diseases linked with sex chromosomes	**K2**
CO3	attain knowledge on determination of sex and abnormalities of chromosomes K2	**K2**
CO4	depict and explain plasmids and recombination phenomenon	**K2**
CO5	relate population genetics with process of evolution	**K3**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	S	S	S	S	S	M	S
CO2	S	S	M	S	S	M	S	S	S	S	S	M	S
CO3	S	S	M	S	S	S	M	S	S	S	S	M	S
CO4	S	S	M	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOT52	PLANT PHYSIOLOGY	L	T	P	C
CORE-IX			5	-	-	4

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To learn the plant water absorption process • To obtain basic knowledge on photosynthetic and respiratory process • To study the importance of plant growth hormone, seed germination and fruiting physiological process
Unit I	**Absorption of water and minerals, transpiration**
Types, mechanism of stomatal movement. Factors affecting transpiration. Gas exchange, guttation. Mineral nutrients: Role of macro elements (N, P, K, Mg, Ca) and micro elements (Zn, Mo, B).	
Unit II	**Photosynthesis**
Photosynthetic pigments-red drop phenomena, Emerson's enhancement effect and electron transport system (Cyclic and Non-cyclic) and photophosporylation. Calvin cycle (C_3) and C_4 (Hatch and Slack Pathway) and Crassulacean acid metabolism (CAM).	
Unit III	**Respiration**
Aerobic and anaerobic respiration. Glycolysis, Kreb's cycle, electron transport system, oxidative phosporylation.	
Unit IV	**Nitrogen fixation**
Biological nitrogen fixation; symbiotic and asymbiotic N_2 fixation, symbionts, mechanism of biological N_2 fixation. Plant growth regulators; practical applications, physiological role of auxins, gibberellins, cytokinins, ethylene and abscissic acid.	
Unit V	**Seed dormancy**
Causes and methods to break seed dormancy - Physiology of seed germination. Fruiting- mechanism of fruiting – hormonal control of fruiting – climacteric rise .	
Text books	1. Arunkumar.V. Plant Biochemistry, A.P.H Publisheing, New Delhi,2010. 2. Jain, V.K. Fundamentals of Plant Physiology. S.Chand and co., New Delhi. 2017. ***3.*** S.K.Sinha.A Textbook of Plant Physiology.Centrum Press.2013. 4. S.N.Pandey & B.K.Sinha, Plant Physiology. Vikas Publishing.2010 5. Gill, D.S. Plant Physiology, S.Chand and co., New Delhi. 2000.
Reference books	1. R.K. urray, D.K. Granner and V.M,Rodwell. Harper's Illustrated Biochemistry, 27th Edition. The McGraw-Hill companies, Inc.2009. 2. hilip stewart and Sabine Globig, Plant Physiology, Apple Academic Press.2021. 3. Lambers**,** Hans, Oliveira**,** Rafael S. Plant Physiological Ecology, Springer. 2019. 4. Lincoln Taiz, Eduardo Zeiger , Ian Max Møller, Angus Murphy .Fundamentals of Plant Physiology Paperback. Sinauer Associates Inc. 2018.

E-References	1. http://ndl.iitkgp.ac.in/document/djN4cHJoaFBISzk4NXpiOHZ3ckE4Zz09 2. http://ndl.iitkgp.ac.in/document/djN4cHJoaFBISzk4NXpiOHZ3ckE4Zz09 3. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loVUhyU29EcE5jMMVNMUh1Mm13MXp6MUhHNGpFMjlMK2FJNmdNNlYMS1I1Tg 4. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loMkNPL1RGQjdEVkorcjJaU0dkTkJqU0VYbEJZUnlvRDQxU2EMdVdoSMZpMQ 5. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loVm9lMXVCL1g4MFdpakIrUnQyUmVRZVpiNTRnMnFaUTRBcHl0MkREM1BkZM		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the concepts of water and mineral absorption	**K2**
	CO2	describe the mechanism of photosynthesis	**K3**
	CO3	know the plant respiratory process and energy metabolism for respiration	**K3**
	CO4	find the importance of nitrogen to plant and fixation of nitrogen and role of growth hormone	**K1**
	CO5	get clear understanding of seed germination and fruiting mechanism	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	M	S	S	S	S	M	S
CO3	S	S	M	S	S	M	S	M	S	S	S	M	S
CO4	S	S	M	S	S	S	S	S	S	S	S	M	S
CO5	S	S	M	S	S	M	M	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOT53	PLANT BIOCHEMISTRY	L	T	P	C
CORE X			5	-	-	4

Cognitive Level	K1: Recall K2: Understand
Learning objective	• To understand the basic fundamentals of biochemistry. • To learn about the general properties of carbohydrates, proteins and lipids its role in the living beings. • To understand the major role of nucleic acids in life processes. • To understand the chemistry of biomolecules and its significance

<table>
<tr><td>Unit I</td><td>Chemical Bonds & carbohydrate</td></tr>
<tr><td colspan="2">Basic concepts of atoms and molecules. Isomerism. Primary chemical bonds – covalent bond and hydrogen bond. Acid-base theories, pH, Buffers, oxidation –reduction. Carbohydrates: Classification, structure and properties of monosaccharides, disaccharides, oligosaccharides and polysaccharides.</td></tr>
<tr><td>Unit II</td><td>Amino acids and Proteins</td></tr>
<tr><td colspan="2">classification amino acids, physical properties of amino acids - Solubility, electrochemical properties, fundamental role of proteins in life - Composition of proteins - General properties of proteins - classification of the proteins on the basis of their biological functions- Criteria for the purity of proteins.</td></tr>
<tr><td>Unit III</td><td>Lipids</td></tr>
<tr><td colspan="2">Fatty acids - Classification, Hydroxy and keto derivatives and cyclic fatty acids - physical properties of fatty Acids - solubility, boiling point, absorption, Fats - Fatty acids esters of glycerol - Chemical structures. Physical and chemical properties of fats – Waxes, phospholipids, non-phosphorylated lipids and steroids.</td></tr>
<tr><td>Unit IV</td><td>Nucleic Acids</td></tr>
<tr><td colspan="2">fundamental role of nucleic acids in life processes- DNA and its types, RNA – types, functions. Structure of bases, nucleosides and nucleotides - bond linking the various bases. Isolation, separation and purification of plant DNA</td></tr>
<tr><td>Unit V</td><td>Vitamins</td></tr>
<tr><td colspan="2">Discovery and physico- chemical properties of vitamins, fat-soluble vitamins, vitamin A, D, E and K - Water soluble vitamins, vitamin B complex, vitamin C – Brief mention of source and physiological role.</td></tr>
<tr><td>TextBooks</td><td>1. T. Devasena, Biomolecules by MJP Publishers,2011
2. Arihant, Experts Handbook of Chemistry, Arihant Publications,2020
3. P.K.Gupta , Biomolecules and cell Biology, Rastogi Publication, 2018</td></tr>
<tr><td>References</td><td>1. Lehninger, A.L , Biochemistry, 6th edition, Kalyani publisher, 2012.
2. Lubert Stryer, Biochemistry, 7th edition, W.H. Freeman and Company, New York, 2012
3. J.M. Berg, J.L. Tymoczko and L. Stryer, Biochemistry, W.H. Freeman, 2015
4. Mohan P Arora, Biomolecules, Himalaya publishing House, 2012
5. S. Azhagu Madhavan, P. Vinotha, V. Uma, Chemistry of Biomolecules, Notion Press, 2020</td></tr>
<tr><td>E-References Link</td><td>1.https://www.mdpi.com/journal/biomolecules
2.https://ncert.nic.in/textbook/pdf/lech205.pdf</td></tr>
</table>

	3.https://www2.nau.edu/lrm22/lessons/biomolecules/biomolecules.html 4.https://opentextbc.ca/biology/chapter/2-3-biological-molecules/		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the foundation of life and structure and functions of carbohydrates	K1
	CO2	attain knowledge in structure, properties, role and classification of amino acids and proteins	K2
	CO3	know the structure, properties, role and classification of Lipids and fatty acids	K2
	CO4	learn the types of nucleic acids and its structure and biological importance.	K2
	CO5	gain knowledge on various types , functions, requirements and deficiency diseases of vitamins	K2

Mapping of CO with PO & PSO:

CO	PO								PSO				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	M	S	S	S	M	M	S	S	S	M	S
CO2	S	M	S	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	S	M	S	S	S	S	M	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	S	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks; Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark; No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOT54</td><td rowspan="2">PLANT ANATOMY AND EMBRYOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE XI</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To develop skill to distinguish monocot and dicot plants
• To understand the structure of simple and complex tissues
• To learn the internal organization of different parts of plants
• To know the process of fertilization in plants</td></tr>
<tr><td>Unit I</td><td colspan="6">Simple tissue</td></tr>
<tr><td colspan="7">Structure, occurrence and function of Parenchyma, Collenchyma, Sclerenchyma. Complex tissues; Definition, Structure, Origin and function of Xylem & Phloem, Tracheary elements and Sieve elements.</td></tr>
<tr><td>Unit II</td><td colspan="6">Secretory tissues</td></tr>
<tr><td colspan="7">Glandular trichomes, nectaries, hydathodes, schizogenous and lysigenous cavity, laticifers. Types of Vascular bundles (Conjoint, Collateral, Bi-collateral, Open, Closed, Radial, Concentric, amphicribal and amphivasal.) Stomatal types.</td></tr>
<tr><td>Unit III</td><td colspan="6">Meristems</td></tr>
<tr><td colspan="7">Classification, distribution, structure, function. Meristerm Theories: Tunica – Corpus and Quiescent Centre. Root apex: Histogen theory & Korper-Kappe theory.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Anatomy of stem and Root</td></tr>
<tr><td colspan="7">Primary structure of monocot stem and root. Primary and secondary structure of dicot stem and root. Anomalous secondary growth in dicot stems Boerhavia and Nyctanthes and monocot stem; Dracaena. Structure of Monocot and dicot leaves. Brief account on Nodal anatomy</td></tr>
<tr><td>Unit V</td><td colspan="6">Embryo Anatomy</td></tr>
<tr><td colspan="7">Structure of mature anther and ovule - double fertilization: Embryo: types of embryogenesis in monocot and dicot embryos. Polyembryony. Structure and types of Endosperm</td></tr>
<tr><td>Text books</td><td colspan="6">1. Singh.V.Text Book of Botany: Anatomy and Embryology of Angiosperms .Rastogi Publication.2017.
2. Pandey, B.P. Plant Anatomy. Chand & Co Ltd.2012.
3. Singh,Pande and Jain.Text Book of Botany:Angiosperms, Rajpal and sons Publishing. 2010
4. Vashista, P.C.. A text Book of plant Anatomy, S.Negin & Co.2001.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Dr. K. N. Dhumal, Dr. H. S. Patil , Dr. B. N. Zaware , Dr. B. P. Shinde /,Dr. K. S. Bhosale.A Book of Plant Anatomy & Embryology and Plant Biotechnology. Edition Paperback. Nirali Prakashan.2019.
2. Bhojwani, S..S and Bhatnagar, S.P. The Embryology of Angiosperms,6th Edition Vikas Publishing House Pvt. Ltd., New Delhi. 2015.
3. Vimala singh and Alok Abhisek, ,Plant Embryology and Experimental Biology, Educational Publishers and Distributors 291, Bank Enclave, Laxmi Nagar, Delhi – 2019
4. Esau, K. Plant Anatomy, Miley Eastern Private Limited. New Delhi.2006</td></tr>
</table>

E-References	1. http://ndl.iitkgp.ac.in/document/aFR5ZURTaDRVRjdrSDdvdkhSRkVNbmJtOXNSYlJQNkpIa1dQUXJoR1ZMaz0 2. http://ndl.iitkgp.ac.in/document/ZMsMc3RMeFNtMDhVVk1vV2x1NTkMZjM4RmprYys5cHQrQ3hveDcyOHlRdz0 3. http://ndl.iitkgp.ac.in/document/MHdqSlQ2MDR4UXhKcDNQTXI0akFXdTdlY1ZuMMxER2tkV2VkREg5QTVTQT0 4. http://ndl.iitkgp.ac.in/document/Sm0rdEpQN1Y1YU1UT0pEa3VvdktzY2xIUkM0MmFQVnlhbTQMV2V4Qjd0QT0

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	attain knowledge on different types and functions of simple and complex tissues	**K2**
CO2	understand the arrangement of vascular bundles and types of stomata	**K2**
CO3	describe classification and theories pertaining to meristematic tissues	**K1**
CO4	have clear picture on the internal structure of plant parts like leaf, stem and roots.	**K2**
CO5	explain reproductive structures and fertilization process in flowering plants	**K3**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	M	M	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	S	S	S	M	S
CO3	S	S	M	S	S	M	S	M	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	M	M	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks   Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark   No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOP54</td><td rowspan="2">GENETICS & EVOLUTION,PLANT PHYSIOLOGY, PLANT BIOCHEMISTRY,PLANT ANATOMY AND EMBRYOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-XII</td><td>-</td><td>-</td><td>5</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To acquire the knowledge on mendelian traits and pedigree analysis
• To analysis the qualitative and quantitative analysis of biomolecules
• To understand the transpiration rate and osmotic potential
• To know the methods used for the sectioning and mounting of plant parts
• To differentiate monocot and dicot plants anatomically</td></tr>
<tr><td></td><td colspan="6">Genetics
1. Observation and record of simple mendelian traits
2. Pedigree analysis – chart preparation
3 Problems based on gene frequency – Hardy Weinberg Law

Plant Physiology and Biochemistry
1.Determination of osmotic potential of plant cell sap plasmolytic method
2.Demonstration of transpiration by Ganong's photometer
3.Osmosis by potato osmoscope experiment
4.Preparation of buffers; phosphate and acetate buffer
5. Qualitative test for Carbohydrates
6.Qualitative test for lipids
7.Qualitative test for amino acids and protein
8.Separation of amino acids and sugars by thin layer chromatography or paper chromatography

Plant Anatomy and Embryology
1.Study of simple tissues-Parenchyma, chlorenchyma, collenchyma and sclerenchyma
2. Internal structure of Dicot stem, Dicot root, Monocot Stem and Monocot root.
3. Anomalous secondary structures in Boerhaavia and Nyctanthes
4. Demonstration of pollen viability test
5. Structure of Anther and Ovule
6. Structure of dicot embryo</td></tr>
<tr><td>Text books</td><td colspan="6">1. Singh, R. J. Plant Cytogenetics. CRC press, US. 2016.
2. Jackson, S. A., Kianian, S. F., Hossain, K. G., and Walling, J. G. Practical laboratory exercises for plant molecular cytogenetics. In Plant Cytogenetics (pp. 323-333). Springer, New York, NY. 2012.
3. Maheswari, P. An introduction to the Embryology of Angiosperms. TATA McGraw-Hill Publishing Co., Ltd., New Delhi.1976
4. PatkiL.R,Bhalchandra B.L, JeevajiI.H. An introduction to Micro technique,S.Chand.1987.
5. Johansen, D.A. Plant Microtechnique, TATA McGraw Hill Book Co., Ins., New delhi.1998.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Bharadwaj, D. N. Breeding of field crops (pp. 1-23). Agrobios (India). 2012. Bala, M., Gupta, S., Gupta, N. K., and Sangha, M. K. Practicals in plant physiology and biochemistry. Scientific Publishers (India). 2013.</td></tr>
</table>

<table>
<tr><td rowspan="1">E-References</td><td colspan="3">1. https://epgp.inflibnet.ac.in/Home/VieMSubject?catid=4
2. http://ndl.iitkgp.ac.in/document/djN4cHJoaFBISzk4NXpiOHZ3ckE4Zz09
3. http://ndl.iitkgp.ac.in/document/Sm0rdEpQN1Y1YU1UT0pEa3VvdktzY2xIUkM0MmFQVnlhbTQMV2V4Qjd0QT0
4. https://WWW.researchgate.net/publication/309118583_Techniques_in_Anatomy_Cytology_and_Histochemistry_of_Plants#fullTextFileContent</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>explain the pedigree analysis</td><td>K3</td></tr>
<tr><td>CO2</td><td>understand the osmotic potential of plant cell</td><td>K2</td></tr>
<tr><td>CO3</td><td>perform qualitative and quantitative analysis of biomolecules, separate biochemical compounds by using chromatographic technique</td><td>K3</td></tr>
<tr><td>CO4</td><td>practice sectioning and analyse internal part of dicot and monocot</td><td>K3</td></tr>
<tr><td>CO5</td><td>learn to handle microscope ,micrometry and identify dicot and monocot embryo</td><td>K1</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	M	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	M	S	S	S	S	S
CO3	S	S	M	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	S	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOE531</td><td rowspan="2" colspan="2">ETHNO BOTANY AND ETHNOPHARMACOGNOSY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE- III</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="7">• To attain knowledge about ethnobotany and its significance
• To understand the concept of traditional medicinal practices by Indian tribals
• To know the value of ethnopharmacognosy
• To apply the methods to transform ethnobotanical knowledge for the preparation of value added products</td></tr>
<tr><td>Unit I</td><td colspan="7">Ethnobotany</td></tr>
<tr><td colspan="8">Concept, scope and importance of ethno botany - sub-disciplines, inter- disciplines of ethnobotany, approaches in ethnobotanical studies.</td></tr>
<tr><td>Unit II</td><td colspan="7">Ethnobotany and conservation of plants</td></tr>
<tr><td colspan="8">with special reference to India –conservation of selected plant species: sacred groves, forestry and unique ecosystems and their ethnobiolgical values.</td></tr>
<tr><td>Unit III</td><td colspan="7">Tribes</td></tr>
<tr><td colspan="8">Major tribes of South India and their ethnobotanical and ethno-biological heritage – Parayar, Kurichiar, Paniyar, Karuman, Naikas, Shola Naikas, Thodas, Kothas, Kurumbas, Irullas, Kattu Naikas.</td></tr>
<tr><td>Unit IV</td><td colspan="7">Tribal medicinal plants</td></tr>
<tr><td colspan="8">Plants used by tribals of Nilgiris, plants used by tribals of Kerala and Eastern Himalayas. Economic potential of NTFPs, Gender role in harvesting NTFPs, Good sustainable harvesting practice of some selected NTFPs.</td></tr>
<tr><td>Unit V</td><td colspan="7">Ethnopharmacognosy</td></tr>
<tr><td colspan="8">Scope and importance of ethnopharmacognosy - Natural Plant Products – values of natural plant products – History of natural drugs. Plant with anti -tumor potential – Plant with anti- HIV potential – Plants with anti- inflammatory activity – Plants with anti- diabetic activity.</td></tr>
<tr><td>Text books</td><td colspan="7">1. Gokhale, S.B., Kokate, C.K. and Gokhale, A. Pharmacognosy of Traditional Drugs. 1st ed. Nirali Prakashan, Pune. 2016.
2. Gringauz. Introduction to Medicinal Chemistry: How Drugs Act & Why? Wiley India Pvt Ltd., Noida. 2012
3. Joshi, S.G. Medicinal Plants. Oxford & IBH Publishing C., Pvt., Ltd.,
4. New Delhi. 2018.</td></tr>
<tr><td>Reference books</td><td colspan="7">1. Kumar, N. A Textbook of Pharmacognosy. Aitbs Publishers, India. 2018.
2. Premendra Singh Medicinal Plants: Conservation, Cultivation and Utilization. Daya Publishing House New Delhi.2013.</td></tr>
<tr><td><u>E-References</u></td><td colspan="7">1. https://www.researchgate.net/publication/310772096_Ethnobotany_Ethnopharmacology_Bioprospectingand_Patenting
2. https://www.eolss.net/sample-chapters/C06/E6-151-02.pdf</td></tr>
<tr><td rowspan="3">Course outcome</td><td colspan="7">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td colspan="3">Course Outcomes</td><td colspan="3">Knowledge Level</td></tr>
<tr><td>CO1</td><td colspan="3">comprehend the concept of ethnobotany and its related research</td><td colspan="3">K2</td></tr>
</table>

	CO2	understand the concept and importance of sacred groves	**K2**
	CO3	know about different tribes in south India	**K1**
	CO4	describe the plants which used as traditionally for various treatments	**K2**
	CO5	know the plants with different pharamacological activities	**K1**

Mapping of COs with POs & PSOs:

CO	POs					PSOs				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	M
CO5	S	S	S	S	S	S	S	S	S	S

Strongly Correlating (S) - 3 marks   Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark   No Correlation (N) - 0 mark

Course Code	U21BOE532	BIOFERTILIZER AND WASTE MANAGEMENT	L	T	P	C
ELECTIVE –III			3	-	-	3

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To learn mass cultivation of biofertilizers • To study the production of various manures • To understand and practice solid waste management
Unit I	**Biofertilizers**
Introduction, Scope, Advantages and limitations. Types of Biofertilizers; Based on nutrients and microbes. Mechanism of Symbiotic and Non- Symbiotic (Free living) nitrogen fixation. Root nodule formation	
Unit II	**Production**
Mass production of cyanobacterial biofertilizers *Nostoc* and *Anabaena*, bacterial biofertilizers- *Azotobacter, Azospirillum, Rhizobium* and *Pseudomonas* and duck weed fern (*Azolla*).	
Unit III	**Manures**
Composts, farmyard manure, oil seed cakes (Castor and Neem), green leaf manures, vermicompost and agro-industrial wastes	
Unit IV	**Municipal solid waste**
Sources and types of solid wastes, composition and its determinants. Factors influencing its generation	
Unit V	**Disposal of solid wastes**
refuse disposal –methods of refuse disposal. Sanitary landfills- methods of operation – advantages and disadvantages of sanitary landfills	
Text books	1. Abdin M.K., Kiran U. Kamaluddin & Ali, A. Plant Biotechnology: Principles and Applications. Springer. 2017. 2. Krohne D. T. Ecology: Evolution, Application, Integration. Oxford Univ. Press. 2017. 3. Poul V.I. Biodiversity: Issues, Impact, Remediations and Significance 1st Edition. V L Media Solutions. 2013.
Reference books	**1.** Krishnendu Acharya, Surjit Sen, Manjula Rai, Biofertilizers and Biopesticides, Technoworld Publishers, Kolkatta.2019. 2. Khosla, R. Biofertilizers and Biocontrol Agents for Organic Farming, Kojo Press, Delhi.2017 **3.** Panda. H., Manufacture of Biofertilizer and Organic Farming, Published by National Institute of Industrial Research.2011. 4. Subba Rao, N.S., Soil Microbiology. Medtech Publishers, Delhi.2017.
E-References	1. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loU1NPaEl6eMpVaXpnNGUMc21iQzZKbMlHL2Fxc1hFSUpPdGJVaVpXMVJ6T0pGTjNuU1NBZjdId08vQnZ1eThMQ3c9PQ 2. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loZDl5a

	M1MOM5LNlVrNittT3pLY0pSMMZyZmU1Q0MyNMdPdDdsS3RvcGF3L M		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand microbial nitrogen fixing process for different types of microbial biofertilizers	**K1**
	CO2	know the mass production of biofertilizers	**K2**
	CO3	understand the production of manures and composts	**K2**
	CO4	describe the composition and recycling of municipal solid Waste	**K3**
	CO5	have idea about disposal of solid wastes and sanitary landfills	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	S	S	S	S	S	S
CO3	S	S	S	S	S	M	S	M	S	S	S	S	S
CO4	S	S	M	S	S	S	S	S	S	S	S	M	S
CO5	S	S	M	S	S	M	S	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOS531	ORGANIC FARMING	L	T	P	C
SBE - III			2	-	-	2
Cognitive Level	K1: Recall K2: Understand K5: Analyze					
Learning objective	• To understand the concept of organic farming • To learn the organic farming techniques and apply to become potential entrepreneur • To create healthy people and healthy environment through organic food production					
Unit I	**Types of Farming (Advantage & disadvantage of each system)**					
Pure Organic Farming – Definition, Concept & Benefits Integrated Farming system (Combination of Organic and Inorganic) ,Mixed Farming, Advantages and disadvantages of Chemical fertilizer and pesticides.						
Unit II	**Organic Farming**					
Introduction and Status, Organic Farming and its Components,Organic Farming Concepts and Principles,SWOT Analysis of Organic Farming, Developing organic farms, Important steps & methods						
Unit III	**Sustainable Agriculture**					
Key Indicators of Sustainable Agriculture,Organic Farming and Climate Change, Principles of Compost Production , Vermicompost Production Technology, Enriched Vermicompost Production Technology,Vermicompost Quality and Marketing,Green Manure:Mulches.						
Unit IV	**Pest and Disease Management**					
Pest and Disease Management in Organic Farming, level "C" Pest and Disease Management.Introduction to Organic Crop Management, Organic Vegetable Crop Management,Organic Vegetable Crop Management (Cereals)						
Unit V	**Organic Food and Human Health**					
Quality of Organic Food, Natural Sources of Antioxidants for Health Defense , Antioxidant Capacity of fruits and vegetablesOrganic Standard, Organic Certification Process , Operational Structure of Organic Certification, Marketing of Organic Products						
Reference books	1. Lampkin, N. Organic Farming. Farming Press, Ipswich (ISBN 0 85236 191-1990 2. Lampkin, N & Measures, M .2004 Organic Farm Management Handbook. Organic Farming Research Unit, Aberystwyth (ISSN 1354 3768) & Organic Advisory Service, Berkshire (ISBN 1 872 064 388) .2004. 3. Younie, D & Wilkinson, J. M (eds) Organic Livestock Farming. Chalcombe Publications, Lincoln (ISBN 0 948617 45 .2001. 4. Younie, D., Taylor, B. R., Welsh, J. P & Wilkinson, J. M (eds) Organic Cereals and Pulses. Chalcombe Publications, Lincoln.2002.					
E-References	1. https://drive.google.com/file/d/1vKgc32uFghQ1TUJ7OAZZo3xtJzEI2rbB/view 2. https://ecofriend.org/7-best-books-on-organic-farming-and-gardening/					

	3. http://www.efrc.com/education_main.htm Henry Doubleday Research Association (HDRA) http://www.hdra.org.uk International Federation of Organic Agriculture Movements (IFOAM)		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	understand the disadvantages of chemical pesticides and fertilizers	**K2**
	CO2	practice organic farming methods	**K1**
	CO3	comprehend the sustainable agriculture	**K2**
	CO4	learn the pest management techniques	**K5**
	CO5	know the importance of organic food and marketing	**K2**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	M	S	S	S	S	S
CO3	S	S	M	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	S	M	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOS532</td><td rowspan="2" colspan="2">FOOD PROCESSING AND PRESERVATION</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SBE - III</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="7">• To understand the general principles of preservation
• To know the principles of food freezing
• To comprehend the processing of food and its importance
• To learn the large-scale food processing technology</td></tr>
<tr><td>Unit I</td><td colspan="7">Food preservation</td></tr>
<tr><td colspan="8">Introduction- principles of preservation - classification of methods used for preservation - need and importance of preservation at domestic and large scale - Causes of food spoilage.</td></tr>
<tr><td>Unit II</td><td colspan="7">Food spoilage mechanism</td></tr>
<tr><td colspan="8">Microbial contamination; Bacteria, fungi – Control of microbial contamination - Chemical deterioration – Enzymatic reactions – preservation – Refrigeration – Freezing – The freezing process – Industrial freezers – Quality of frozen foods – Thermal processing – Canning; Presterilization procedures, Sterilization, Quality of canned food</td></tr>
<tr><td>Unit III</td><td colspan="7">Food preservatives</td></tr>
<tr><td colspan="8">Blanching – Controlling water activity – Dehydration – Fermentation and pickling –– Chemical preservation: Organic chemical preservatives, inorganic chemical preservatives – Food irradiation – Biological effects of irradiation;</td></tr>
<tr><td>Unit IV</td><td colspan="7">Methods of food handling and storage</td></tr>
<tr><td colspan="8">Nature of harvested crop, plant and animal; storage of raw materials and products using low temperature, freezing of raw and processed foods</td></tr>
<tr><td>Unit V</td><td colspan="7">Large-scale food processing</td></tr>
<tr><td colspan="8">Milling of grains and pulses; edible oil extraction; Pasteurisation of milk and yoghurt; canning and bottling of foods; drying – Traditional and modern methods of drying, dehydration of fruits</td></tr>
<tr><td>Text books</td><td colspan="7">1. Subbulakshmi, G., and Shobha A. Udipi “Food Processing and Preservation”.New Age Publications. 2006.
2. HUi, Y.H. “Handbook of Vegetable Preservation and Processing”. Marcel Dekker. 2003.
3. Karnal, Marcus and D.B. Lund “Physical Principles of Food Preservation”. Rutledge.2003.</td></tr>
<tr><td>References Books</td><td colspan="7">1. Gould, G.W. “New Methods in Food Preservation”. Springer,1995.
2. VanGarde, S.J. and Woodburn. M “Food Preservation and Safety Principles and Practice”. Surbhi Publications, 2001.
3. Sivasankar, B. “Food Processing & Preservation”, Prentice Hall of India, 2002.
4. Khetarpaul, Neelam, “Food Processing and Preservation”, Daya Publications, 2005.</td></tr>
<tr><td>E-Reference links</td><td colspan="7">1. http://www.cold.org.gr/library/downloads/Docs/Handbook%20of%20Food%20Preservation.PDF
2. https://www.researchgate.net/publication/270099729_Handbook_of_Food</td></tr>
</table>

	_Preservation/link/549fe1990cf257a635fe8afe/download		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	learn the need and importance of preservation	**K1,K2**
	CO2	understand various microbial contamination in food	**K2**
	CO3	learn the deterioration of fermented and pickled food products	**K1**
	CO4	use the methods of food handling and storage	**K3**
	CO5	understand the pasteurisation of milk and yoghurt	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	S	S	S	M	S	M	S	S	S	S	S	S
CO2	M	M	S	M	S	M	S	S	S	S	S	M	S
CO3	S	S	M	S	S	M	S	M	S	S	M	S	S
CO4	S	M	S	S	M	S	S	S	S	S	S	S	M
CO5	M	S	M	M	S	M	M	M	S	M	M	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

SEMESTER VI

<table>
<tr><td>Course Code</td><td>U21BOT61</td><td rowspan="2">BASICS OF PLANT BIOTECHNOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE - XIII</td><td>4</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To know the scope and techniques of Plant Biotechnology
• To learn the role of important plant hormones
• To acquire a basic knowledge on Plant tissue culture</td></tr>
<tr><td>Unit I</td><td colspan="6">Plant genome organization</td></tr>
<tr><td colspan="7">Structure of representative plant genes and gene families in plant – Organization of Chloroplast genome and Mitochondrial genome.</td></tr>
<tr><td>Unit II</td><td colspan="6">Molecular biology and gene rearrangement</td></tr>
<tr><td colspan="7">Mechanism of T-DNA transfer to plant – Ti plasmid vectors and its utility – plant viral vectors</td></tr>
<tr><td>Unit III</td><td colspan="6">Genetic engineering of plants</td></tr>
<tr><td colspan="7">Construction of genome libraries and cDNA libraries. Molecular breeding – recombinant DNA – Transgenic plant and applications</td></tr>
<tr><td>Unit IV</td><td colspan="6">Plant hormones</td></tr>
<tr><td colspan="7">Auxin, IAA, GA, Cytokinins and Abscissic acid (ABA) - molecular basis of action – Phytochrome – role in photo – morphogenesis – regulation of gene expression – stress induced promoter switches in the control of gene expression. Ethylene and fruit ripening</td></tr>
<tr><td>Unit V</td><td colspan="6">Plant tissue culture</td></tr>
<tr><td colspan="7">Cells suspension cultures– haploid plants – cloning of hosts – micro propagation – somatic embryogenesis – protoplast isolation and applications</td></tr>
<tr><td>Text books</td><td colspan="6">1. Chawla, H.S.. Introduction to Plant Biotechnology. Oxford and IBH Publications, Delhi.2020
2. Satyanarayana, U. Biotechnology. Books and Allied Ltd. Kolkata.2020.
3. Singh, B.D. Biotechnology: Expanding Horizons, Kalyani Publishers, Delhi.2015.
4. Slater, Plant Biotechnology: Genetic Manipulation of Plants. Oxford Pub. Delhi.2008.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Kojima, Lee, H. and Kun, Y. Photosynthetic microorganisms in Environmental Biotechnology. Springer – Verlag. 2001
2. Trivedi, P.C. Applied Biotechnology and plant genetics, Dominant publishers and distribution. 2000.
3. Ignacimuthu. Applied plant Biotechnology. Tata McGraw – Hill. 1996.
4. Grierson and Convey, S.N. Plant molecular Biology. Backie. 1988.</td></tr>
<tr><td><u>E-References</u></td><td colspan="6">1. http://ndl.iitkgp.ac.in/document/Rm5qb3lqRngwWDZ2Tnl6UXl4VU9YSWo3RFBPdTVoNlFQR3BIQ2Y0cHl4OC96NGJyc2E0MFJQLzVQVjAvNWRocTNQNG9JMWFBNFUvZTY2WjROUmFVQUE9PQ
2. https://nptel.ac.in/content/storage2/courses/102103045/download/mod1.pdf</td></tr>
<tr><td rowspan="3">Course outcome</td><td colspan="6">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td colspan="3">Course Outcomes</td><td colspan="2">Knowledge Level</td></tr>
<tr><td>CO1</td><td colspan="3">understand the organization of plant genome and important genes</td><td colspan="2">K2</td></tr>
</table>

	CO2	describe the process of T-DNA transfer and role of vectors in gene transfer	**K3**
	CO3	understand the construction of genome libraries and molecular breeding	**K2**
	CO4	know the molecular basis of plant growth hormones and phytochromes	**K1**
	CO5	know the procedure for the basic tissue culture techniques	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**					**PSOs**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOT62	ENVIRONMENTAL BIOLOGY AND PHYTOGEOGRAPHY	L	T	P	C
CORE - XIV			5	-	-	4
Cognitive Level	K1: Recall K2: Understand K3: Apply					
Learning objective	• To understand the basic components of ecosystem • To attain knowledge on different kinds of producers and consumers • To learn the importance of ecosystems and vegetation. • To understand and get awareness on causes and effects of pollution					
Unit I	**Ecology**					
definition, introduction and scope. Brief account on autecology and synecology. Biotic and abiotic factors. Positive and negative interactions of biotic factors						
Unit II	**Ecosystem Concept**					
structure and function of ecosystem. Biomass. Ecological pyramids. Productivity: primary, secondary and gross. Food chain, food web and energy flow. Structure and functions of pond ecosystem						
Unit III	**Vegetation**					
Development of vegetation. Plant succession: hydrosere and xerosere. Ecological classification of plants; hydrophytes, xerophytes, mesophytes and halophytes						
Unit IV	**Pollution**					
Types of pollutants. Causes, effect and control of atmospheric, soil, industrial and agricultural pollution						
Unit V	**Phytogeography**					
Vegetational types of Tamilnadu: Evergreen, deciduous, scrub and mangrove forests. Phytogeographical regions of India						
Text books	1. Dr. Namita Joshi , Dr. P. C. Joshi , A Text Book Of Ecology And Environment Paperback .Himalaya Publishing House.2011. 2. Sharma, P.D,Ecology and Environment (BC-69) Paperback-i, Rastogi Publications.2019.					
Reference books	1. Eugene Odum, Fundamentals of Ecology. Cengage Learning India Private Limited, Delhi.2018. 2. Keddy, P.A. Plant Ecology: Origins, processes, consequences. 2nd ed. Cambridge University Press. ISBN. 978-1107114234.2017. 3. Brian, K.H. and Benedict, H.. Evolution. 5th ed. Jones & Bartlett Publishers. 2014 4. Shukla, R.S and Chande I.P.S Plant Ecology and Soli Science, S. Chand & Co Ltd.,2005. 5. Sharama, J.P. Environmental Studies, Laxmi Publications (P) Ltd. New Delhi.2004.					
E-References	1. https://epgp.inflibnet.ac.in/Home/VieMSubject?catid=4 2. https://WWW.researchgate.net/publication/325780661_FUNDAMENTALS_OF_ECOLOGY_AND_ENVIRONMENT 3. http://Miienvis.nic.in/MriteReadData/Publication/19_Grassland%20Habitat_2016.pdf					

<table>
<tr><td></td><td colspan="3">4. https://cdn.cseindia.org/attachments/0.81111800_1563776216_Brochure-Zanzibar-decentralised-pilot-project-report.pdf</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>acquire knowledge on ecology and its components.</td><td>K2</td></tr>
<tr><td>CO2</td><td>describe the concepts of ecosystem and dependence of organisms in energy flow</td><td>K3</td></tr>
<tr><td>CO3</td><td>have clear understanding on formation of vegetation</td><td>K2</td></tr>
<tr><td>CO4</td><td>understand the causes and control of various types of pollution</td><td>K2</td></tr>
<tr><td>CO5</td><td>become aware of vegetational types of Tamilnadu and geographical zones of India</td><td>K1</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	M	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	M	S	S	S	M	S
CO3	S	S	M	S	S	S	M	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	S	S	S	S	M	S
CO5	S	S	M	S	S	M	S	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOT63</td><td rowspan="2">FUNDAMENTALS OF MICROBIOLOGY AND PLANT PATHOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">CORE-XV</td><td>5</td><td>-</td><td>-</td><td>4</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To enrich the knowledge on Microorganisms
• To learn different types of bacteria and fungi and their nature
• To understand the processing of milk and dairy products.
• To know fermentation processes and industrial products of commercial importance</td></tr>
<tr><td>Unit I</td><td colspan="6">Bacteria</td></tr>
<tr><td colspan="7">Morphology, different shapes and arrangement, ultra structure. Reproduction of bacteria: Sexual reproduction - conjugation, asexual methods of reproduction. Types of nutrition in bacteria. Viruses – general morphology and ultra structure</td></tr>
<tr><td>Unit II</td><td colspan="6">Fungi</td></tr>
<tr><td colspan="7">life cycle of typical fungi, identification. Rhizospere organisms- mycorrhiza- types and its advantages, VAM fungi. Edible and Ppoisonous mushrooms. Fungal toxins</td></tr>
<tr><td>Unit III</td><td colspan="6">Food Microbiology:</td></tr>
<tr><td colspan="7">Physical and chemical composition of milk. Pasteurization. Dairy products. Manufacture of cheese. Microbial flora of fruit and vegetables</td></tr>
<tr><td>Unit IV</td><td colspan="6">Industrial microbiology</td></tr>
<tr><td colspan="7">Fermentation technology; structure of bioreactor, aerobic and anaerobic fermentation. Production of ethanol, penicillin, vitamin B12 and industrial enzymes – cellulose and lipase</td></tr>
<tr><td>Unit V</td><td colspan="6">Plant Pathology</td></tr>
<tr><td colspan="7">Bacterial diseases: Paddy blast and citrus canker. Fungal diseases: Tikka disease of ground nut and red rot of sugarcane. Viral diseases (bunchy top of banana). Diseases control methods (physical, chemical and biological)</td></tr>
<tr><td>Text books</td><td colspan="6">1. Tortora, G.J., Funke, B.R. & Case, C.L. Microbiology an Introduction. 13th Edition. Pearson Education, Inc. 2019.
2. Cowan, M.K. & Smith H. Microbiology: A Systems Approach. 5th Edition. Mc Graw Hill Edn. 2018.
3. Bauman, R. W. Microbiology: with diseases by body system 4th Edn. Pearson Education, Inc. 2015.
4. Stanbury, P.F., Whitaker, A. & Hall, S.J. Principles of Fermentation Technology, Butterworth-Heinemann publications. 2016.
5. Singh R.S. Introduction to Principles of Plant Pathology. 5th Edition. Medtech Publisher. 2017.
6. Dube H.C. Modern Plant Pathology.3rd Edition, Agribios, New Delhi. 2014.
7. Sharma, P. D, Plant Pathology. Rastogi Publishers New Delhi.2013.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. Talaro, K. P. & Chess, B. Foundations in microbiology. 10th Edition. Pearson Education, Inc. 2018.
2. Pommerville, J. C. Alcamo’s Fundamentals of Microbiology, 11th Edition. Jones & Bartlett Learning. 2017.
3. Madigan M. T., Bender K.S., Buckley D.H., Sattley W.M., & Stahl D.A. Brock Biology of Microorganisms. Pearson Education, Inc. 2017.
4. Mehrotra R.S. Plant Pathology. 3rd Edition. McGraw Hill Education.2017.</td></tr>
</table>

E-References	1. https://nptel.ac.in/courses/102/103/102103015/ 2. https://nptel.ac.in/content/storage2/courses/102103013/pdf/mod7.pdf 3. https://WWW.researchgate.net/publication/340660994_Plant_Pathology_at_a_Glance 4. https://WWW.moscmm.org/pdf/Ananthanarayan%20microbio.pdf		
Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	have a better knowledge on structure, shapes and reproduction of bacteria and virus	**K1**
	CO2	identify and describe fungi and have knowledge on edible and poisonous mushrooms	**K2**
	CO3	know the production of dairy products and diversity of microorganisms in food products	**K2**
	CO4	understand fermentation technology and production of industrial products using microbes	**K2**
	CO5	describe causes and control measures for important plant diseases	**K3**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	M	S	S	S	M	S
CO2	S	S	S	S	S	M	S	S	S	S	S	S	S
CO3	S	S	S	S	S	S	M	M	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	M	S	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOT64	BIOSTATISTICS, BIOINSTRUMENTATION AND BIOPHYSICS	L	T	P	C
CORE-XVI			4	-	-	4

Cognitive Level	K2: Understand K3: Apply
Learning objective	• To know basic statistical analysis • To perform preparation table and graphs which are helpful in research studies • To know the principles and application of Instruments used in the field of Biology • To understand the concepts of Photobiology
Unit I	**Data collection & Graphical Representation**
Data collection, sampling, classification, tabulation and graphical representation. Significance of figures. Frequency distribution: Measures of central tendency, mean, median, mode, standard deviation and variance.	
Unit II	**Correlation and Regression**
Explanation, types of correlation – Positive and negative correlation. Methods of studying Correlation using Karl Pearson's Coefficient of Correlation. Chi-square test and student's T-test.	
Unit III	**Microscope & Centrifuge**
Principle and application of light, phase contrast, fluorescence, scanning and transmission electron microscopy, cytophotometry and flow cytometry. pH and buffers. Centrifugation: Basic principles and application of differential, density and ultracentrifugation.	
Unit IV	**Colorimetry**
Parts and functions of colorimeter. Beer Lambert's Law. Spectroscopy: UV-visible, spectroscopy. Principle, methodology and applications of thin layer chromatography and HPLC. Electrophoresis: Principle and applications of Native, SDS and agarose.	
Unit V	**Photobiology**
Electromagnetic spectrum, lLight emission, fluorescence, phosphorescence and bioluminescence. Bioenergetics - Laws of thermodynamics– High energy compounds– ATP bioenergetics.	
Text books	1. Chap T.Le. Eberly, L.E. Introductory Biostatistics, 2nd Edition, Wiley and Sons, Hoboken. 2016. 2. Veer Bala Rastogi, Biostatistics. 3rd edition. Medtech. 2015. 3. Biju Dharmapalan. Scientific Research Methodology. Narosa Publising House, New Delhi.2012. 4. Norman Bailey, T. J. Statistical methods in Biology. Cambridge University Press. 2012.
Reference books	1. Antonisamy B, Prasanna S. Premkumar, Principles and Practices of Biostatistics, Elsevier India.2017. 2. Hanmanth Rao, P and K. Janardhan, Fundamentas of Biostatistics. DreamTech Press, Chennai 2019. 3. Veerakumari, L. Bioinstrumentation, MJP Publisher, Chennai.2011. 4. Upadhyay, A., Upadhyay, K. & Nath, N. Biophysical Chemistry –Principles and techniques. Himalaya Publishing House. 2017. 5. Yeung, E. C. T., Stasolla, C., Sumner, M.J., Huang, B.Q. Plant Microtechniques and Protocols, Springer. 2015.

	6. Wilson, K. & Walker, J. Principles and Techniques of Biochemistry and Molecular Biology (Seventh Edition). Cambridge University Press, Yow York.2010.
E-References	1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3469943/ 2. https://nptel.ac.in/content/storage2/courses/102103044/pdf/mod2.pdf 3. http://Meb.mit.edu/5.33/WWW/lec/spec1.pdf

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	perform basic statistical calculations and representation of data in the form of table and figures	**K3**
CO2	understand and do correlation and regression analysis	**K2**
CO3	know the principles and applications of different types of microscopes and centrifuges	**K2**
CO4	learn the components and procedure for the operation of spectroscopy, TLC, HPLC and SDS	**K2**
CO5	understand the electromagnetic spectrum and thermodynamic principles	**K2**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	S	S	S	S	S	M	S	S	S	S	S
CO3	S	S	M	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	S	M	S	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

Course Code	U21BOP65	PRACTICAL -PLANT BIOTECHNOLOGY, ENVIRONMENTAL BIOLOGY,MICROBIOLOGY AND PLANT PATHOLOGY	L	T	P	C
CORE- XVII			-	-	5	4

Cognitive Level	K2: Understand K3: Apply
Learning objective	• To perform and understand procedure for plant tissue culture • To learn Staining of Bacteria • To understand different types vegetation • To find out important plant diseases
	1. Demonstrate the procedure for plant tissue culture 2. Demonstration of sterilization technique 3. Spotters related to Plant Ecology and Phytogeography Theory Paper 4. Gram's staining experiment 5. Plant Pathology – Citrus Canker, Red rot of Sugarcane, Paddy blast and Bunchy top of Banana 6. Spotters related to Microbiology and Plant Pathology 7. Preparation and submission of record note
Text books	1. L.M. Prescott, J.P. Harley and D.A. Klein, Mc Graw Hill, Boston. Microbiology Sixth edition.2005. 2. A.A. Salyers and B.D.Whitt. Microbiology – Diversity, Disease and the Environment, Fitzerald Scientific Press, Maryland.2001.
Reference books	1. Rangaswamy, G. Diseases of Crop Plants in India. Prentice Hall of India Pvt.Ltd.1972. 2. Manju Bala, Sunita Gupta and N.K. Gupta. Practicals in Plant Physiology and Biochemistry, Scientific Publishers, Delhi.2012
E-References	1. https://www.researchgate.net/publication/306018042_Microbiology_Laboratory_Manual 2. https://microbiologyonline.org/file/7926d7789d8a2f7b2075109f68c3175e.pdf 3. http://ndl.iitkgp.ac.in/document/Qkh4R2FGUkRNZjFicFUvMmpzQ2loUjc4dmd5U2dETTcrUno5d2wxwitxblN0MEt5NlNVYVpBUk8vcjNZQVlpMg 4. https://ncert.nic.in/textbook/pdf/ievs101.pdf

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	gain knowledge on mass multiplication of tissues	**K2**
CO2	handle instruments used for sterilization	**K2**
CO3	illustrate the methods used for vegetation analysis	**K2**
CO4	differentiate gram positive and negative bacteria using staining techniques	**K3**
CO5	identify the plant diseases and pathogens	**K3**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	2	3	4	5	6	7	8	1	2	3	4	5
CO1	S	S	M	S	S	S	S	M	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	S	S	S	M	S
CO3	S	S	M	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	S	S	S	S	S	M	S	S	S	S	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOE641</td><td rowspan="2" colspan="2">FORESTRY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE IV</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="7">K1:Recall K2:Understand K3:Apply</td></tr>
<tr><td>Learning objective</td><td colspan="7">• To know about Silviculture in forest
• To understand the technique of measuring the trees by using various parameters
• To comprehend the forest management system
• To understand the importance of trees and ecological balance
• To obtain the knowledge about economic values of timbers in forest.</td></tr>
<tr><td>UNIT – I</td><td colspan="7">Regeneration of forest</td></tr>
<tr><td colspan="8">Factors influencing vegetation- Regeneration of forest, methods of propagation, Grafting, nursery and Planting techniques – clear felling coppice and conversion systems – Silviculture management in India</td></tr>
<tr><td>UNIT – II</td><td colspan="7">Survey of forest trees</td></tr>
<tr><td colspan="8">Methods of measuring diameter, girth, height and volume of trees form factors volume of estimation of stand annual increment, methods of forest survey - sampling methods and sample plots.</td></tr>
<tr><td>UNIT – III</td><td colspan="7">Forest managements in India</td></tr>
<tr><td colspan="8">Sampling method and sample plot. Forest survey - map reading management of forest plantations - commercial forests - forest cover monitoring.</td></tr>
<tr><td>UNIT – IV</td><td colspan="7">Agro forestry</td></tr>
<tr><td colspan="8">Scope and necessity, social / urban forestry. Tribal participation in forest management Soil conservation- causes of erosion. Water shed management and environmental function of forests.</td></tr>
<tr><td>UNIT –V</td><td colspan="7">Harvesting Practices</td></tr>
<tr><td colspan="8">Logging and Extraction, non timber forest products - wood seasoning and preservation. Anatomical structure of wood - Defects and abnormalities, Timber identification. .</td></tr>
<tr><td>Text Books</td><td colspan="7">1. Tiwari KM and Singh RV.social forestry plantations. Oxford and IBH Publishing Co., New Delhi. 1980.
2. Stebbin EP A.Manual of Elementary Forest Zoology for India International Books Distributions Dehra Dun. 1977.</td></tr>
</table>

Reference Books	1. Puri GS. Meher VM Gupta RK and Puri S. Forest ecology Oxford and IBH Publishing Co., New York. 1981. 2. Sukachev V and Dlis N.Fundamentals of forest Biocenology, Oliver and Boyd Edinburgh. 1964. 3. Warning RH and schesinger WH. forest Ecosystems: concepts and Management Academic Press New York. 1985.		
E-References	1. https://www.scientificpub.com/upload/pdf/486.pdf 2. http://drive.oiipdf.com/dl.php?f=487fb0d4-e754-469d-8b45-4b9929d8d58e.pdf&n=Ministry+of+Agriculture+and+Forestry:+Management+of+Biosecurity+Risks		
Course out come	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	acquire knowledge of factors influencing vegetation and its management	**K2**
	CO2	know the technique of measuring the trees by using various parameters	**K2**
	CO3	gain the knowledge of forest survey	**K2**
	CO4	know the scope of agro forestry	**K1**
	CO5	apply the harvesting practices and identification of timber	**K3**

Mapping of COs with POs & PSOs:

CO	**PROGRAMME OUTCOMES (PO)**								**PROGRAMME SPECIFIC OUTCOMES (PSO)**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	M	M	S	S	S	M	M	M	M	S	S	M	M
CO2	S	M	S	S	S	S	M	S	S	S	S	S	S
CO3	S	S	S	S	S	S	S	S	M	S	M	S	S
CO4	M	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	S	S	M	S	S	M	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (W) -1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOE642</td><td rowspan="2">SEED TECHNOLOGY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">ELECTIVE - IV</td><td>3</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>Cognitive Level</td><td colspan="6">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="6">• To know physical and mechanical seed separation.
• To learn the functions of seed processing machines
• To understand seed processing technology
• To acquire knowledge on seed storage methods</td></tr>
<tr><td>Unit I</td><td colspan="6">Seed processing</td></tr>
<tr><td colspan="7">Importance of seed processing. Physical methods used to separate seeds. Preparing seeds for processing. Licensing of machines.</td></tr>
<tr><td>Unit II</td><td colspan="6">Seed drying</td></tr>
<tr><td colspan="7">Importance and advantages of seed drying, methods of seed moisture measurements. Theory of seed drying (wet dry seeds). Advantages of mechanical drying equipments. Dehumidification and drying of heat sensitive seeds.</td></tr>
<tr><td>Unit III</td><td colspan="6">Seed processing machines</td></tr>
<tr><td colspan="7">Principle, construction, working, adjustments, cleaning and uses of seed processing machines viz. i) Air screen cleaner cum grader ii) Specific gravity separator, aspirators, pneumatic aspirators, stoner iii)Roll mill iv) Magnetic separators and v) Spiral separators, dropper best separator, electrostatic separators.</td></tr>
<tr><td>Unit IV</td><td colspan="6">Seed Treatment</td></tr>
<tr><td colspan="7">Principle, construction, working, adjustments and uses of Slurry seed treater, Mist-o- matic seed treater. Storage and labeling of treated seeds. Seed users safety. Seed conveyors and elevators.</td></tr>
<tr><td>Unit V</td><td colspan="6">Seed storage</td></tr>
<tr><td colspan="7">Structures and their management: Packing and marketing of seeds, bagger weigher, bag closing, portable and conveyor type of bag closer. Labeling and maintaining lot identity, lot numbers, seed pellets, handling and stacking. Maintenance of seed processing record.</td></tr>
<tr><td>Text books</td><td colspan="6">1. Agarwal, L., Seed Technology.Oxford & IBH Publishing Co Pvt.Ltd, Delhi.2018.
2. S.M. Henderson & R. Perry. Agricultural process Engineering, Avi Publishing CoInc.; 3rd Revised edition.1976.
3. Carl W. Hall. Drying Farm crops, Agricultural Consulting Associates; 6th printing edition.1967.
4. A Chakravarty. Post Harvest Technology & cereals , oil seeds. pulses & Oxford &IBH Publishing Co Pvt.Ltd.1989.</td></tr>
<tr><td>Reference books</td><td colspan="6">1. ICAR, Handbook of Agriculture, Directorate of Information and Publication of Agriculture (DIPA).1961.
2. Hunt D. Farm power & machinery management, Iowa State University Press. 1977.
3. Prem Singh and Arya. Vegetable breeding and seed production; Kalyani Publ.Ludhiana. 1999.</td></tr>
<tr><td>E-References</td><td colspan="6">1. http://www.jnkvv.org/PDF/30032020194456Principles_of_Seed_Technology_Dr_Rudrasen_Singh.pdf
2. https://ir.library.msstate.edu/bitstream/handle/11668/13653/1960-15-CALIBRATING%20THE%20MIST-0-</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">MATIC%20SEED%20TREATER%20AND%20WHY.pdf?sequence=1&isAllowed=y
3. http://www.jnkvv.org/PDF/17042020094358SEED%20TREATMENT.pdf</td></tr>
<tr><td rowspan="7">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>learn the physical separation of seeds and licensing of machines</td><td>K2</td></tr>
<tr><td>CO2</td><td>understand the seed drying process and nature of heat sensitive seeds</td><td>K1</td></tr>
<tr><td>CO3</td><td>learn the principles and operation procedure of major seed processing machines</td><td>K2</td></tr>
<tr><td>CO4</td><td>know the slurry and Mist-o-matic seed treater and seed user safety.</td><td>K3</td></tr>
<tr><td>CO5</td><td>attain knowledge on seed storage and packing of seeds</td><td>K2</td></tr>
</table>

Mapping of COs with POs & PSOs:

CO	**POs**					**PSOs**				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	M	S
CO3	S	S	M	S	S	S	S	S	M	S
CO4	S	S	M	S	S	S	S	S	M	S
CO5	S	S	M	S	S	S	S	S	M	S

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(W)	- 1 mark	No Correlation	(N)	- 0 mark

Course Title & Code	U21BOS641	HORTICULTURE TECHNIQUE AND PLANT BREEDING	L	T	P	C
SBE - IV			2	-	-	2

Cognitive Level	K1: Recall K2: Understand K3: Apply
Learning objective	• To learn the cultivation of important fruit tree • To study and practice the grafting techniques • To make students interested in gardening • To learn the commercial production of Flowers
Unit I	**Horticulture**
Importance and Scope of Horticulture, Classification of horticultural crops – fruits and vegetable crops. Basic climatic, soil, Water and nutritional requirements of horticultural crops. Cultivation of important fruit trees – Mango and Banana.	
Unit II	**Plant propagation methods**
cutting, layering, grafting, budding, stock-scion relationship. Use of plant growth regulators in Horticulture. Garden designs, types of gardens – formal, informal and kitchen garden, units of garden.	
Unit III	**Garden maintenance**
weeding, top dressing methods of pruning, topiary. hedge, border, topiary arches. Lawn making: types of lawn grasses and maintenance.	
Unit IV	**Floriculture**
Cultivation of commercial flowering plants – Rose, Jasmines and Chrysanthemum. Nursery maintenance. Cut flowers and flower decoration arrangement.	
Unit V	**Principles and objectives of plant breeding**
Selection methods, (pure line, clonal, mass) Hybridization: Types and procedure for hybridization. Somatic hybridization: Heterosis, hybrid vigor. Anther culture and its role in plant breeding.	
Text books	1. Gupta, S. N. Handbook of Horticulture, 1st Edition, Jain Brothers. 2018. 2. Shry, C. & Reiley. Introductory Horticulture; 9th Edition. Cengage Learning. 2016. 3. Singh, J. Fundamentals of Horticulture, Kalyani Publishers. 2014. 4. Chopra, V. L. Plant Breeding Theory & Practice Oxford & Ibh Publishing Co Pvt Ltd.2012.
Reference books	1. Tiwari A.K. and R. Kumar Fundamentals of Ornamentals, Horticulture and Landscape Gardening. New India Publishing Agency, New Delhi.2012. 2. Peter K. V. Basics of Horticulture. New India Publishing Agency, New Delhi. 2015. 3. Reddy, M. and A. Rao, Plant Breeding in Horticulture. Pacific Book International, NewDelhi.2010.
E-References	1. https://ncert.nic.in/textbook/pdf/ievs101.pdf 2. https://agritech.tnau.ac.in/pdf/HORTICULTURE.pdf 3. https://agriicarjrf.com/Mp-content/uploads/2018/07/Instant-horticulture.pdf

Course outcome	Upon completion of this course, the students will be able to		
	CO	**Course Outcomes**	**Knowledge Level**
	CO1	classify fruits and vegetables and also understand the cultivation of mango and banana	**K1**
	CO2	develop skill in horticulture techniques like grafting, layering, budding and garden designing	**K2**
	CO3	maintain garden and access skills on lawn making	**K3**
	CO4	cultivate commercial flowers and flower decoration	**K3**
	CO5	know the plant breeding process and method of hybridization	**K2**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	S	S	S	S	S	S	S	S	S	S	S
CO2	S	S	M	S	S	S	S	M	S	S	S	S	S
CO3	S	S	S	S	S	M	M	S	S	S	S	S	S
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	M	S	S	M	S	M	S	S	S	M	S

Strongly Correlating (S) - 3 marks Moderately Correlating (M) - 2 marks
Weakly Correlating (M) - 1 mark No Correlation (N) - 0 mark

<table>
<tr><td>Course Code</td><td>U21BOS642</td><td rowspan="2">MICROTECHNIQUE AND HISTOCHEMISTRY</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td colspan="2">SBE - IV</td><td>2</td><td>-</td><td>-</td><td>2</td></tr>
</table>

<table>
<tr><td>Cognitive Level</td><td colspan="3">K1: Recall K2: Understand K3: Apply</td></tr>
<tr><td>Learning objective</td><td colspan="3">• To know the scope of histochemistry in biological application
• To understand the technique used for killing and fixing of tissues
• To know the preparation of specimen for light microscope and electron microscope
• To understand methods used for the detection of primary and secondary metabolites</td></tr>
<tr><td>Unit I</td><td colspan="3">Histochemistry:</td></tr>
<tr><td colspan="4">Scope of histochemistry in Biology. Killing and Fixing;Principles and techniques of killing and fixing; properties of reagents; properties and composition of important fixatives - Carnoy's Fluid, FAA, FPA, Chrome acetic acid fluids, Zirkle- Erliki fluid.</td></tr>
<tr><td>Unit II</td><td colspan="3">Tissue dehydration:</td></tr>
<tr><td colspan="4">Reagents, infiltration and embedding; hand and serial sections, squashes, smears and maceration. Mounting: Techniques, common mounting media used - DPX, Canada balsam, Glycerin jelly and Lacto phenol. Cleaning, labeling and storage of slides.</td></tr>
<tr><td>Unit III</td><td colspan="3">Microscope:</td></tr>
<tr><td colspan="4">Tissue processing technique for light microscope and electron microscope. Microtomy-Rotary, Sledge, Freezing, Cryostat and Ultratome.</td></tr>
<tr><td>Unit IV</td><td colspan="3">Stains:</td></tr>
<tr><td colspan="4">Classification and chemistry of biological stains. General and specific vital stains and flurochromes. Micrometry, camera lucida, photomicrography.</td></tr>
<tr><td>Unit V</td><td colspan="3">Detection and localization of primary metabolites:</td></tr>
<tr><td colspan="4">Carbohydrates (PARS reaction), Proteins (Coomassie brilliant blue staining), Lipids (Sudan Black method). Detection and localization of secondary metabolites- alkaloids, terpenoids, phenolics.</td></tr>
<tr><td>Text books</td><td colspan="3">1. Yeung E.C.T., Stasolla C., Sumner M. J. & Huang B. Q. Plant Microtechniques and Protocols. Springer Nature.2015.
2. Prasad M. K. & Prasad M. K. Emkay Publications 2000.
3. Kierman, J.A. Histological and Histochemical Methods. Butterworth Publ. London. 1999.</td></tr>
<tr><td>Reference books</td><td colspan="3">1. Toji Thomas Essentials of botanical microtechnique (II Edn). Apex infotech publishing company. 2005.
2. Ruzin, Z. E. Plant Microtechnique and Microscopy. Oxford Press, New York. 1999.</td></tr>
<tr><td><u>E-References</u></td><td colspan="3">1. .https://www.researchgate.net/publication/309118583_Techniques_in_Anatomy_Cytology_and_Histochemistry_of_Plants</td></tr>
<tr><td rowspan="3">Course outcome</td><td colspan="3">Upon completion of this course, the students will be able to</td></tr>
<tr><td>CO</td><td>Course Outcomes</td><td>Knowledge Level</td></tr>
<tr><td>CO1</td><td>know the properties and composition of different fixatives</td><td>K1</td></tr>
</table>

	CO2	describe the principle and working mechanism of microtome	**K2**
	CO3	prepare permanent slides for different tissues	**K3**
	CO4	understand different mounting media	**K2**
	CO5	know the different types of sectioning	**K3**

Mapping of COs with POs & PSOs:

CO	**POs**								**PSOs**				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	S	M	S	S	M	M	S	S	S	S	M	S
CO2	S	S	M	S	S	S	S	S	S	S	S	M	S
CO3	S	S	M	S	S	M	S	M	S	S	S	M	S
CO4	S	S	M	S	S	S	S	M	S	S	S	M	S
CO5	S	S	M	S	S	M	M	S	S	S	S	M	S

Strongly Correlating	(S)	- 3 marks
Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(M)	- 1 mark
No Correlation	(N)	- 0 mark

Course Code	U21BOV51	SPIRULINA CULTIVATION	L	T	P	C
VALUE ADDED COURSE			2	-	-	2
Cognitive Level	K1: Recall K2: Understand K3: Apply					
Learning objective	• To understand the need of non-conventional food • To know about the application of SCP and mass cultivation of spirulina • To become successful SCP entrepreneur					
Unit I	**Algal biomass as non- conventional food**					
Introduction, Concept and need, Advantages, disadvantages and Sources of non-conventional food						
Unit II	**Introduction to SCP production**					
Historical use and rediscovery of *Spirulina* importance – morphology, taxonomy and habitat of *Spirulina* – biochemical composition including proximate composition – amino acids – unsaturated fatty acids – minerals and vitamins. Human health benefits of *Spirulina*.						
Unit III	**Spirulina cultivation - single cell protein**					
SCP--Introduction, Systematic position, thallus structure, Merits of Spirulina cultivation, Methods of cultivation- Small scale cultivation, Mass cultivation, Harvesting of Spirulina, Flow chart of Spirulina cultivation, Limiting factors for Spirulina cultivation, Spirulina products –Powder, Biscuits, Tablets						
Unit IV	**Spirulina cultivation steps**					
Principle, Requirement, chemicals, Sample or Inoculum of Spirulina, procedure (steps involved in Spirulina cultivation), observations, Harvesting, results and records, precautions Visit to a Spirulina cultivation laboratory in nearby area (Students are expected to prepare a model of Spirulina cultivation laboratory, a visit report and to submit the same at the time of practical examination.						
Unit V	**Spirulina cultivation**					
Natural production – laboratory cultivation – small scale commercial production – commercial and mass cultivation (tank construction, culture medium, strain selection, scaling up of the process) – importance of light and pH in *Spirulina* cultivation – harvesting, drying and packing						
Textbooks	1. UmarBacha, Muhammad Nasir, Single Cell Protein: Production && Evaluation for Food Use Evaluation for Food Use,Lambert Publication,2011 2. Robert Henrikson,Spirulina - World Food: How this micro algae can transform your health and our planet,2010 3. Amos Richmond ,Qiang Hu, Handbook of Microalgal Culture: Applied Phycology and Biotechnology,Wiley,2013					
References	1. Paul M. Coates, Joseph M . Betz, Marc R. Blackman Encyclopedia of Dietary Supplements, 2010. 2. Biswas S., Datta M. and Ngachan S.V, Mushrooms: A Manual for					

	Cultivation, PHI, 2012. 3. Aaron Baum, Grow Your Own SpirulinaSuperfood: A Simple How-To Guide Kindle Edition, 2013. 4. Aaron Baum, Grow Your Own Spirulina Superfood: A Simple How-To Guide, 2013. 5. Selvendran D, Large Scale Algal Biomass (Spirulina) Production in India. In: D. Das Algal Biorefinery: An Integrated Approach, Springer. 2015.
E-references	1. https://www.researchgate.net/publication/329170462_IPR_Biosafety_Bioethics 2. https://biocyclopedia.com/index/biotech_biosafety_ipr_ipp.php 3. https://link.springer.com/chapter/10.1007/978-981-10-2961-5_14

Course outcome

Upon completion of this course, the students will be able to

CO	Course Outcomes	Knowledge Level
CO1	understand the need of algal mass	**K1**
CO2	get knowledge on morphology, taxonomy biochemical aspects of spirulina	**K2**
CO3	understand the various methods involved in spirulina cultivation	**K2**
CO4	learn the techniques of of spirulina cultivation for SCP production	**K3**
CO5	get thorough knowledge on natural production, mass cultivation and process	**K3**

Mapping of COs with POs & PSOs:

CO	POs								PSOs				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**
CO1	S	M	S	S	S	S	M	S	S	S	S	S	M
CO2	S	S	S	M	S	M	S	S	M	S	S	M	S
CO3	M	M	S	S	M	S	M	S	S	M	S	S	M
CO4	S	S	S	S	S	S	S	S	S	S	S	S	S
CO5	S	S	S	M	S	M	S	S	M	S	M	S	M

Strongly Correlating	(S)	- 3 marks	Moderately Correlating	(M)	- 2 marks
Weakly Correlating	(W)	- 1 mark	No Correlation	(N)	- 0 mark

Department of Geography

B.SC GEOGRAPHY

PROGRAM OUTCOMES

After completing B.Sc Programme in Geography, students will be able to

1. Knowledge Outcomes:

PO.1. Demonstrate knowledge of physical and cultural features of the earth and locate them on a map.

PO.2. Know about the basic disciplines of Geography and its sub branches.

PO.3. Know the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters, composition and structure of atmosphere, hydrosphere, etc.

PO.4. Differentiate between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.

PO.5. Get information about the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc.

2. Skill Outcomes:

PO.5. Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques.

PO.6. Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems

PO.7. Construct various types of projections and scales as per requirement of the study.

PO.8. Collect primary and secondary data in the field.

PO.9. Apply various statistical formulas to analyse data.

PO.10. Use cartographic techniques with the help of simple software techniques like MS Excel.

PO.11. Handle topographical and weather maps and interpret them.

PO.12. Identify types of rocks.

PO.13. Know about Geographical Information System (GIS) and Remote Sensing (RS)

SEMESTER – I

GEOMORPHOLOGY – I

Credit: 4 **Course Code: UGET11** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. After this lesson, the students will have acquired knowledge about the relationship of physical geography with other branches of earth science and divisions of physical geography.
2. Students will understand an overview of the structure of the earth, origin, composition and interior of the earth.
3. Students will have basic concepts about relief features of plateaus, hills, foothills, valleys, plains and flood plains.
4. Students will understand the endogenic and exogenetic movements of the earth.
5. Students will learn about the effects of hazardous

SEMESTER – I

CARTOGRAPHY

Credit: 4 **Course Code: UGET12** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. Students will be aware the knowledge about the relationship of cartography with other branches of earth science and disciplines of geography.
2. Students can identify the earth's dimensions relating the cartographic problems and their geographic coordinate system.
3. Students can evaluate the techniques of scales and suitable projections of different maps.
4. Students will understand the various map components with help of SOI and NATMO.
5. After that they will get the capacity of map making with suitable cartographic symbols

SEMESTER – II

GEOMORPHOLOGY – II

Credit: 4 **Course Code: UGET21** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. Geomorphology produces an outcome, indicating that students should be able to work out a geomorphic process.
2. Students will have acquired knowledge about the development of the earth's crust and methods of development of the major landforms.
3. Students will be able to understand the processes by which transportation of earth material occurs through fluvial and gravitational processes.
4. Students will be able to determine the physical, chemical and biological processes controlling the modern evolution of identified landforms.
5. Students shall get to know about the formation of the earth's surface features, the role played by humans in changing the landscape and the significance of landforms in shaping the physical environment in an area.

SEMESTER – II

PRACTICAL – I – FUNDAMENTALS OF MAP MAKING

Credit: 4 **Course Code: UGEP21** **Hours: 6**

Course Outcomes:

After the completion of the course, students will be able to

1. After this paper, basic knowledge of scales and measurements.
2. Students will be understand and knowledge use of instruments.
3. Students will learn practically explain the rotometer.
4. Student shall know how to measurement of area by square and plain meters methods.
5. Students will be acquiring knowledge about the base level of the features of the maps.

SEMESTER – III

CLIMATOLOGY – I

Credit: 4 **Course Code: UGET31** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. Students will understand the composition and structure of the atmosphere.
2. The students will be able to explain the position of weather phenomena, winds, humidity, precipitation and heat budget.
3. They will be able to understand the elements and processes of climates, different climatic types and climate change.
4. Students will be understood the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.
5. Students will be able to identify of climatic differentiation and the consequences of human activities.

SEMESTER – III

OCEANOGRAPHY

Credit: 4 **Course Code: UGEE31** **Hours: 4**

Course Outcomes:

After the completion of the course, Students will be able to

1. After this lesson the students will become able to acquaint themselves with nature and scope of oceanography and distribution pattern of land, sea and oceans.
2. Students will have knowledge about specific concepts of oceanography into a multidisciplinary analysis of the Earth
3. Students will also have knowledge about ocean resources, their types and distribution and their influences upon mankind.
4. Students will be learning about the principles involved in the generation of waves and tides and evaluate their effects on coastal processes and marine ecosystems.
5. Students will be learning about how the oceans are connected to and drive major earth processes, such as atmospheric and oceanic circulation, climate and weather, plate tectonics, marine resources and sustainability of humans.

SEMESTER – III

Non – Major Elective – I

PRINCIPLES OF REMOTE SENSING

Credit: 3 **Course Code: UGEN31** **Hours: 2**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will acquire knowledge regarding the use of modern tools and technology like GPS, GIS in geographical studies and can apply this knowledge in any field of study.
2. They can know about concepts, components, development, platforms and types of remote sensing and GIS
3. Students can acquire a broad knowledge regarding remote sensing, various sensors and can developed idea about aerial photographs, satellite imagery etc.
4. They understand about Aerial photography and Satellite Remote Sensing.
5. Develop an idea about interpretation and application of remote sensing and GIS

SEMESTER – III

SBE PRACTICAL I – REPRESENTATION OF RELIEF FEATURES

Credit: 2 **Course Code: UGES31** **Hours: 2**

Course Outcomes:

After the completion of the course, students will have ability to

1. Development the skills of map making and its importance.
2. Understand the relief features.
3. To know how to draw contour map and relief features.

SEMESTER – IV

CLIMATOLOGY – II

Credit: 4 **Course Code: UGET41** **Hours: 4**

Course Outcomes:

After the completion of the course, students will be able to

1. Students will be able to basic concepts about the structure and composition of the atmosphere and the elements of the hydrological cycle.
2. They will learn how atmosphere and climate are a critical part of the earth system and climatic variability and change are central to the issue of current and future global environmental change.
3. Understand the physical basis of the natural greenhouse effect, including the meaning of the term radioactive forcing.
4. The students will be able to apply the knowledge about the process of weather and climate, Climate Change & global warming through human activities.
5. Students will be able to develop a scientific understanding of climates and their characteristics.

SEMESTER – IV

PRACTICAL – II – CLIMATIC DIAGRAM AND WEATHER MAP INTERPRETATION

Credit: 4 **Course Code: UGEP42** **Hours: 4**

Course Outcomes:

After the completion of the course, students will be able to

1. Diagrammatic representation can be used for both the educated section and uneducated section of the society.
2. Students will able to the graph like Hyther Graph, Climograph, and Ergo graph and difference between the Temperature and Rainfall data analysis.
3. Describe how these instruments are used to collect weather data from many geographic locations and many altitudes.
4. The role of satellites and computers in modern weather forecasting and meteorologists develop accurate weather forecasts
5. To help Students learn more about their local area and describe how places make them feel.

SEMESTER – VI

ELECTIVE II - TRAVEL AND TOURISM

Credit: 3 **Course Code: UGEE42** **Hours: 3**

Course Outcomes:

After the completion of the course, Students will be able to

1. After this lesson students will have acquired about tourism and history of tourism.
2. Students will have understood the tourism development.
3. Student under the element of tourism and socio economic tourism.
4. Acquire knowledge about the tourism potential and different tourism organizations in India.
5. Students will be able to apply the principles of tourism to a local, regional or national community to develop a tourism policy and plan based on tourism parameters

SEMESTER – VI

SBE – PRACTICAL II – COMPUTER APPLICATION IN GEOGRAPHY

Credit: 2 **Course Code: UGEN42** **Hours: 2**

Course Outcomes:

After the completion of the course, Students will be able to

1. Understand functioning of different e-sources of geographical data
2. Understand and its binary coding
3. Prepare cartograms that can be used for various geographical applications using computers
4. Represent geo-data using excel CO5: Identify and apply appropriate cartograms for given data set.

SEMESTER – V

GEOGRAPHY OF RESOURCES – I

Credit: 4 **Course Code: UGET51** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. Students will become sensitized the classification of resources.
2. Students will be learning conservation methods and techniques.
3. Understanding the basic concept of resource and its various types and their utilities
4. Acquiring basic information about potentials and management of resources like land, water, forest and power in global context.
5. Understanding the prevailing natural resource potential and problems of management.

SEMESTER – V

WORLD REGIONAL GEOGRAPHY

Credit: 4 **Course Code: UGET52** **Hours: 5**

Course Outcomes:

After the completion of the course, Students will be able to

1. After this Lesson, the students will have acquired knowledge about the characteristics of region, Types of region,Formal, Functional and Specific region.
2. Students will have Knowledge of the Tropical Regions, Equatorial region,Savanna region, tropical monsoon region and tropical deserts.
3. Students will gain a better understanding of Mediterranean region, temperate desert region and chinna type region.
4. Students will have an effective understand the Prairie type region and West European region.
5. Students will gain Knowledge about the Taiga type, Tundra type and high mountain regions.

SEMESTER – V

HUMAN GEOGRAPHY

Credit: 4 **Course Code: UGET53** **Hours: 5**

Course Outcomes:

After the completion of the course, Students will be able to

1. The students will be aware of the scope and contents of human geography.
2. Students will acquire an understanding regarding the relationship between prevailing geographic environment and cultural practices of human being.
3. This paper tries to build an idea among students regarding the role that geography play in community engagement.
4. Students will have a general understanding of global human population patterns, factors influencing the distribution and mobility of human populations including settlement and economic activities and networks, and human impacts on the physical environment.
5. Students will have a general understanding of how the physical environment, human societies, and local and global economic systems are integral to the principles of sustainable development.

SEMESTER – V

GOEGRAPHY OF INDIA

Credit: 4 **Course Code: UGET54** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. The student will get familiarized with the geographic dimensions of India in terms of its political and administrative characteristics; aspects of its regional vitality; and formation of regions.
2. The student will understand climatic condition and seasons in India.
3. They understand globalization and Indian economy. And also understand the regional distribution of resource.
4. They understand the population problems in India. Access the population policies and reaction the countries.
5. Applying the knowledge of global issues to a unique scientific problem

SEMESTER – V

ELECTIVE III -GEOGRAPHY OF TAMILNADU

Credit: 3 **Course Code: UGEE53** **Hours: 3**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students can understand about the various physical features, climate and natural vegetation.
2. To identify the nature of irrigation types and various multipurpose projects with help of agricultural activity
3. Students will be identifying the different types of crops and their cultivated regions.
4. Students will be able to understanding the location of industries and their availability of mineral resources.
5. Students will have a fair knowledge about various population characteristics in relation to transport and trade

SEMESTER – VI

SBE- APPLICATIONS OF STATISTICAL METHODS IN GEOGRAPHY

Credit: 2 **Course Code: UGES53** **Hours: 2**

Course Outcomes:

After the completion of the course, students will have ability to

1. Keeping in view the nature of data and purpose of study, students would be able to make a rational choice amongst listed various statistical methods.
2. Demonstrate understanding of basic concepts of probability and statistics embedded in their courses.
3. Students will be able to how to apply discrete and continuous probability distribution to various business problems.
4. Show proficiency in basic statistical skills embedded in their courses.
5. Students shall know how to organize, manage, and present data.

SEMESTER – VI

GEOGRAPHY OF RESOURCES – II

Credit: 4 **Course Code: UGET61** **Hours: 5**

Course Outcomes:

After the completion of the course, students will be able to

1. Students will become sensitized to concept and classification of resources, use or misuse and will learn conservation methods and techniques.
2. Develop an idea about resource.
3. Understand the agricultural recourses
4. Acquire knowledge about different types of Mineral and power resources.
5. Showing an awareness and responsibility for the environment.

SEMESTER – VI

REGIONAL GEOGRAPHY OF NORTH AMERICA

Credit: 4 **Course Code: UGET62** **Hours: 5**

Course Outcomes:

After the completion of the course, Students will be able to

1. They can know about their land formation, climate and natural vegetation in North America
2. They understand the economic resources of region.
3. Students will be identifying the different types of crops and their cultivated regions.
4. Students will be able to understanding the location of industries and their availability of mineral resources.
5. Students will have a fair knowledge about various population characteristics in relation to transport and trade

SEMESTER – VI

GEOGRAPHICAL THOUGHT

Credit: 4 **Course Code: UGET63** **Hours: 5**

Course Outcomes:

After the completion of the course, Students will be able to

1. The paper will be useful for students in understanding perspectives on the development and contemporary trends in geography and its systematic study.
2. Students will demonstrate an advanced understanding of the historical development of geographical thought.
3. Develop an idea about evolution of geographical thinking and disciplinary trends in Germany, France, Britain, and United States of America.
4. Build an idea about between environmental determinism and possibillism, systematic and regional.
5. Know about the modern geographical thoughts and contribution of geography.

SEMESTER – VI

MAP & IMAGE INTERPRETATION

Credit: 4 **Course Code: UGEP63** **Hours: 5**

Course Outcomes:

After the completion of the course, Students will be able to

1. Identify the earth surface features from satellite images
2. Determine the scale, ground coordinates and the aerial extent of aerial photographs
3. Analyze the aerial photographs for physical measurements
4. Identify the different features from imageries
5. Interpret images and prepare thematic maps
6. Identify the principles of topographical map preparation

SEMESTER – VI

PRACTICAL – FUNDAMENTALS OF MAP PROJECTIONS

Credit: 4 **Course Code: UGEP64** **Hours: 5**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students can be trained the basic principles of geographic coordinate systems in relation to the earth shape.
2. Students will be able to identify how to drawn our earth surface in a suitable projection in our place
3. Students will be able to identifying the different forms of projections in relation to the surface of the earth transformed into a flat surface drawn by plain paper.
4. Students will develop a solid understanding of the distortion of various map projection on the earth surface
5. After complete the lesson students got the appropriate awareness of coordinate system of projection in various countries of the world.

SEMESTER – VI

ELECTIVE – IV BIO GEOGRAPHY

Credit: 3 **Course Code: UGEE64** **Hours: 3**

Course Outcomes:

After the completion of the course, Students will be able to

1. Students will be learning about the concept and relevance of biogeography, ecosystem and ecology responsible for the global trend of distribution of major plants and animals.
2. Students will be able to biodiversity, types of biodiversity, the role of humans in ecological disturbances and conservation issues and identify ecological aspects of the environment.
3. Able to Geography converging and forming our biosphere.
4. Students will be able to discuss the basics of ecosystem services and the consequences of ecosystems.
5. Able to apply interaction of biotic and abiotic resources.

SEMESTER – VI

SBE – PRACTICAL – PRINCIPLES OF SURVEYING

Credit: 2 **Course Code: UGES64** **Hours: 2**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students can learn the basic principles of survey in relation to their survey instruments.
2. They got the capability of handling the survey instruments with direct field knowledge
3. Students can be able to do the field work using various instruments like graphical survey methods
4. Students will be able to demonstrate an understanding to the direction related measuring survey equipment’s
5. After complete the lesson they got the appropriate knowledge of handling different survey methods

M.SC GEOGRAPHY

PROGRAM OUTCOMES

A geography degree will provide you with the knowledge and skills you need to begin a variety of rewarding careers. Geographers work as urban planners, GIS technicians and analysts, disaster preparedness planners, teachers, environmental scientists, remote sensing analysts, transportation planners, demographers, hydrologists and in a variety of other areas.

Students who complete Geography courses will examine the spatial organization of physical features and human activities at a variety of spatial scales from local to global. Students will be able to locate features on the surface of the earth, explain why they are located where they are, and describe how places are similar and/or different. Students will also examine human interactions with the environment and describe how physical and cultural landscapes change through time. Students completing physical geography courses will be able to describe the processes that drive earth's climate, create landforms, and govern the distribution of plants and animals. Students completing human geography will analyze and describe cultural phenomenon such as population, development, agriculture, language, and religion.

PO.1. Ability of Problem Analysis: Student will be able to analyses the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO.2. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map-making techniques. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data.

PO.3. Development of Observation Power: As a student of Geography Course, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.

PO.4. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

PO.5. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO.6. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes

SEMESTER – I

ADVANCED GEOMORPHOLOGY

Credit: 5 **Course Code: PGET11** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After this lesson the students will have knowledge of physical geography in relation to its nature and scope, the concepts of origin and evolution of topography.
2. The students will be able to describe scientific ideas and theories about the development of the landscapes.
3. The students will be able to explain the position of geomorphology in physical geography along with the divisions of geomorphology in relation to structural, fluvial, arid, glacial, coastal or tropical morphology.
4. The students will be evaluating the impacts of human activities on natural environments.
5. The students will be able to apply the knowledge about global issues to local circumstances to evaluate the local effects of the issues.

SEMESTER – I

APPLIED CLIMATOLOGY

Credit: 5 **Course Code: PGET12** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. The learners will have the basic concepts of climatology and its geographical significance along with knowledge of earth's atmosphere in respect to structure, composition and characteristics.
2. Know something of the way various human activities are increasing emissions of the natural greenhouse gases
3. They aware of the difficulties involved in the detection of any unusual global warming and background noise of natural variability.
4. Understand that although a growing scientific consensus has become established through the IPCC, for the climate.
5. Understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

SEMESTER – I

HYDROLOGY AND OCEANOGRAPHY

Credit: 5 **Course Code: PGET13** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. At the end of the course students will different physical aspects of water and the ocean as a natural resource.
2. They will learn some strategies of water resource management and conservation of water
3. Students will be able to understand the variations of the global hydrological cycle and emphasizing the significance of groundwater quality and its circulation.
4. They will have knowledge of the bottom relief of oceans, their waves and current in relation to origin, type, characteristics and impact of ocean waves and current on the environment.
5. Students also will be learning about why physical oceanography is important in the earth system and learn about the interactions with other components of the system, particularly the atmosphere.

SEMESTER – I

PRACTICAL I – TERRAIN AND CLIMATIC DATA ANALYSIS

Credit: 5 **Course Code: PGEP11** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will learn about the profiles, Smith, Wentworth and Robinson Methods.
2. Students will understand the climatic diagram.
3. Students will gain a level of understanding about Drainage basin analysis such as drainage density and shape of drainage basin.
4. Students will understand the rainfall distribution, rainfall dispersion and rainfall variability.
5. Students will be exposed to the Water balance.

SEMESTER – I

ELECTIVE – SOCIAL GEOGRAPHY

Credit: 5	**Course Code: PGEE11**	**Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After this lesson, the students will have acquired Knowledge about the spatial distribution of social groups, religions and language groups.
2. Students will understand an overview of the culture complex, cultural heritage and cultural imperialism.
3. Students will understand the factors affecting human health, disease and Planning.
4. Students will have basic concepts about boundaries and frontiers.
5. Students will learn about the political geography.

SEMESTER – II

AGRICULTURAL GEOGRAPHY

Credit: 5	**Course Code: PGET21**	**Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. The students shall get to know about the spatial organization of agricultural activities in world and India.
2. They knowledge about the origin, location, distribution of the agriculture and its dynamics and impact of climate change and economic liberalization on agricultural pattern and process.
3. Students will apply appropriate theories to analyze and modify communication.
4. Students will be learning about land use and agriculture.
5. To demonstrate the ability to analyze data and appropriate statistical conclusions.

SEMESTER – II

URBAN GEOGRAPHY

Credit: 5 **Course Code: PGET22** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After the lesson students will able to knowledge development of urbanization.
2. Student will be understand the world demographic structure of cities
3. Students will learn and explain the functional classification towns, and basic and non-basic concept.
4. Student will be understands the urban settlements and hierarchy of urban centers, central place theory.
5. Students will learn urban problems, types of and pattern, distribution acquisition and characteristics.

SEMESTER – II

GEOGRAPHY OF INDIA

Credit: 5 **Course Code: PGET23** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Identifying and explaining the Indian Geographical Environment, from global to local scales.
2. Applying geographical knowledge to everyday living.
3. They understand the Mineral and Power Resources of India.
4. Showing an awareness and responsibility for the environment and India.
5. Evaluating the impacts of human activities on natural environments special reference to India.

SEMESTER – II

PRACTICAL II – SOCIO ECONOMIC DATA ANALYSIS

Credit: 5 **Course Code: PGEP22** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Apply statistical techniques to a variety of socio economic data
2. Demonstrate understanding of basic concepts of Transport analysis and statistics embedded in their courses.
3. Interpret statistical output to the agricultural data analysis aid in decision making in the Agricultural activities
4. Evaluating the impacts of human activities and the industries activities
5. Applying the knowledge of global issues to a unique scientific problem of agricultural data analysis

SEMESTER – II

ELECTIVE - ENVIRONMENTAL GEOGRAPHY

Credit: 5 **Course Code: PGEE22** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will be learning about the Man and environment relationships, biosphere and multi-disciplinary approach.
2. Students will be able to Ecosystem, classification and functioning of the ecosystem.
3. Students will be able to discuss the natural hazards and Man's modifications of the biosphere.
4. Able to apply principles and procedures.
5. Able to apply Environment Governances.

SEMESTER – III

GEOGRAPHICAL THOUGHT

Credit: 5 **Course Code: PGET31** **Hours: 6**

Course Outcomes:

1. *After the completion of the course, students will have ability to*
2. This should enable the student to critically look at the contents of other courses at Postgraduate level as logically integrated with the broad currents of thought the subject has witnessed in the distant and recent past.
3. Gain knowledge about development of geographical thought.
4. They can understand the major current philosophical and theoretical debates in geography.
5. Students will demonstrate an understanding of current research within the breadth of geography, as well as more in depth knowledge of research in their specialty areas.
6. Students will develop a solid understanding of the concepts of “space," “place” and “region” and their importance in explaining world affairs.

SEMESTER – III

REMOTE SENSING GIS AND GPS

Credit: 5 **Course Code: PGET32** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.
2. Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
3. Student will be familiar with modern techniques in Geography.
4. Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
5. Students will be prepared to apply their skills in professional careers.

SEMESTER – III

CARTOGRAPHY AND QUANTITATIVE METHODS

Credit: 5 **Course Code: PGET33** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will be acquiring knowledge about scope and development of cartography, Projections and compilation of maps
2. Students will have ability to identify the different kinds of maps with using cartographic symbols, map design and layout procedures and photo printing process.
3. Students can evaluate the different techniques of hypothesis to justifying the various testing methods.
4. Students obtain the different kinds of data sources and analysis of various statistical methods.
5. After complete the lesson they will get the capacity of statistical analysis with suitable software's.

SEMESTER – III

CARTOGRAPHY AND GEO-INFORMATICS

Credit: 5 **Course Code: PGEP33** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will be identify the kinds of thematic maps and how to drawn point, line and area symbols in correctly in statistical method.
2. Students will develop the skills about Indian Toposheet interpretation with help of interpretation keys.
3. Students will develop a solid understanding of the concepts of aerial and satellite image interpretation and their importance in explaining by their elements
4. They got the capability of using various GIS software's to analyze and processing the digital satellite images.
5. After complete the lesson they got the potential of mapping techniques and image interpretation with suitable software's.

SEMESTER – III

ELECTIVE –III GEOGRAPHY OF ECONOMIC ACTIVITY

Credit: 5 **Course Code: PGEE33** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will gain factual knowledge about the primary, secondary, tertiary, and quaternary activities.
2. Students will have an effective Understand the classification of industries, factors affecting location of industries and tourism industry potential and problems.
3. Students will have the basic knowledge of the spatial interaction ideas of Edward Ullman, functional approach of M.E.Hurst, Models of transport and transport cost.
4. Students will learn and understand the spatial flow models, gravity model and it's variation and allocation models.
5. Students will understand the World Trade Organizations, Globalization and Liberation and prospects of inter and intra-regional co-operation and trade

SEMESTER – IV

POPULATION GEOGRAPHY

Credit: 5 **Course Code: PGET41** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After this lesson the students can develop their understanding of the distribution of the population and its various characteristics including population growth, density, fertility, mortality, death rate, birth rate etc.
2. They can understand the negative or positive effects of population distribution and growth in the society and can create awareness among the people of society regarding this.
3. Students will be analyzing the global trend and patterns of population growth in developing countries and migration patterns.
4. Students will be evaluating the population growth theory and migration theories.
5. Students will understand the population policies and their importance in different countries.

SEMESTER – IV

RESEARCH METHODOLOGY

Credit: 5 **Course Code: PGET42** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students should be able to distinguish a purpose statement, a research question or hypothesis, a research objective and the utility of a hypothesis in scientific research.
2. Students should be able to identify independent, dependent, features development of research and sampling design and its basic types.
3. Students should be able to distinguish the interpretation, report-writing techniques and mechanics of writing of Report.
4. Students should be able to design a good quantitative purpose statement and good quantitative research questions and hypotheses.
5. Students will be able to understand the research problems, the link between quantitative research questions, data collection and how research questions are operationalized in educational practice.

M.PHIL GEOGRAPHY

Programme Outcomes

After completing M.Phil Programme in Geography, students will be able to

PO.1. Contribute knowledge of geography in response to issues in their specialized area to Identifying, interpreting and analyzing geographic problems and processes

PO.2. Prepare objective scientific approach to be able to address research problems in Applied Geography and allied fields and develop critical thinking and skills to analyze problems related to their research themes.

PO.3. Foster confidence among students enabling them to be able to interact with the respondents while collecting primary data by developing effective communications skills and ensure that the lessons are self-directed and lead to lifelong learning's.

PO.4. Defending and communicating facts, ideas and research findings via written, oral, graphical and quantitative outlets to carry out individual research work and originality in tackling and solving problems, and acted autonomously in the planning and implementation of research.

PO.5. A comprehensive understanding of techniques, and a thorough knowledge of the literature, together with a practical understanding of how research and enquiry are used to create and interpret in their field applicable to their own research.

SEMESTER – I

RESEARCH METHODOLOGY

Credit: 4 **Course Code: M21GET11** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students should be able to distinguish a purpose statement, a research question or hypothesis, a research objective and the utility of a hypothesis in scientific research.
2. Students should be able to identify independent, dependent, features development of research and sampling design and its basic types.
3. Students should be able to distinguish the interpretation, report-writing techniques and mechanics of writing of Report.
4. Students should be able to design a good quantitative purpose statement and good quantitative research questions and hypotheses.
5. Students will be able to understand the research problems, the link between quantitative research questions, data collection and how research questions are operationalized in educational practice.

SEMESTER – I

QUANTITATIVE TECHNIQUES IN GEOGRAPHY

Credit: 4 **Course Code: M21GET12** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Learn all the relevant techniques and methods for analyzing the data quantitatively through basic descriptive statistics to bivariate analysis; multivariate analysis both on analog and digital platform.
2. Apply the apt techniques for carrying out their research work.
3. Have the ability to assess the data manually or by using software
4. Know the proper test required to validate the hypothesis.
5. Use proper methods to quantify the primary and secondary data.

SEMESTER – II

ELECTIVE I – POPULATION GEOGRAPHY

Credit: 4 **Course Code: M21GET21** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After this lesson the students can develop their understanding of the distribution of the population and its various characteristics including population growth, density, fertility, mortality, death rate, birth rate etc.
2. They can understand the negative or positive effects of population distribution and growth in the society and can create awareness among the people of society regarding this.
3. Students will be analyzing the global trend and patterns of population growth in developing countries and migration patterns.
4. Students will be evaluating the population growth theory and migration theories.
5. Students will understand the population policies and their importance in different countries.

SEMESTER – II

ELECTIVE II – URBAN GEOGRAPHY

Credit: 4 **Course Code: M21GET22** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. After the lesson students will able to knowledge development of urbanization.
2. Student will be understand the world demographic structure of cities
3. Students will learn and explain the functional classification towns, and basic and non-basic concept.
4. Student will be understands the urban settlements and hierarchy of urban centers, central place theory.
5. Students will learn urban problems, types of and pattern, distribution acquisition and characteristics.

SEMESTER – II

ELECTIVE I – LAND EVALUTION

Credit: 4 **Course Code: M21GET23** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will acquire knowledge regarding the land evaluation process and land use planning.
2. To be able to analyses and interpret the land utilization types and land resources survey.
3. They understand about GIS and Agricultural land use.
4. Students will be learning about agro climatic land suitability.
5. Develop an idea about interpretation and application of remote sensing and GIS

SEMESTER – II

ELECTIVE I – DISASTER STUDIES

Credit: 4 **Course Code: M21GET24** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Describe Definitions and Terminologies used in Disaster Management, Types and Categories of Disasters.
2. Students will be able to challenges posed by Disasters and Impacts of Disasters
3. Describe various disasters that India is vulnerable to, and the hazard maps that enable them to visualize their vulnerabilities
4. To understand about the Natural Disasters its Causes and Consequences
5. To learn about Disaster Management and Mitigation.

SEMESTER – II

ELECTIVE I – WATER RESOURCE

Credit: 4 **Course Code: M21GET25** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Identify the causes of water scarcity.
2. Distinguish between potential and actual water resources
3. Justify the need for water conservation and management.
4. Analyze the various inter- state disputes and riots among different communities.
5. Identify the challenges facing water management in varied climate types around the world;

SEMESTER – II

ELECTIVE I – AGRO-CLIMATOLOGY

Credit: 4 **Course Code: M21GET26** **Hours: 6**

Course Outcomes:

After the completion of the course, students will have ability to

1. Students will be able to Agriculture to the importance of climate to agriculture
2. The student knows the main environmental factors and their interactions with agricultural, forestry and natural ecosystems, is able to measure and evaluate them
3. Students have known how to calculate energy balance and climatology and the principles that govern the climate allows and understand the ongoing climate change.
4. Students have knowledge of possible mitigation and adaptation techniques in the new evolving climate situation.
5. A student also knows the main applications of agro-meteorology in particular environments, such as greenhouse, urban green, urban gardens and other innovative mitigation techniques of climate change

Department of Computer Science

M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN , DINDIGUL
PG AND RESEARCH DEPARTMENT OF COMPUTER SCIENCE
CHOICE BASED CREDIT SYSTEM (CBCS)

B.Sc. COMPUTER SCIENCE
ACADEMIC YEAR 2020-2021

PROGRAMME OUTCOMES FOR B.Sc. COMPUTER SCIENCE

PO1: Understanding of the basics of computer science.

PO2: Apply fundamental principles and methods of Computer Science to a wide range of applications and mathematical and scientific reasoning to a variety of computational problems.

PO3: Students have the opportunity to develop foundational skills to install and maintain computer networks, troubleshoot hardware and software problems.

PO4: Design and implement software systems that meet specified design and performance requirements

PO5: Apply advanced algorithmic and mathematical concepts to the design and analysis of software.

PO6: Adhere to do higher studies or progress as an entrepreneur.

PO7: Students gets the confidence to survive and get succeed in IT industry.

PO8: Gets proficiency in the practice of computing, and to prepare them for continued professional development.

PO9: Apply sound principles to the synthesis and analysis of computer systems

PO10: Understands manage databases and develop web pages.

ALLOCATION OF PAPERS AND CREDITS FOR UG PROGRAMME

I SEMESTER

S.NO	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	ULTA11	Tamil	6	3	25	75	100
02.	ULEN11	English	6	3	25	75	100
03.	UCST11	Programming in C	5	4	25	75	100
04.	UCST12	Digital Principles &Computer Organization	5	4	25	75	100
05.	UCSA11	Discrete Mathematics	5	4	25	75	100
07.	UVAE11	Value Education	3	3	25	75	100
Total		**30**		**21**		**600**	

II SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	ULTA22	Tamil	6	3	25	75	100
02.	ULEN22	English	6	3	25	75	100
03.	UCST21	Programming in C++	6	4	25	75	100
04.	UCSP21	Programming in C and C++Lab	5	4	25	75	100
05.	UCSA21	Web Designing Lab	5	4	25	75	100
06.	UEVS21	Environmental Studies	2	2	25	75	100
Total		**30**		**20**		**600**	

III SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	ULTA33	Tamil	6	3	25	75	100
02.	ULEN33	English	6	3	25	75	100
03.	UCST31	Fundamentals of Data Structures	5	4	25	75	100
04.	UCSA32	Operation Research	5	4	25	75	100
05.	UCSE31	Fundamentals of Computer Algorithms	4	3	25	75	100
06.	UCSN31	NME 1	2	2	25	75	100
07.	UCSS31	Office Automation Lab	2	2	25	75	100
Total		**30**		**21**		**700**	

IV SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	ULTA33	Tamil	6	3	25	75	100
02.	ULEN33	English	6	3	25	75	100
03.	UCST31	Fundamentals of Data Structures	5	4	25	75	100
04.	UCSA32	Operation Research	5	4	25	75	100
05.	UCSE31	Fundamentals of Computer Algorithms	4	3	25	75	100
06.	UCSN31	NME 1	2	2	25	75	100
07.	UCSS31	Office Automation Lab	2	2	25	75	100
Total		**30**		**21**		**700**	

V SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	UCST51	System Software	5	4	25	75	100
02.	UCST52	Data Mining	5	4	25	75	100
03.	UCST53	Software Engineering	5	4	25	75	100
04.	UCST54	Computer Networks	5	4	25	75	100
05.	UCST55	Multimedia & its Application	5	4	25	75	100
06.	UCSE53	Visual Basic Lab	3	3	25	75	100
07.	UCSS53	Python Lab	2	2	25	75	100
Total		**30**		**25**		**700**	

VI SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	HOURS	CREDITS	CIA	ESE	TOT
01.	UCST61	Java and Internet Programming	5	4	25	75	100
02.	UCST62	Web Technology	5	4	25	75	100
03.	UCST63	Computer Graphics	5	4	25	75	100
04.	UCSP63	Java And Internet Programming Lab	5	4	25	75	100
05.	UCSP64	Web Technology Lab	5	4	25	75	100
06.	UCSE64	Mini Project	3	3	25	75	100
07.	UCSS64	Computer Graphics Lab	2	2	25	75	100
08.	UEAS61	Extension Activities	-	3	25	75	100
	Total		30	28			800

I	II	III	IV	V	VI	TOTAL	
Total Credits	**21**	**20**	**21**	**25**	**25**	**28**	**140**
Total Marks	**600**	**600**	**700**	**800**	**700**	**800**	**4200**

COURSE OUTCOMES – SEMESTER I

CODE: UCST11- PROGRAMMING IN C

On the successful completion of the course, students will be able to

CO1: Apply the syntax and semantics of C language
CO2: Utilize the concept of functions and arrays in solving real world problems
CO3: Demonstrate structures, union and pre-processing techniques in C
CO4: Design real world problems using pointers and file concept
CO5: Develop problem solving skills using C language

CODE: UCST12 DIGITAL PRINCIPLES & COMPUTER ORGANIZATION

CO1: understand digital circuits and its functions.

CO2: Design and to understand the functionality of the computer hardware with basic gates.

CO3: Design digital circuits by simplifying the Boolean functions.

CO4:The Student can acquire knowledge about multiprocessor organization and parallel processing.

CODE: UCSA11 DISCRETE MATHEMATICS

CO1:Understand problem solving method.

CO2: Understand about Boolean algebra.

CO3: Describes Relations.

CO4:Students completing this course will be able to evaluate Boolean functions and simplify expressions using the properties of Boolean algebra.

SEMESTER II

CODE: UCST21 - PROGRAMMING IN C++

CO1:To understand the Object Oriented Programming Concepts.

CO2:To demonstrate the use of virtual functions to implement polymorphism.

CO3: To Understand about Templates, Files and Exception Handling.

CO4: The Student can evaluate different algorithmic techniques and to write programs for developing simple applications using C++.

CODE: UCSP21 PROGRAMMING IN C and C++ LAB

CO1: Understand and Apply Object oriented features and C++ concepts.

CO2: Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.

CO3: apply the concept of polymorphism and inheritance, exception handling and templates.

CO4: The Student can able to develop the applications using Console I/O and File I/O.

CODE: UCSA21 WEB DESIGN LAB

CO1:understand about various HTML tags for designing a static web page.

CO2: know about user interfaces, with graphics, textual components, and navigation systems.

CO3: Design and apply XML to create a markup language for data and document centric application

CO4: The Student can gain Knowledge to create personal and/or business websites following current professional and/or industry standards.

SEMESTER – III

CODE: UCST31 FUNDAMENTALS OF DATA STRUCTURES

CO1: Understand about Stack & Queue.

CO2: understand about tree & its traversal techniques.

CO3:. Understand about Graphs and its components.

CO4: The Student can get the In-depth Knowledge in dealing with Data and its Structures.

CODE: UCSA32 OPERATION RESEARCH

CO1: understand the Mathematical Formation of L.P.P.

CO2: Understand the Simplex Method & Artificial Variables.

CO3: understand the transportation Problem and Assignment Problem.

CO4: The Student can Formulate and solve problems as networks and graphs using special solution algorithms.

CODE: UCSE31 FUNDAMENTALS OF COMPUTER ALGORITHMS

CO1: write rigorous correctness proofs for algorithms.

CO2: understand about the major algorithms and data structures.

CO3: apply important algorithmic design paradigms and methods of analysis.

CO4: The Student can analyze the complexities of various problems in different domains.

CODE: UCSS31 OFFICE AUTOMATION

CO1: Perform documentation.

CO2: Perform accounting operations.

CO3: Perform presentation skills.

CO4: The Student can capable to handle Basic Data Processing Work in Working Environment.

SEMESTER – IV

CODE: UCST41 RELATIONAL DATA BASE MANAGEMENT SYSTEMS

CO1: understand the overview of Data Base systems & Data Models.

CO2: modify and maintain the database structure.

CO3: Understand about the PL/SQL / SQL.

CO4: The Students can able to handle the Database.

CODE: UCSP42 RELATIONAL DATA BASE MANAGEMENT SYSTEMS

CO1. become familiar with SQL fundamental Concepts.

CO2. Apply Normalization techniques to normalize a database

CO3. know the connectivity of databases with controls (DAO,ADO & RDO)

CO4. The Student can Gain a good understanding of the architecture and functioning of Database Management Systems as well as associated tools and techniques.

CODE: UCSA42 DESK TOP PUBLISHING LAB (DTP)

CO1: Create and print a multi-page document which incorporates a variety of visual elements including text, graphics, columns and formatting other than the default settings, using advanced layout principles e.g. newsletter, brochure, advertisement or magazine.

CO2: Understand the difference between DTP and how it differs from word processing procedures

CO3: Acquire knowledge of typography e.g. font size, style, kerning, alignment, hyphenation and line spacing

CO4:The Student can develop the Visiting card,advertisement through various application

CODE: UCSE42 NUMERICAL METHODS

CO1: Understand about Numerical Computations.

CO2: Understand about direct and iterative method

CO3: Know about Newton’s Formulae, Gaussian Quadrature and Euler’s method.

CO4: The students can work effectively in a broad range of numerical computations.

CODE: UCSS42 LINUX / UNIX LAB

CO1: run various UNIX commands on a standard UNIX/LINUX Operating system.
CO2: To do shell programming on UNIX OS.
CO3: To understand and handle UNIX system calls.
CO4: The Students can Master in various process management concepts including scheduling, synchronization and semaphores.

SEMESTER – V

CODE: UCST51 SYSTEM SOFTWARE

CO1:About the historical development of system software
CO2: Know about the "boot" process.
CO3:Understand about the difference between Operating Systems software and Application Systems software.
CO4:The Students can gain the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.

CODE: UCST52 DATA MINING

CO1:Aware about the Functionalities, patterns, of operating system.

CO2: Design and deploy appropriate classification techniques.

CO3: Use association rule mining for handling large data set.

CO4: The student can discover interesting patterns from large amounts of data to analyze and extract patterns to solve problems.

CODE: UCST53 SOFTWARE ENGINEERING

CO1: Describe the processes of software development
CO2: Develop software design and modules for real time system
CO3: Analyze verification & validation techniques
CO4:The Student can identify, formulate, and solve engineering problems.

CODE: UCST54 COMPUTER NETWORKS

CO1: Understand networking concepts and basic communication model.

CO2. To Understand the working principles of various application protocols

CO3. To know about the Working with routing algorithms.

CO4. Familiarize the student with the basic terminology and Topology of the computer networking area.

CODE: UCST55 MULTIMEDIA AND ITS APPLICATIONS

CO1: Understand Multimedia Architecture.

CO2. To Design Authoring Tools.

CO3. To Gain the importance of Internet in multimedia.

CO4. The Student can able to work with the current multimedia applications.

CODE: UCSE53 VISUAL BASIC LAB

CO1:Explore Visual Basic's Integrated Development Environment (IDE).

CO2. To Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)

CO3. To create one and two dimensional arrays for sorting, calculating, and displaying of data.

CO4. The Student can develop a Graphical User Interface (GUI) based on problem description.

CODE: UCSS53 PYTHON LAB

CO1: Develop a basic understanding of Python programming language.

CO2. Be fluent in the use of procedural statements — assignments, conditional statements, loops, method calls — and arrays.

CO3. Be able to design, code, and test small Python programs that meet requirements expressed in English. This includes a basic understanding of top-down design.

CO4. The Student can Solve problems requiring the writing of well-documented programs in the Python language, including use of the logical constructs of that language.

<u>SEMESTER VI</u>

CODE: UCST61 JAVA AND INTERNET PROGRAMMING

CO1: Understand the object-oriented paradigm in the Java programming language.

CO2. To know about the Package and Interfaces.

CO3. To Understand about Applets.

CO4. The use of Java in a variety of technologies and on different platforms.

CODE: UCST62 WEB TECHNOLOGY

CO1:Understand the concept of Tables, Forms, Files, Basic Web server Controls.

CO2. Able to know Internet Basics and HTML.

CO3. To understand the concept of OLEDB connection class & Cookies.

CO4. Knowledge of solving web client/server problems.

CODE: UCST63 COMPUTER GRAPHICS

CO1: Understand computational development of graphics

CO2. To Analyze the Line attribute & curve attribute

CO3. To Design animation with rotation, translation and scaling

CO4. The Student can gain in-depth knowledge about the current 3D graphics.

CODE: UCSP63 JAVA AND INTERNET PROGRAMMING LAB

CO1:Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.

CO2. Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.

CO3. Understand the principles of inheritance, packages and interfaces

CO4. The Student can develop software in the Java programming language.

CODE: UCSP64 WEB TECHNOLOGY LAB

CO1:Apply the knowledge of the internet and related internet concepts that are vital in understanding web application development and analyze the insights of internet programming to implement complete application over the web.

CO2. To understand, analyze and apply the role of markup languages in the workings of the web and web applications.

CO3. To automate the real time problems by developing & analyzing a web project and identify its elements and attributes in comparison to traditional projects.

CO4. The Students can choose best technologies for solving web client/server problems.

CODE: UCSS64 COMPUTER GRAPHICS LAB

CO1: Understand the basic principles of implementing computer graphics primitives.

CO2. Familiarity with key algorithms for modelling and rendering graphical data.

CO3. To Apply Translation Techniques.

CO4. The Student can get the in depth knowledge in developing the Computer graphics.

NON MAJOR ELECTIVE (OFFERED BY PARENT DEPARTMENT) -HTML LAB

CO1: Use formatting tags.

CO2. How to Insert the Image file in web pages.

CO3. How to navigate through web pages.

CO4. The Student can become Master in creating Web pages using basic HTM tags.

NON MAJOR ELECTIVE (OFFERED BY PARENT DEPARTMENT) -PHOTOSHOP LAB

CO1:Be able to navigate Photoshop’s Workspace, Create & setup documents

CO2: To Understand about the Layers and Masking.

CO3:Be able to work with effects, filters and adjustments

CO4:The Students have a proficiency in a broad range of design skills pertaining to publication & web design.

NON MAJOR ELECTIVE (OFFERED BY PARENT DEPARTMENT)
FUNDAMENTALS OF COMPUTER

CO1: Understand the history of computer.

CO2. Broad Understanding about I/O Devices.

CO3. Comprehensive Knowledge about Software.

CO4. The Student can Familiar in handling the computer

M.V.MUTHIAH GOVERNMENT ARTS COLEEGE FOR WOMEN, DINDIGUL

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

COICE BASED CREDIT SYSTEMS (CBCS)

B.S.C COMPUTER SCIENCE

ACADEMIC YEAR (2021 – 2022)

Programme Outcomes

Programme Outcomes On successful completion of the Programme, the student will be able to

PO1: Understand the basic and advanced concepts involved in real world computing systems

PO2: Apply the algorithmic principles and computer fundamentals for computer based systems
PO3: Analyze, formulate and solve the problems in different domains using computing techniques

PO4: Understand the impact of computing systems for societal development

PO5: Collaborate with team members in developing projects and to accomplish a common objective

B.Sc. COMPUTER SCIENCE

Course Code	Title of the Course	Credits	Hours		CIS	EIS	Total
			L	P			
	FIRST SEMESTER						
U21LTA11	TAMIL I	3	6	-	25	75	100
U21LEN11	ENGLISH I	3	6	-	25	75	100
U21CST11	**Core-1**: Programming in C	4	5	-	25	75	100
U21CSP11	**Core-2**: Programming in C Lab	4	-	6	25	75	100
U21CSA11	**Allied – 1**: Discrete Mathematics	4	5	-	25	75	100
U21EVS11	Environmental Studies	2	2	-	25	75	100
U21PEPS11	Professional English for Physical Sciences – I	4	6	-	25	75	100
	Total	**24**	**36**		**-**	**-**	**700**
	SECOND SEMESTER						
U21LTA22	TAMIL II	3	6	-	25	75	100
U21LEN22	ENGLISH II	3	6	-	25	75	100
U21CST21	**Core-3**: Fundamentals of Data Structures	4	5	-	25	75	100
U21CSP22	**Core-4**: Data Structures using C Lab	4	-	5	25	75	100
U21CSA22	**Allied-2**: Digital Principles & Computer Organization	4	5	-	25	75	100
U21VAE21	Value Education	3	3	-	25	75	100
U21PEPS22	Professional English for Physical Sciences – II	4	6	-	25	75	100
	Total	**25**	**36**		**-**	**-**	**700**

COURSE OUTCOMES:

CODE U21CST11 PROGRAMMING IN C

CO1: Apply the syntax and semantics of C language – K3

CO2: Utilize the concept of functions and arrays in solving real world problems – K3

CO3: Demonstrate structures, union and pre-processing techniques in C - K1

CO4: Design real world problems using pointers and file concept - K3

CO5: Develop problem solving skills using C language – K2

CODE U21CSP11 PROGRAMMING IN C LAB

CO1: Develop and execute programs using Operators and control Structures – K2

CO2: Develop programs in C to solve any kind of real world problem - K2

CO3: Apply the programming concepts of C in the standalone applications. - K3

CO4: Have a depth understanding in C program features – K2

CO5: Develop programming skills in C language – K2

CODE U21CSA11 DISCRETE MATHEMATICS

CO1: Understand the complexity of computational problems – K2

CO2: Think about the design of formal language which would be able to address any real time problem – K1

CO3:Improve the working flow of computational models – K2.

CO4: Evaluate Boolean functions using the properties of Boolean algebra – K2

CO5: Simplify Boolean expressions using Boolean algebra – K2

Course Code U21CST21 FUNDAMENTALS OF DATA STRUCTURES

CO1: Describe the basics of Ordered Lists and Representation of Arrays – K1

CO2: Apply the knowledge of Linked list for solving problem in the real world. – K3

CO3: Demonstrate the usage of Binary trees and Representation of Trees – K2

CO4: Illustrate the performance of Graphs representation and spanning Trees – K4

COURSE CODE U21CSP22 DATA STRUCTURES USING C LAB

CO1: Apply the concepts to solve problems using C programming language - K3

CO2: Implement the basic data structures using C – K1

CO3: Solve real world problems using C programming language – K3

CO4: Recognize the importance of Data Structure features – K4

CO5: Create linked list using stack operations – K5

COURSE CODE U21CSA22 DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

CO1: Understand the hardware and software types and components of the computer – K2

CO2: Recognize the problem-solving fundamental key points. – K1

CO3: Sketch out the representation of numbers and codes in the computer – K1.

CO4: Know the digital computers internal components and the execution of the instructions – K2

CO5:Understand the hierarchy of memory management and usage – K1

M.V.MUTHIAH GOVERNMENT ARTS COLEEGE FOR WOMEN, DINDIGUL

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

COICE BASED CREDIT SYSTEMS (CBCS)

M.S.C COMPUTER SCIENCE

ACADEMIC YEAR (2021 – 2022)

PROGRAMME OUTCOMES

After completing M.Sc. Computer Science Program, the students will be able to:

PO1 To provide advanced and in-depth knowledge of computer science and its applications

PO2 To prepare Post Graduates who will achieve peer-recognition; as an individual or in a team; through demonstration of good analytical, design and implementation skills.

PO3 To enable students pursue a professional career in Information and Communication

PO4 Technology in related industry, business and research.

PO5 To impart professional knowledge and practical skills to the students.

PO6 Apply computer science theory and software development concepts to construct computing-based solutions.

M.SC COMPUTER SCIENCE CURRICULUM

S.No.	Course Code	Course Title	Credits	Hours L	Hours P	Int	Ext	Total
SEMESTER- I								
1.	P21CST11	**Core-1**: Advanced JAVA Programming	4	5	-	25	75	100
2.	P21CST12	**Core-2**: Data Structures and Algorithms	4	5	-	25	75	100
3.	P21CST13	**Core-3**: Discrete Mathematical Structure	4	5	-	25	75	100
4.	P21CST14	**Core-4:** Compiler Design	4	5	-	25	75	100
5.	P21CSP11	**Core–5**: **Computing-Lab1** (Advanced JAVA and Data Structures & Algorithms)	4	-	6	25	75	100
6.	P21CSS11	**Supportive Course I**: Computer Skills for Web Designing and Video Editing	2	-	4	25	75	100
		Sub Total	**22**	**30**				**600**
SEMESTER – II								
7	P21CST21	**Core-6**: Python Programming	4	4	-	25	75	100
8	P21CST22	**Core-7**: Cryptography and Network Security	4	4	-	25	75	100
9	P21CST23	**Core-8**: Distributed Operating System	4	4	-	25	75	100
10	P21CST24	**Coure-9**: NoSQL Databases	4	4	-	25	75	100
11	P21CSP22	**Core-10**: **Computing-Lab2** (Python Programming & Operating System)	4	-	6	25	75	100
12		**Non Major Elective**	4	-	6	25	75	100
13	P21CSS22	**Supportive Course – 2**: Web Programming	2	-	2	25	75	100
		Sub Total	**26**	**30**				**700**

COURSE OUTCOMES

COURSE CODE P21CST11 ADVANCED JAVA PROGRAMMING

CO1: Define the Applet fundamentals, GUI applications and AWT components. K1

CO2: Discuss about Networking in java and Java database connectivity. K2

CO3: Understand the concept of Servlets. K2

CO4: Understand the concepts JSP and HTTP. K3

CO5: Discuss about the Web programming on client side and server side. K4

COURSE CODE P21CST12 DATA STRUCTURES AND ALGORITHM

CO1: Describe the dynamicstructures–treesandgraphsanddiscusstheapplicationofthesestructures in finding simplified solutions K1

CO2: Describe hash and priority queues and its application K2

CO3: Implement binary search tree, balanced tree and multi–way indexed tree K2

CO4: Solve problems using dynamic programming and apply traversal techniques of trees and graphs K3

CO5: Analyze and solve problems using backtracking and branch-and-bound technique. K4

COURSE CODE P21CST13 DISCRETE MATHEMATICAL STRUCTURES

CO1:Impart knowledge on mathematical logic and theory of inference K1

CO2:Understand the concept of sets, relations, functions and mapping. K2

CO3: Understand the concepts of Automata Theory, Regular expressions, NFA and Turing Machine K3

CO4: Understand the concept of Probability theory. K3

CO5: Understand the graph theory concepts and applications in computer science. K4

COURSE CODE P21CST14 COMPILER DESIGN

CO1: Describe the basics of Compiler Structure K3

CO2: Analyze the functioning of Lexical Analyzer and implementation using Finite Automata. K2

CO3: Understand the role of Context Free Grammar and Parsing Techniques K1

CO4: Analyze the working methodology of LR Parsers and Representation of Intermediate Code Generation Phase K4

CO5: Discuss about the Data Structures used by Compiler, various Code Optimization Sources and apply the techniques

COURSE CODE P21CST21 PYTHON PROGRAMMING

CO1:Describe the basic concepts of python programming, Functions and control structures. K2

CO2:Understand Strings, Mutable and immutable objects. K3

CO3:Understand Recursion and Files and exception. K2

CO4:Discuss classes, objects, polymorphism, encapsulation and inheritance. K3

CO5:Apply python for collecting information from twitter, sharing data using sockets, managing database, and mobile application for android.

COURSE CODE P21CST22 CRYPTOGRAPHY AND NETWORK SECURITY

CO1: Understand the Number Theory K1

CO2: Understand the basics of Cryptography K2

CO3: Understand Hash Functions and Cryptography K3

CO4: Understand Security Procedure and System Security K3

CO5: Understand the various Security Services K4

COURSE CODE P21CST23 DISTRIBUTED OPERATING SYSTEM

CO1: Understand the Operating System Structure and its Services K1

CO2: Understand the efficient Scheduling of Multiple Process Execution. K2

CO3:Understand the efficient allocation of available memory among multiple processes K3

CO4: Understand the Device Management System K3

CO5: Compare and Contrast the features of Windows and LINUX operating Systems in terms of their services. K4

COURSE CODE P21CST24 NoSQL DATABASES

CO1: Acquire a deep knowledge on relational Database, Structured Query Language and Data Modeling K1

CO2: Acquire the Knowledge on MongoDB query language K2

CO3: Comprehend the principles of NoSQL K2

CO4: Differentiate NoSQL key value database and Document database K2

CO5: Know the concept of Column database and Understand the data modeling techniquesK2

M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN , DINDIGUL
PG AND RESEARCH DEPARTMENT OF COMPUTER SCIENCE
CHOICE BASED CREDIT SYSTEM (CBCS)

M.Sc COMPUTER SCIENCE

ACADEMIC YEAR 2020-2021

PROGRAMME OUTCOMES FOR M.Sc COMPUTER SCIENCE

PO1:To provide advanced and in-depth knowledge of computer science and its applications

PO2:To prepare Post Graduates who will achieve peer-recognition; as an individual or in a team; through demonstration of good analytical, design and implementation skills.

PO3:To enable students pursue a professional career in Information and Communication Technology in related industry, business and research.

PO4:To impart professional knowledge and practical skills to the students

PO5:Apply computer science theory and software development concepts to construct computing-based solutions.

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL – 624 102

(AS PER TANSCHE RULES)

DEPARTMENT OF COMPUTER SCIENCE

M.SC. COMPUTER SCIENCE

ALLOCATION OF PAPERS AND CREDITS FOR PG PROGRAMME

2020-2021

SEMESTER I

S.NO.	PART	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	Core 1 Theory	PCST11	Advanced Java Programming	5	6
02.	Core 2 Theory	PCST12	Data Structures and Algorithms	5	6
03.	Core 3 Theory	PCST13	Mathematical Foundations of Computer Science	5	6
04.	Core 4 Practical	PCSP11	Advanced Java Lab	5	6
05.	Elective	PCSE11	Elective – I	5	6
Total				**25**	**30**

SEMESTER II

S.NO.	PART	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	Core 1 Theory	PCST21	Advanced Operating System	5	6
02.	Core 2 Theory	PCST22	Relational Database Management System	5	6
03.	Core 3 Theory	PCST23	Computer Networks	5	6
04.	Core 4 Practical	PCSP22	RDBM Lab	5	6
05.	Elective	PCSE22	Elective – II	5	6
Total				**25**	**30**

SEMESTER III

S.NO.	PART	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	Core 1 Theory	PCST31	Compiler Design	5	6
02.	Core 2 Theory	PCST32	Software Engineering	5	6
03.	Core 3 Theory	PCST33	Web Programming	5	6
04.	Core 4 Practical	PCSP33	Web Programming Lab	5	6
05.	Elective	PCSE33	Elective – III	5	6
Total				**25**	**30**

SEMESTER IV

S.NO.	PART	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	Core 1 Theory	PCST41	Digital Image Processing	5	6
02.	Core 2 Theory	PCST42	Mobile Computing	5	6
03.	Core 3 Practical	PCSP44	Project	5	18
Total				**15**	**30**
Total Credit : 90					

ELECTIVES		
SEMESTER I	**SEMESTER II**	**SEMESTER III**
Computer Graphics	Data Warehousing and Data Mining	Big Data Analytics

COURSE OUCOMES
SEMESTER –I

COURSE CODE: PCST11 - ADVANCED JAVA PROGRAMMING

CO1: Define the Applet fundamentals, GUI applications and AWT components.
CO2: Discuss about Networking in java and Java database connectivity.
CO3: Understand the concept of Servlets.
CO4: Understand the concepts JSP and HTTP.
CO5: Discuss about the Web programming on client side and server side.

COURSE CODE: PCST12 DATA STRUCTURES AND ALGORITHMS

CO1: Describe the dynamicstructures–treesandgraphsanddiscusstheapplicationofthesestructures in finding simplified solutions
CO2: Describe hash and priority queues and its application
CO3: Implement binary search tree, balanced tree and multi–way indexed tree
CO4: Solve problems using dynamic programming and apply traversal techniques of trees and graphs
CO5: Analyze and solve problems using backtracking and branch-and-bound technique.

COURSE CODE: COURSE CODE: PCST13 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

CO1:Impart knowledge on mathematical logic and theory of inference
CO2:Understand the concept of sets, relations, functions and mapping.
CO3: Study the different properties of graphs
CO4:Study the basic search algorithms to find the shortest path
CO5: Study the homogeneous recurrence relations

COURSE CODE:PCSP11 - ADVANCED JAVA LAB

CO1: Implementing Object Oriented Concepts, Package creation in Java using appropriate coding standards
CO2: Practice to design GUI based application using Swing components.
CO3: Practice writing generic programs and collection classes in Java
CO4: Explore exception handling techniques.
CO5: Demonstrate the concurrency programming

SEMESTER – II

COURSE CODE: **PCST21 -ADVANCED OPERATING SYSTEM**

CO1: Learn the concepts of operating systems.
CO2: Learn about the various issues in operating systems.
CO3: Familiarize with the important mechanisms in operating systems.
CO4: Appreciate the emerging trends in operating systems

COURSE CODE: PCST22 RELATIONAL DATABASE MANAGEMENT SYSTEM

CO1: Correlate the role of database management systems in information technology applications within organization
CO2: Sketch basic database concepts, including the structure and operation of the relational data model
CO3: Articulate the use of contemporary logical design methods and tools for databases
CO4: Understand the relationship between Transaction Processing and Databases
CO5: Study query processing and optimization

COURSE CODE: PCST23 – COMPUTER NETWORKS

CO1:Study layered architecture of computer networks and protocols.
CO2:Learn the various mediums used in the physical layer.
CO3:Study the functionalities of data link layer.
CO4:Learn the routing algorithms and the use of IP addressing in the network layer.
CO5: Understand the working of transport layer.
CO6:Learn to design secure network applications.

COURSE CODE: : PCSP22 RDBMS LAB

To Develop Queries using SQL, Programs in PL/SQL and to Create application using front and back end tools.

SEMESTER III

COURSE CODE: PCST31 COMPILER DESIGN

CO1**:** Describe the basics of Compiler Structure
CO2: Analyze the functioning of Lexical Analyzer and implementation using Finite Automata.
CO3**:** Understand the role of Context Free Grammar and Parsing Techniques
CO4**:** Analyze the working methodology of LR Parsers and Representation of Intermediate Code Generation Phase
CO5**:** Discuss about the Data Structures used by Compiler, various Code Optimization Sources and apply the techniques

COURSE CODE: PCST32 SOFTWARE ENGINEERING

CO1:Aware of generic models to structure the software development process.
CO2: Understand fundamental concepts of requirements engineering and requirements specification.
CO3:Understand different notion of complexity at both the module and system level.
CO4: Aware of some widely known design methods.

CO5: Understand the role and contents of testing activities in different life cycle phases

COURSE CODE: PCST33 WEB PROGRAMMING

CO1: Learn to design web pages using HTML5
CO2: Gain knowledge on creating interactive web pages using JavaScript, jQuery
CO3: Know to use Cascading Style Sheets (CSS) and DOM.
CO4: Study different technologies related to XML
CO5: Learn to develop server side scripting using PHP
CO6: Learn to develop web services using AJAX

COURSE CODE: PCSP33- WEB PROGRAMMING LAB

CO1: Try and develop the most important technologies that are being used today by web developers to build a wide variety of web applications.
CO2: Develop Java based web programming.
CO3: Build web applications using proven developer tools and message formats.
CO4: Web applications using technologies such as Java, Javascript, AJAX, Ruby on Rails, Django, XML, RSS, XSLT, and JSON.

SEMESTER IV

COURSE CODE: PCST41 - DIGITAL IMAGE PROCESSING

CO1: Learn about the basic concepts of digital image processing and various image transforms.
CO2: Familiarize the student with the image enhancement techniques
CO3: Expose the student to a broad range of image processing techniques and their applications.
CO3: Appreciate the use of current technologies those are specific to image processing systems.
CO4: Expose the students to real-world applications of image processing.

COURSE CODE: PCST42 -MOBILE COMPUTING

CO1: Clearly understanding the mobile communications environment
CO2: Get clear idea about Satellite Systems
CO3: Make clear idea about the GSM Technology

COURSE CODE: PCSP44 -PROJECT

CO1:An ability to apply knowledge of computing and mathematics appropriate to the discipline.
CO2:An ability to identify, formulate, and develop solutions to computational challenges.
CO3:An ability to design, implement, and evaluate a computational system to meet desired needs within realistic constraints.

COURSE CODE: PCSE11 COMPUTER GRAPHICS - ELECTIVE –I

CO1: Develop, design and implement two and three dimensional graphical structures
CO2: Enable students to acquire knowledge in viewing and clipping operations
CO3: Learn three dimensional geometric and modeling

COURSE CODE: PCSE22 - DATA WAREHOUSING AND DATA MINING ELECTIVE –II

CO1: Understand data mining principles and techniques
CO2: Discover the knowledge imbibed in the high dimensional system.
CO3: Study algorithms for finding the hidden interesting patterns in data.
CO4: Expose the students to the concepts of Data warehousing Architecture and Implementation.
CO5: Study the overview of developing areas – Web mining, Text mining and Big Data Mining Tools of Data mining.

COURSE CODE: PCSE33 - BIG DATA ANALYTICS ELECTIVE – III

CO1: Fundamental concepts of big data and analytics.
CO2: Explore tools and practices for working with big data
CO3: Learn about stream computing.
CO4: Know about the research that requires the integration of large amounts of data.

M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN , DINDIGUL
PG AND RESEARCH DEPARTMENT OF COMPUTER SCIENCE
CHOICE BASED CREDIT SYSTEM (CBCS)

ACADEMIC YEAR 2020-2021

P.G. D. C. A

I SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	PDCAT11	Programming in C	5	6
02.	PDCAT12	Office Automation	5	6
03.	PDCAT13	Foundation In Computer Science	5	6
04.	PDCAP14	Programming in C Lab	5	6
05.	PDCAP15	Office Automation Lab	5	6
Total			**25**	**30**

II SEMESTER

S.NO.	SUBJECT CODE	SUBJECT NAME	CREDITS	HOURS
01.	PDCAT21	Software Engineering	5	6
02.	PDCAT22	Internet and Web Technology	5	6
03.	PDCAT23	Desktop Publishing (DTP)	5	6
04.	PDCAP24	Desktop Publishing (DTP) Lab	5	6
05.	PDCAP25	Web Designing using HTML Lab	5	6
Total			**25**	**30**

PROGRAMME OUTCOMES:

PO1: Understanding of the basics of computer science.

PO2: After this successful completion of the program a student should be able to get entry level job in the field of computer application.

PO3: Capable of adopting to new technologies and constantly upgrade their skills with an attitude towards independent and lifelong learning.

PO4: Attain the ability to design and develop computer application, evaluate and recognize potential risks and provide innovative solutions.

COURSE OUTCOMES

SEMESTER I

CODE: PGDCA115-PROGRAMMING IN C

CO1: Understand the history of C and how to write a C program

CO2: Familiar with Operators, Conditional and Looping Statements in C

CO3: Learn about Arrays and its applications with C

CO4 : Implement Functions and Strings in C

CO5: Get knowledge about the usage of Pointers in C

CODE: PDCAT12 - OFFICE AUTOMATION

CO1: Understand the basics of MS Word in Office Packages

CO2: Get knowledge by comparing different office suites

CO3: Study the advanced features of MS Office

CO4: Explore Spreadsheet MS-Excel application and its advanced aspects

CO5: Learn the usage of Presentation software MS-PowerPoint

CODE: PDCAT13 - FOUNDATION IN COMPUTER SCIENCE

CO1: Understand the importance and use of operating systems

CO2: Study the various types of operating system

CO3: Learn about the Database Systems and its significance

CO4: Explore the SQL commands in RDBMS

CO5: Understand the concepts of Computer Network and its protocols

CODE: PDCAP14 -PROGRAMMING IN C LAB

CO1: Practice to implement a C program
CO2: Understand the implementation of Operators and Arrays
CO3: Study to handle Functions and the implementation in C
CO4: Learn how to program Strings in C
CO5: Explore how to use Pointers in C for various applications

CODE: PDCAP15- OFFICE AUTOMATION LAB

CO1: Practice implementation of Table and Mail Merge in MS-Word
CO2: Learn how to handle pictures and calculations in MS-Word
CO3: Develop programming skills in MS-Excel
CO4: Practice creation of database in MS-Excel
CO5: Learn how to use Presentation software MS-PowerPoint

SEMESTER II

CODE: PDCAT21 - SOFTWARE ENGINEERING

CO1: Understand the basic concepts of software
CO2: Be expertise in Software Process Models
CO3: Study about System analysis, DFD and data dictionary
CO4: Know about various software, data designs
CO5: Learn how to analyse, design and test a software

CODE: PDCAT22 - INTERNET AND WEB TECHNOLOGY

CO1:Gain knowledge of Internet and its components
CO2:Learn about Search Engines and its different menu options
CO3:Understand the various HTML Text formatting controls
CO4:Study the Frames and Forms for effective web designing
CO5: Expertise with website creation using HTML controls

CODE: PDCAT23 -DESKTOP PUBLISHING (DTP)

CO1: Understand the significance of CorelDraw in designing
CO2: Study the designing a document using PageMaker
CO3: Design effectively using various tools in Photoshop
CO4:Expose the real time applications of DTP tools

CODE: PDCAP24 - DESKTOP PUBLISHING (DTP) LAB

CO1:Learn various facet of editing a picture using Coral Draw
CO2:Practice designing and formatting images using Photoshop
CO3:Practice about the designing and editing of books using page makers
CO4:Learn how to design a Cards, Certificates and Pamphlet

CODE: PDCAP25 - WEB DESIGNING USING HTML LAB

CO1: Understand various aspects of designing a web page
CO2: Practice creation of website with list and marquees
CO3:Know how to create frames and forms in webpage
CO4: Learn how to incorporate all elements in a webpage

Department of Business Administration

SYLLABUS 2018-2019

PROGRAMME OUTCOMES (PO's)

Upon completion of the program, the BBA graduate should be able to

1. Equip with advanced business acumen that helps them to understand the key business functions and organizational resources for efficient business management.
2. Acquire knowledge and skills in management, finance, accounting, marketing, human resource, technology, organizational behavior, economics, operations and business law.
3. Demonstrate the ability to analyze complex, unstructured qualitative and quantitative problems by collecting, analyzing data by using accounting, financial, mathematical, statistical tools, information and communication technologies to solve the complex business problems.
4. Apply technology to enhance organizational efficiency and create innovative business solutions.
5. Exhibit business-related behavioral skills including leadership, interpersonal, communication (written and oral), team, and lifelong learning skills.
6. Analyze global market opportunities and their influence on strategic marketing decisions.
7. Develop legal and ethical strategic plans that align with an organization's mission
8. Demonstrate critical thinking skills in understanding managerial issues and problems related to the global economy and international business.
9. Familiarize with social responsibility issues that managers must address, including business ethics, cultural diversity, and environmental concerns.
10. Acquire entrepreneurial traits to start and manage their own innovative business successfully.

SYLLABUS 2021-2022

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

- The three year BBA program aims at developing a student's intellectual ability, executive personality and management skills through an appropriate blending of business and general education.
- The program assists the student in understanding and developing the unique leadership qualities required for successfully managing business functions in an organizational unit or an enterprise.
- The program also seeks to prepare students for higher education in business at home and abroad.

PROGRAMME OUTCOMES (PO's)

Upon completion of the program, the BBA graduate should be able to

- Equip with advanced business acumen that helps them to understand the key business functions and organizational resources for efficient business management.
    - ➢ Acquire knowledge and skills in management, finance, accounting, marketing, human resource, technology, organizational behavior, economics, operations and business law.
    - ➢ Demonstrate the ability to analyze complex, unstructured qualitative and quantitative problems by collecting, analyzing data by using accounting, financial, mathematical, statistical tools, information and communication technologies to solve the complex business problems.

- Apply technology to enhance organizational efficiency and create innovative business solutions.
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