B.Sc. ELECTRONICS

LOCF SYLLABUS 2023

Department of Electronics
School of Physical Sciences
St. Joseph's College (Autonomous)
Tiruchirappalli - 620 002, Tamil Nadu, India

Vision

Forming globally competent, committed, compassionate and holistic persons, to be men and women for others, promoting a just society.

Mission

- Fostering learning environment to students of diverse background, developing their inherent skills and competencies through reflection, creation of knowledge and service.
- Nurturing comprehensive learning and best practices through innovative and value-driven pedagogy.
- Contributing significantly to Higher Education through Teaching, Learning, Research and Extension.

Programme Educational Objectives (PEOs)

- Graduates will be able to accomplish professional standards in the global environment.
- Graduates will be able to uphold integrity and human values.
- Graduates will be able to appreciate and promote pluralism and multiculturalism in working environment.

Programme Outcomes (POs)

1. Graduates will be able to comprehend the concepts learnt and apply in real life situations with analytical skills.
2. Graduates with acquired skills and enhanced knowledge will be employable/ become entrepreneurs or will pursue higher Education.
3. Graduates with acquired knowledge of modern tools communicative skills and will be able to contribute effectively as team members.
4. Graduates are able to read the signs of the time analyze and provide practical solutions.
5. Graduates imbibed with ethical values and social concern will be able to understand and appreciate social harmony, cultural diversity ensure sustainable environment.

Programme Specific Objectives (PSOs)

1. Graduates will be able to familiarize the theories of electronics to develop Critical and analytical skills to meet the real-life needs.
2. Graduates will be able to enhance their experimental, problem solving skill and design electronic circuits for complex problems.
3. Graduates will be equipped with hardware, software trouble shooting and programming skill.
4. Graduates will be competent in applying the appropriate techniques, handling electronic instruments and use of modern tools.
5. Graduates will be able to pursue higher education, adapt excellently to the change in work environment and turn out to be Entrepreneur.

CONTINUOUS INTERNAL ASSESSMENT
Categorizing Outcome Assessment Levels Using Bloom's Taxonomy

Level	Cognitive Domain	Description
K1	Remember	It is the ability to remember the previously learned concepts or ideas.
K2	Understand	The learner explains concepts or ideas.
K3	Apply	The learner uses existing knowledge in new contexts.
K4	Analyse	The learner is expected to draw relations among ideas and to compare and contrast.
K5	Evaluate	The learner makes judgements based on sound analysis.
K6	Create	The learner creates something unique or original.

Question Paper Blueprint for Mid and End Semester Tests

<table>
<tr><td colspan="3">Duration: 2 Hours</td><td colspan="6">Maximum Marks: 60</td></tr>
<tr><td colspan="2" rowspan="2">Section</td><td colspan="6">K level*</td><td rowspan="2">Marks</td></tr>
<tr><td>K1</td><td>K2</td><td>K3</td><td>K4</td><td>K5</td><td>K6</td></tr>
<tr><td colspan="2">A (no choice)</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td>7 × 1 = 7</td></tr>
<tr><td colspan="2">B (no choice)</td><td></td><td>5</td><td></td><td></td><td></td><td></td><td>5 × 3 = 15</td></tr>
<tr><td colspan="2">C (either… or type)</td><td></td><td></td><td>3</td><td></td><td></td><td></td><td>3 × 6 = 18</td></tr>
<tr><td rowspan="4">D (2 out of 3)</td><td>Courses with K4 as the highest cognitive level</td><td></td><td></td><td></td><td>2</td><td></td><td></td><td rowspan="4">2 × 10 = 20</td></tr>
<tr><td>Courses with K5 as the highest cognitive level wherein one question each on K4 and K5 is compulsory.
(Note:K4 has two questions whereas, K5 has no choice.)</td><td></td><td></td><td></td><td>1</td><td>1</td><td></td></tr>
<tr><td rowspan="2">Courses with K6 as the highest cognitive level wherein one question each on K5 and K6 is compulsory.
(Note: Mid Sem: K4 has two questions whereas, K5 has no choice; End sem: K5 has two questions whereas, K6 has no choice)</td><td></td><td></td><td></td><td colspan="2">Mid Sem</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td colspan="2">End Sem</td></tr>
<tr><td colspan="6">Total</td><td>60</td></tr>
</table>

** K4 and K5 levels will be assessed in the Mid semester test whereas K5 and K6 levels will be assessed in the End semester test.*

Question Paper Blueprint for Mid and End Semester Tests *(For quantitative courses only)*

Duration: 2 Hours						**Maximum Marks: 60**
Section	**K level**					**Marks**
	K1	**K2**	**K3**	**K4**	**K5**	
A *(no choice)*	9					9 × 1 = 9
B *(either… or type)*		2	1			3 × 5 = 15
C *(2 out of 3)*				1	1*	2 × 18 = 36
					Total	**60**

** K5 compulsory*

SEMESTER EXAMINATION
Question Paper Blueprint for Semester Examination

Duration: 3 Hours								**Maximum Marks: 100**
Section		**K level**						**Marks**
		K1	**K2**	**K3**	**K4**	**K5**	**K6**	
A *(no choice, two questions from each unit)*		10						10 × 1 = 10
B *(no choice, two questions from each unit)*			10					10 × 3 = 30
C *(either… or type, one question from each unit)*				5				5 × 6 = 30
D *(3 out of 5, one question from each unit)*	*Courses with K4 as the highest cognitive level*				3			3 × 10 = 30
	Courses with K5 as the highest cognitive level wherein two K4 questions and one K5 question are compulsory. (Note: Three questions on K4 and two questions on K5)				2	1		
	Courses with K6 as the highest cognitive level wherein one question each on K4, K5, and K6 is compulsory. (Note: Two questions each on K4 and K5 and one question on K6)				1	1	1	
							Total	**100**

Question Paper Blueprint for Semester Examination *(For quantitative courses only)*

Section	Marks	K level
A	10 × 1 = 10	K1
B	5 × 6 = 30 *(either…or)*	K2 *(Q. No. 11 & 12)* K3 *(Q. No. 13, 14 & 15)*
C	4 × 15 = 60 *(4 out of 5)*	K4 *(Q. No. 16, 17 & 18)* K5 *(Q. No. 19 & 20)*
Total Marks: 100		

Evaluation Pattern for Part IV One/Two Credit Courses

Title of the Course	CIA	Semester Examination	Total Marks
Internship	100		**100**
UG Skill Enhancement Course (Non Major Elective) Foundation Course **PG** Ability Enhancement Course	20 + 10 + 20 = 50	50 *(External member from the Department)*	**100**
Value Education	50	50 *(CoE)*	**100**

B.Sc. ELECTRONICS								
PROGRAMME PATTERN						Scheme of Exams		
Sem	**Part**	**Course Code**	**Title of the Course**	**Hours**	**Credits**	**CIA**	**SE**	**Final**
1	1	23UTA11GL01A	General Tamil - 1	5	3	100	100	100
		23UFR11GL01	French - 1					
		23UHI11GL01	Hindi - 1					
		23USA11GL01	Sanskrit - 1					
	2	23UEN12GE01	General English - 1	5	3	100	100	100
	3	23UEL13CC01	**Core Course - 1:** Semiconductor Theory and Electronic Devices	5	4	100	100	100
		23UEL13CP01	**Core Practical - 1:** Semiconductor Devices	3	2	100	100	100
		23UEL13AC01	**Allied Course - 1:** Mathematics for Electronics - 1	6	4	100	100	100
	4	23UEL14FC01	**Foundation Course:** Introductory Electronics	2	1	100	-	100
		23UEL14SE01	**Skill Enhancement Course -1: (Non Major Elective):** Consumer Electronics	2	1	100	-	100
		23UHE14VE01	**Value Education - 1:** Essentials Of Humanity*	2	1	50	50	50
		23UEN14AE01	**Ability Enhancement Compulsory Course - 1:** Communicative English	(6)	3	100	-	100
			Total	**30**	**22**			
2	1	23UTA21GL02	General Tamil - 2	4	3	100	100	100
		23UFR21GL02	French - 2					
		23UHI21GL02	Hindi - 2					
		23USA21GL02	Sanskrit - 2					
	2	23UEN22GE02	General English - 2	5	3	100	100	100
	3	23UEL23CC02	**Core Course - 2**: Electric Circuit Analysis	5	4	100	100	100
		23UEL23CP02	**Core Practical - 2:** Circuit Analysis	3	2	100	100	100
		23UEL23WS01	**Workshop:** Circuit Design and Trouble Shooting	3	2	100	-	100
		23UEL23AC02	**Allied Course - 2:** Mathematics for Electronics - 2	6	4	100	100	100
	4	23UHE24VE02	**Value Education - 2:** Fundamentals of Human Rights*	2	1	50	50	50
		23UHE24AE01	**Ability Enhancement Compulsory Course - 2:** Environmental Studies*	2	1	50	50	50
		-	Extra Credit Courses (MOOC/Certificate Courses) - 1		(3)			
			Total	**30**	**20(3)**			
3	1	23UTA31GL03	General Tamil - 3	4	3	100	100	100
		23UFR31GL03	French - 3					
		23UHI31GL03	Hindi - 3					
		23USA31GL03	Sanskrit - 3					
	2	23UEN32GE03	General English - 3	5	3	100	100	100
	3	23UEL33CC03	**Core Course - 3:** Digital Electronics	5	4	100	100	100
		23UEL33CC04	**Core Course - 4:** Electronic Circuits	5	3	100	100	100
		23UEL33CP03	**Core Practical - 3:** Digital and Analog Circuits	3	3	100	100	100
		23UEL33AO01A	**Allied Optional - 1:** Applied Physics - 1	4	3	100	100	100
		23UEL33AO01B	**Allied Optional - 1:** Computer Science - 1					
		@	**Allied Optional Practical:** Applied Physics	2	-	-	-	-
		@	**Allied Optional Practical:** Computer Science					
	4	23UHE34VE03A	**Value Education - 3:** Social Ethics - 1*	2	1	50	50	50
		23UHE34VE03B	**Value Education - 3:** Religious Doctrine - 1*					
		-	Extra Credit Courses (MOOC/Certificate Courses) - 2		(3)			
			Total	**30**	**20(3)**			

4	1	23UTA41GL04B	General Tamil - 4 அறிவியல் தமிழ் (Scientific Tamil)	4	3	100	100	100
		23UFR41GL04	French - 4					
		23UHI41GL04	Hindi - 4					
		23USA41GL04	Sanskrit - 4					
	2	23UEN42GE04	General English - 4	5	3	100	100	100
	3	23UEL43CC05	**Core Course - 5:** Linear Integrated Circuits	5	4	100	100	100
		23UEL43CC06	**Core Course - 6:** Communication Electronics	5	4	100	100	100
		23UEL43CP04	**Core Practical - 4:** Communication and LIC	3	2	100	100	100
		23UEL43AO02A	**Allied Optional - 2:** Applied Physics - 2	4	3	100	100	100
		23UEL43AO02B	**Allied Optional - 2:** Computer Science - 2					
		23UEL43OP01A	**Allied Optional Practical:** Applied Physics	2	2	100	100	100
		23UEL43OP01B	**Allied Optional Practical:** Computer Science					
	4	23UHE44VE04A	**Value Education - 4:** Social Ethics - 2*	2	1	50	50	50
		23UHE44VE04B	**Value Education - 4:** Religious Doctrine - 2*					
		-	Extra Credit Courses (MOOC/Certificate Courses) - 3	-	(3)			
			Total	**30**	**22(3)**			
5	3	23UEL53CC07	**Core Course - 7:** Microprocessors and Applications	4	3	100	100	100
		23UEL53CC08	**Core Course - 8:** Sensors and Electronic Instrumentation	4	3	100	100	100
		23UEL53CP05	**Core Practical - 5:** Microprocessors, C and Python	6	4	100	100	100
		23UEL53ES01A	**Discipline Specific Elective - 1:** Mobile Communication	5	3	100	100	100
		23UEL53ES01B	**Discipline Specific Elective - 1:** Medical Electronics					
		23UEL53ES02A	**Discipline Specific Elective - 2:** C and Python Programming Computer Hardware and Networks	5	3	100	100	100
		23UEL53ES02B	**Discipline Specific Elective - 2:** Computer Hardware and Networks					
		23UEL53IS01	Internship	-	1	100	-	100
		23UEL53SP01A	**Self-paced Learning:** RF, Microwave and Optical Communications*	-	2	50	50	50
		23UEL53SP01B	**Self-paced Learning:** PCB Design and Fabrication*					
	4	23UEL54EG01A	**Generic Elective - 1:** Everyday Electronics	4	2	100	100	100
		23UEL54EG01B	**Generic Elective - 1:** Wireless Communication					
		23USS54SE01	**Skill Enhancement Course - 2:** Soft Skills	2	1	100	-	100
		-	Extra Credit Courses (MOOC/Certificate Courses) - 4	-	(3)			
			Total	**30**	**22(3)**			
6	3	23UEL63CC09	**Core Course - 9:** Microcontroller and Embedded System	4	3	100	100	100
		23UEL63CC10	**Core Course - 10:** Power Electronics	4	3	100	100	100
		23UEL63CP06	**Core Practical - 6:** Microcontroller and Power Devices	6	4	100	100	100
		23UEL63ES03A	**Discipline Specific Elective - 3:** Control System	5	3	100	100	100
		23UEL63ES03B	**Discipline Specific Elective - 3:** Virtual Instrumentation					
		23UEL63ES04A	**Discipline Specific Elective - 4:** Robotics and Industrial Automation	5	3	100	100	100
		23UEL63ES04B	**Discipline Specific Elective - 4:** Digital Image Processing					
		23UEL63PW01	Project Work and Viva Voce	-	2	100	100	100
		23UEL63CE01	Comprehensive Examination*	-	2	50	50	50
	4	23UEL64EG02A	**Generic Elective - 2:**CCTV and Smart Security Systems	4	2	100	100	100
		23UEL64EG02B	**Generic Elective - 2:**Entrepreneurial Electronics					
		23UEL64SE02A	**Skill Enhancement Course - 3 (WS):** Lab Equipment Maintenance and Servicing	2	1	100	-	100
		23UEL64SE02B	**Skill Enhancement Course - 3 (WS):** PC Assembling and Servicing					
		-	Extra Credit Courses (MOOC/Certificate Courses) - 5	-	(3)			
			Total	**30**	**23(3)**			
2 - 6	5	23UCW65OR01	Outreach Programme (SHEPHERD)	-	4			
1 - 6			**Total (3 years)**	**180**	**133**			

@ - year end practical

*- for grade calculation 50 marks are converted into 100 in the mark statements

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	23UTA11GL01A	General Tamil – 1	5	3

கற்றலின் நோக்கங்கள்
தமிழ்ச் செவ்வியல் இலக்கியங்களையும் காப்பியங்களையும் மாணவர்கள் அறிந்துகொள்ளல்
தமிழர் பேணி வளர்த்த அறம்சார் விழுமியங்களை மாணவர்கள் தம் வாழ்வில் பின்பற்றுதல்
தமிழில் பக்திஇயக்கப் பங்களிப்பையும் பகுத்தறிவுச் சிந்தனை மரபையும் உணர்தல்
மாணவர்கள் தம் எழுத்தாற்றலையும் மொழிப்புலமையையும் வளர்த்தெடுத்தல்
போட்டித்தேர்வுகளை எதிர்கொள்ளும் வகையில் இலக்கணம், இலக்கியம் கற்றல்

அலகு I: தமிழ் இலக்கிய, இலக்கண வரலாறு அறிமுகம் (15 மணி நேரம்)

1. இலக்கணம் :

அ. தொல்காப்பியம், இறையனார் களவியல் உரை , நம்பியகப் பொருள், புறப்பொருள் வெண்பா மாலை, நன்னூல், தண்டியலங்காரம், யாப்பருங்கலக்காரிகை- நூல்கள்

ஆ. மொழிப் பயிற்சி- ஒற்றுப்பிழை தவிர்த்தல்

- வல்லினம் மிகும் இடங்கள்
- வல்லினம் மிகா இடங்கள்
- ஈரொற்று வரும் இடங்கள்
- ஒரு, ஓர் வரும் இடங்கள்
- அது, அஃது வரும் இடங்கள்
- தான், தாம் வரும் இடங்கள்

பயிற்சி : வல்லினம் மிகும் இடங்கள், மிகா இடங்கள் தவறாக வரும்வகையில் ஒரு பத்தி கொடுத்து ஒற்றுப் பிழை திருத்தி எழுதச் செய்தல்.

2. சங்க இலக்கியம் - எட்டுத்தொகை, பத்துப்பாட்டு
3. அற இலக்கியம் - பதினெண்கீழ்கணக்கு நூல்கள்
4. காப்பிய இலக்கியம் - ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள்
5. பக்தி இலக்கியமும் (பன்னிரு திருமுறைகள், நாலாயிர திவ்வியப் பிரபந்தம் -- பகுத்தறிவு இலக்கியமும் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)

அலகு II: சங்க இலக்கியம் (15 மணி நேரம்)

எட்டுத்தொகை:

6. நற்றிணை-முதல் பாடல் -நின்ற சொல்லர்
7. குறுந்தொகை 3 ஆம் பாடல் -நிலத்தினும் பெரிதே
8. ஐங்குறுநூறு –நெல் பல பொலிக! பொன் பெரிது சிறக்க!' (முதல் பாடல்)-வேட்கைப் பத்து
9. கலித்தொகை- 51 - சுடர்த்தொடீஇக் கேளாய் -குறிஞ்சிக் கலி
10. புறநானூறு -189 தெண்கடல் வளாகம் பொதுமையின்றி, நாடா கொன்றோ -187

பத்துப்பாட்டு:

11. முல்லைப்பாட்டு (முழுவதும்)

அலகு III: அற இலக்கியம் **(15 மணி நேரம்)**

12. திருக்குறள் -அறன் வலியுறுத்தல் அதிகாரம்
13. நாலடியார்-பாடல்: 131 (குஞ்சியழகும்)
14. நான்மணிக்கடிகை-நிலத்துக்கு அணியென்ப
15. பழமொழி நானூறு- தம் நடை நோக்கார்
16. இனியவை நாற்பது- 37. இளமையை மூப்பு என்று

அலகு IV: காப்பிய இலக்கியம் **(15 மணி நேரம்)**

17. சிலப்பதிகாரம் – வழக்குரைகாதை
18. மணிமேகலை- பாத்திரம் பெற்ற காதை
19. பெரியபுராணம் - பூசலார் நாயனார்புராணம்
20. கம்பராமாயணம்- குகப் படலம்
21. சீறாப்புராணம் – மானுக்குப் பிணை நின்ற படலம்
22. இயேசு காவியம் -ஊதாரிப்பிள்ளை

அலகு V: பக்தி இலக்கியமும், பகுத்தறிவு இலக்கியமும் **(15 மணி நேரம்)**

23. பக்தி இலக்கியம்:

- திருநாவுக்கரசர் தேவாரம் - நாமார்க்கும் குடியல்லேம் எனத் தொடங்கும் பாடல் மட்டும்
- மாணிக்கவாசகர் திருவாசகம் - நமச்சிவாய வாஅழ்க நாதன்தாள் வாழ்க முதல் சிரம்குவிவார் ஓங்குவிக்கும் சீரோன் கழல் வெல்க வரை
- பொய்கையாழ்வார்-வையந் தகளியா வார்கடலே
- பூதத்தாழ்வார்-அன்பே தகளியா
- பேயாழ்வார்-திருக்கண்டேன் பொன்மேனி கண்டேன்
- ஆண்டாள் – திருப்பாவை மார்கழித் திங்கள் (முதல் பாடல்)

24. பகுத்தறிவு இலக்கியம் :

- திருமூலர் – திருமந்திரம் (270,271, 274, 275 285)
- பட்டினத்தார் -திருவிடை மருதூர் (காடே திரிந்து – எனத் தொடங்கும் பாடல் பா.எண்.279, 280)
- கடுவெளி சித்தர் - பாபஞ்செய் யாதிரு மனமே (பாடல் முழுவதும்)
- இராவண காவியம் – தாய்மொழிப் படலம் - 18. (ஏடுகை யில்லா ரில்லை முதல் - 22. செந்தமிழ் வளர்த்தார் வரை)

பாடநூல்

பொதுத்தமிழ்-1. (தமிழ் இலக்கிய வரலாறு-1), தமிழாய்வுத்துறை, தூய வளனார் தன்னாட்சிக் கல்லூரி, திருச்சிராப்பள்ளி, 2023

பார்வை நூல்கள்

1. வரதராசன்.மு. (2021) தமிழ் இலக்கிய வரலாறு, சாகித்ய அக்காதெமி.
2. விமலானந்தன். மது. ச. (2019). தமிழ் இலக்கிய வரலாறு, முல்லை நிலையம்.
3. தமிழண்ணல். (2022). புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, பாரி நிலையம்.
4. சிற்பி பாலசுப்பிரமணியன் & சேதுபதி.சொ. (2015). தமிழ் இலக்கிய வரலாறு, கவிதா வெளியீடு.
5. சிற்பி பாலசுப்ரமணியம், & பத்மநாபன். நீல. (2013). புதிய தமிழ் இலக்கிய வரலாறு (3 தொகுதிகள்), சாகித்ய அக்காதெமி.
6. பெருமாள். அ.கா. (2014). தமிழ் இலக்கிய வரலாறு, சுதர்சன் புக்ஸ்.

7. ஏசுதாசன். ப.ச. (2015). தமிழ் இலக்கிய வரலாறு, நியூ செஞ்சுரி புக் ஹவுஸ்.
8. ஸ்ரீகுமார். எஸ். (2014). தமிழ் இலக்கிய வரலாறு, ஸ்ரீசெண்பகா பதிப்பகம்.
9. பாக்கியமேரி எஃப். (2022). வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, பூவேந்தன் பதிப்பகம்.
10. சுப்புரெட்டியார்.ந., (1980). தமிழ் பயிற்றும் முறை, மணிவாசகர் நூலகம்.

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- https://www.chennailibrary.com/
- https://www.sirukathaigal.com
- https://www.tamilvirtualuniversity.org
- https://www.noolulagam.com
- https://www.katuraitamilblogspot.com

கற்பித்தல் முறை	***விரிவுரை* (Lecture), *காணொளிக் காட்சி* (Videos), *விளக்கக் காட்சி* (PPT presentation)**

Course Outcomes		
CO No.	**CO–Statements** ***இப்பாடத்தின் நிறைவில் மாணவர்கள்***	**Cognitive Levels (K –Levels)**
CO1	சங்க இலக்கியங்கள்வழி பண்டைத்தமிழரின் வாழ்வியலையும் பண்பாட்டையும் அறிந்து கொள்வர்	**K1**
CO2	அற இலக்கியங்கள், காப்பியங்கள் வெளிப்படுத்தும் அறம்சார் விழுமியங்களைத் தம் வாழ்வில் பின்பற்றுவர்	**K2**
CO3	இலக்கணக் கோட்பாடுகளை இக்கால வாழ்வியலோடு பொருத்திப் பார்ப்பர்	**K3**
CO4	மொழியறிவோடு இலக்கியங்களைப் பகுத்தாராயும் திறன் பெறுவர்	**K4**
CO5	பக்தி இயக்கங்களின் செல்வாக்கையும், தமிழரின் பகுத்தறிவு மரபையும் மதிப்பிடுவர்	**K5**

Relationship Matrix											
Semester	**Course code**		**Title of the Paper**						**Hours/Week**		**Credits**
1	**23UTA11GL01A**		**General Tamil – 1**						**5**		**3**
Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO–1	**1**	**2**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2.2**
CO–2	**2**	**2**	**3**	**2**	**2**	**2**	**3**	**2**	**3**	**2**	**2.3**
CO–3	**1**	**2**	**2**	**3**	**2**	**2**	**2**	**3**	**3**	**3**	**2.3**
CO–4	**2**	**2**	**3**	**2**	**2**	**3**	**2**	**3**	**3**	**2**	**2.4**
CO–5	**3**	**1**	**2**	**2**	**2**	**2**	**3**	**2**	**3**	**3**	**2.3**
Mean overall Score											**2.3 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	23UFR11GL01	French - 1	5	3

Course Objectives
To identify the basic sentence structure of the French language.
To define and describe the various grammatical tenses and use them to communicate in French.
To examine the documents presented and discuss/reply to the questions asked.
To analyze and interpret expressions used to convey the cause, the effect, the purpose and the opposition in French.
To evaluate the grammatical nature of a given passage.

Unit I **(15 hours)**

1. Salut !
2. Enchanté

Unit II **(15 hours)**

3. J'adore

Unit III **(15 hours)**

4. Tu veux bien ?

Unit IV **(15 hours)**

5. On se voit quand ?

Unit V **(15 hours)**

6. Bonne idée

Teaching Methodology	Videos, Audios, PPT presentation, Role-play, Quiz

Book for Study

Mérieux, R & Loiseau, Y. (2017). *Latitudes* -1- (A1 /A2), méthode de français, Didier, (Units 1-6 only)

Books for Reference

1. Dauda, P, Giachino, L and Baracco, C. (2020). *Generation A1*. Didier, Paris.
2. Girardet, J and Pecheur, J. (2017). *Echo A1* (2nd ed.). CLE International.
3. Fournier, I. (2011). *Talk French*. Goyal Publishers.

Websites and eLearning Sources

1. https://www.wikihow.com/Pronounce-the-Letters-of-the-French-Alphabet
2. https://francais.lingolia.com/en/grammar/tenses/le-present
3. https://www.lawlessfrench.com/grammar/articles/
4. https://www.frenchpod101.com/french-vocabulary-lists/10-lines-you-need-for-introducing- yourself
5. https://www.tolearnfrench.com/exercises/exercise-french-2/exercise-french-3295.php

Course Outcomes		
CO No.	**CO–Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K –Levels)**
CO1	recall the usage of grammatical tenses during conversations.	**K1**
CO2	apply the grammar rules in practice exercises	**K3**
CO3	explain the nuances in the usage of various grammatical tenses and their aspects	**K2**
CO4	demonstrate knowledge of various expressions used to express opinions, emotions, cause, effect, purpose and hypothesis in French	**K4**
CO5	communicate in French and summarize a given text	**K5**

Relationship Matrix											
Semester	**Course code**	**Title of the Course**								**Hours**	**Credits**
1	**21UFR11GL01**	**French - 1**								**5**	**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	3	1	3	1	3	3	2	3	2	2.4
CO2	2	3	3	2	1	3	3	3	3	2	2.5
CO3	1	3	2	1	2	2	2	2	3	2	2.0
CO4	3	3	3	3	3	3	3	2	3	2	2.8
CO5	3	3	3	3	2	3	3	3	3	2	2.8
Mean overall Score											**2.5 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	23UHI11GL01	Hindi - 1	5	3

Course Objectives
To understand the basics of the Hindi Language.
To make the students familiar with the Hindi words.
To enable the students to develop their effective communicative skills in Hindi.
To introduce the socially relevant subjects in Modern Hindu Literature.
To empower the students with globally employable soft skills.

Unit I: Buniyadi Hindi **(15 Hours)**

1. Swar
2. Vyanjan
3. Barah Khadi
4. Shabd aur
5. Vakya Rachna

Unit II: Hindi Shabdavali **(15 Hours)**

6. Rishto ke Naam
7. Gharelu padartho ke Naam

Unit III: Vyakaran **(15 Hours)**

8. Sadharan Vakya aur Sangya
9. Sarvanam
10. Visheshan
11. Kriya aadi shabdo ka prayog

Unit IV: Chote Gadyansh ka pattan **(15 Hours)**

12. Bachom ki Kahaniyam
13. Patra-Patrikao mein Prakashit Gadyansho ka Pattan

Unit V: Nibandh **(15 Hours)**

14. Sant Tiruvalluvar
15. E.V.R Thandai Periyar
16. Naari Sashakthikaran
17. Paryavaran Sanrakshan
18. Vibhinna pratiyogi parikshao ke bare mein jaankari dena
19. Pratiyogi priksha par adharit nibandho dwara bhasha ki kshamta badhane vale prashikshan kary.

Teaching Methodology	Videos, PPT, Quiz, Group Discussion, Project Work.

Books for Study

1. *Prathamic Patya Pusthak* (2022). Dakshina Bharath Hindi Prachara Sabha, Chennai,
2.Chandran, R.M. (2017). *Concise Trilingual Dictionary,* Lotus Publications, Madurai.
3. Gupth, K.M. (2020). *Hindi Vyakaran*, Anand Prakashan, Kolkatta.
4. *Madyama Patya Pusthak* (2022). Dakshina Bharath Hindi Prachara Sabha, Chennai.

Books for Reference

1. Abdul Kalam, A.P.J. (2020). *Mere sapnom ka Bharath*. Prabath Prakashan, Noida.
2. *Meri Pratham Hindi Sulekh Shabd Gyaan*, Wonder House Books, Noida.
3. Kumar, A. (2019). *Sampoorna Hindi Vyakaran our Rachana*. Lucent publisher.
4. *Adhunik Hindi Vyakaran our Rachana.* (2018). Bharati Bhavan Publishers & distributors.
5. Shukla, A.R. (2021). *Hindi Sahitya Ka Itihas.*. Prabhat Prakashan.

Websites and e-Learning Sources

1. https://learningmole.com/hindi-alphabet-letters-pronunciation-guide/
2. https://www.careerpower.in/hindi-alphabet-varnamala.html
3. https://www.youtube.com/watch?v=b0UvXnIC8qc
4. https://www.importanceoflanguages.com/learn-hindi-language-guide/
5. https://parikshapoint.com/hindi-sahitya/

Course Outcomes		
CO No.	**CO-Statements**	**Cognitive Levels (K - Level)**
	On successful completion of this course, students will be able to	
CO1	match the sounds of Hindi letters with their written counterparts.	**K1**
CO2	infer the meaning of unknown words from the given context	**K2**
CO3	construct sentences in Hindi	**K3**
CO4	analyse stories and other passages	**K4**
CO5	interpret general essays given in competitive exams	**K5**

Relationship Matrix											
Semester	**Course code**	**Title of the Course**								**Hours**	**Credits**
1	**23UHI11GL01**	**Hindi - 1**								**5**	**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	2	2	1	3	3	3	1	3	2	**2.3**
CO2	2	3	2	3	1	2	3	3	3	2	**2.4**
CO3	3	2	2	2	1	3	2	3	2	3	**2.3**
CO4	3	1	2	3	2	3	2	3	3	2	**2.4**
CO5	2	3	3	2	3	2	3	3	1	3	**2.5**
Mean overall Score											**2.38 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	23USA11GL01	Sanskrit- 1	5	3

Course Objectives
To help students learn the Sanskrit alphabet.
To understand Sanskrit grammar and *sabdas*.
To have an idea of the epics.
To closely understand the literary works in Sanskrit with special reference to *Pancamahakavyas*.
To understand the *Raghuvasa Mahakava* and *Kalidasa*.

Unit I: Introduction to Sanskrit **(15 Hours)**
(Alphabet, Two letter words and three letter words) Grammar
akārāntaḥpuṁliṅgaḥśabda-s - 1. बाल (*Bāla*) and
2. देव (*Deva*) *ākārāntaḥstrīliṅgaḥśabda-s* - 1. बाला (*Bālā*) and
2. लता (*Latā*) *akārāntaḥnapuṁsakaliṅgaḥśabda-s* - 1. फल (*Phala*) and 2. वन (*Vana*)

Unit II: Introduction to *Rāmāyana, Kālidāsa* and his poetic works **(15 Hours)**
Raghuvaṁśa (Canto I) Verses 1-15

Unit III: Introduction to the Works of *Bhāravi* **(15 Hours)**
Raghuvaṁśa (canto I) Verses 16-30

Unit IV: Introduction to the works of *ŚrīHarṣha* **(15 Hours)**
Raghuvaṁśa (Canto I) Verses 31-45

Unit V: Grammar **(15 Hours)**
Conjugations -*Laṭlakāra-s* – (Present tense)
(i) गच्छतत (*Gacchati*)
(ii) ततष्ठतत (*Tiṣṭhati*)
(iii) पठतत (*Paṭhati*)
(iv) नृत्यतत (*Nṛtyati*)
(v) कुप्यतत (*Kupyati*)
(vi) कथयतत (*Kathayati*) गणयतत (*Gaṇayati*)
(viii) अततत (*Asti*)
(ix) करोतत (*Karoti*)
(x) शृणोतत (*Śṛṇoti*) Indeclinables (Avyayaani) - अतप (*api*), कदा (*kadā*), च (*ca*), अद्य (*adya*), तवना (*vinā*),सह (*saha*),तत्र (*tatra*), ककमे (*kim*), यकद (*yadi*) - तर्हि (*tarhi*), यथा

(*yathā*) - तथा (*tathā*) Prefixes (*Upasargas*) - आङ् (*āṅ*), तव (*vi*), परर (*pari*), अनु (*anu*), अित (*adhi*), उत् (*ut*), प्रतत (*prati*), उप (*upa*), प्र (*pra*) तनर् (*nir*)

Teaching Methodology	Videos, PPT, demonstration.

Book for Study

Murugan, C., et al. (eds.). (2022) *Kalasala-Samskrta-Sukhabodhini-I* (For Undergraduate Foundation Course).University of Madras.

Book for Reference

Vadhyar, R. S. (2017). *Sabdha Manthari.* Vadhyar & Sons.

Websites and e-Learning Sources

1. https://www.arlingtoncenter.org/Sanskrit%20Alphabet.pdf
2. https://courses.lumenlearning.com/suny-hccc-worldcivilization/chapter/sanskrit/
3. https://www.newworldencyclopedia.org/entry/Sanskrit_literature
4. https://archive.org/details/AShortHistoryOfsanskritLiterarure
5. https://archive.org/details/raghuvamsha_with_sanjivini_edited_by_mr_kale

Course Outcomes		
CO No.	**CO-Statements**	**Cognitive Levels (K - Level)**
	On successful completion of this course, students will be able to	
CO1	remember the usage of grammatical tenses in constructing sentences in dialogue.	**K1**
CO2	apply the rules of usage in practice exercises and spot the errors	**K2**
CO3	explain the nuances in the usage of various grammatical tenses and aspects	**K3**
CO4	demonstrate knowledge of various expressions of opinion, emotions, cause, effect, purpose, and hypothesis in Sanskrit	**K4**
CO5	communicate in Sanskrit and summarize a given text	**K5**

Relationship Matrix											
Semester	**Course code**		**Title of the Course**							**Hours**	**Credits**
1	**23USA11GL01**		**Sanskrit - 1**							**5**	**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	1	3	2	3	1	3	2	3	2	2	**2.2**
CO2	2	3	2	3	1	2	2	3	2	3	**2.3**
CO3	3	2	2	2	2	2	3	2	3	2	**2.3**
CO4	3	2	3	2	2	3	3	2	3	2	**2.3**
CO5	3	2	3	3	2	2	3	2	3	3	**2.6**
Mean overall Score											**2.38 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	**23UEN12GE01**	General English - 1	**5**	**3**

Course Objectives
To enable learners to acquire self awareness and positive thinking required in various life situations
To help them acquire the attribute of empathy
To assist them in acquiring creative and critical thinking abilities
To enable them to learn the basic grammar
To assist them in developing LSRW skills

UNIT I: Self-awareness ELF-A (WHO) & Positive Thinking (UNICEF) (15 Hours)

Life Story

1. Chapter 1 from Malala Yousafzai, I am Malala
2. An Autobiography or The Story of My Experiments with Truth (Chapters 1, 2 & 3) M.K. Gandhi

Poem

3. Where the Mind is Without Fear – Gitanjali 35 – Rabindranath Tagore
4. Love Cycle – Chinua Achebe

UNIT II: Empathy (15 Hours)

Poem

5. Nine Gold Medals – David Roth
6. Alice Fell or poverty – William Wordsworth

Short Story

7. The School for Sympathy – E.V. Lucas
8. Barn Burning – William Faulkner

UNIT III: Parts of Speech (15 Hours)

9. Articles
10. Noun
11. Pronoun
12. Verb
13. Adverb
14. Adjective
15. Preposition

UNIT IV: Critical & Creative Thinking. (15 Hours)

Poem

16. The Things That Haven't Been Done Before – Edgar Guest
17. Stopping by the Woods on a Snowy Evening – Robert Frost

Readers Theatre

18. The Magic Brocade – A Tale of China

19. Stories on Stage – Aaron Shepard (Three Sideway Stories from Wayside School" by Louis Sachar)

Unit V: Paragraph and Essay Writing (15 Hours)

20. Descriptive
21. Expository
22. Persuasive
23. Narrative
24. Reading Comprehension

Teaching Methodology	Interactive methods, and multimedia presentations

Books for Study

1. Yousafzai, M. (2013). *I am Malala, Little.* Brown and Company.
2. Gandhi, M. K. (2011). *An Autobiography or The Story of My Experiments with Truth (Chapter – I).* Rupa Publications.
3. Tagore, R. (1913). *"Gitanjali 35" from Gitanjali (Song Offerings): A Collection of Prose Translations Made by the Author from the Original Bengali.* MacMillan.
4. Shepard, A. (2017). *Stories on Stage.* Shepard Publications.

Books for Reference

1. Krishnasamy. N. (1975). *Modern English: A Book of Grammar, Usage and Composition.* Macmillan.
2. Nesfield, J. C. (2019). *English Grammar Composition and Usage.* Macmillan.

Web Reources

1. https://archive.org/details/i-am-malala
2. https://www.indiastudychannel.com/resources/146521- Book-Review-An-Autobiography-or-The-story-of-my-experiments-with-Truth.aspx
3. https://www.poetryfoundation.org/poems/45668/gitanjali-35
4. https://amzn.eu/d/9rVzlNv
5. https://archive.org/details/in.ernet.dli.2015.44179

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Levels)**
CO1	discover self awareness and positive thinking required in various life situations	**K1**
CO2	classify the attributes of empathy	**K2**
CO3	apply creative and critical thinking skills	**K3**
CO4	focus on grammar for functional purposes	**K4**
CO5	integrate the LSRW skills for effective communication	**K5**

Relationship Matrix											
Semester	**Course code**		**Title of the Course**							**Hours**	**Credits**
1	**23UEN12GE01**		General English - 1							**5**	**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
CO2	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**2.5**
CO3	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**2**	**2.8**
CO4	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
CO5	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2.8**
Mean overall Score											**2.82 (High)**

Semester	Course Code	Title of the Course	Hours /Week	Credits
1	23UEL13CC01	**Core Course -1:** Semiconductor Theory and Electronic Devices	5	5

Course Objectives
To explain the physics of semiconducting materials and devices
To evaluate the characteristics of passive and active components
To apply the theory in simple applications
To provide simple solutions to the electronics problems
To develop simple electronic circuits

UNIT I: Semiconductor Physics **(15 Hours)**

Types of Solids- Crystal Structure- Crystal Planner and Miller Indices- Formation of Energy Bands - Electrical Conduction in Solids - Energy Band and Band Model - Classification of Materials Based on Band Theory – Semiconductor Materials - Intrinsic Semiconductors - Extrinsic Semiconductors– Drift and Diffusion Currents – Excess Carriers - Density of States - Fermi Function Carrier Distribution - Electron and Hole Concentration - np Product- Carrier Concentration Calculations- Fermi Level Determination - Band Bending - Carrier Generation and Recombination (concept only) - Continuity Equations - Minority Carrier Lifetime – Diffusion Length

UNIT II: Passive Elements **(15 Hours)**

Resistance - Resistor Color Code – Calculating Resistor Value - Resistor Parameters - Connecting Resistors Together - Capacitance and Charge - Dielectric Materials of a Capacitor - Voltage Rating of a Capacitor - Energy Stored in Capacitors -Types of Capacitors- Characteristics of Capacitors - Charging and Discharging of a Capacitor - Capacitor inParallel-Capacitor in Series -Construction of Inductor –Inductance-Factors AffectingInductance -Time Constant of an Inductor-Power and Energy in an Inductor- Inductor inSeries and Parallel-Self Inductance -Mutual Induction -Working Principle of Transformer

UNIT III: Semiconductor Diodes **(15 Hours)**

Introduction PN-junction - Barrier Potential - Basic Diode Circuit – Ideal Diode-DiodeTesting– DC Resistance of Diode – Unbiased Diode – Forward Bias – Breakdown – ReverseBiased Diode - No uniformly Doped Junctions - PN Junction Current - Small-Signal Model of PN Junction- Charge Storage and Diode Transients - Tunnel Diode -Special Purpose Diodes -ZenerDiode – SchottkyDiode – Varactor Diode - Step Recovery Diode – GunnDiode

UNIT IV: Transistors **(15 Hours)**

PNP and NPN Transistors - Transistor Characteristics - Unbiased Transistors – Biased Transistor - Transistor Current – CE, CB and CC Configurations – Base Curve – Collector Curve - Surface Mount Transistors- Variations in Current Gain - Load Line – Darlington Pair – JFET and Characteristics – MOSFET and Characteristics - High Electron Mobility Transistor

UNIT V: Opto Electronic Devices **(15 Hours)**

LED: Construction – Operation - Calculating an LED Resistor Value – Advantages and Disadvantages of LED – LCD: Construction and Working – Photodiode working Principle - Photo Transistor working Principle - PIN Diode – Solar Cell – LASER Diodes – Applications of optoelectronic devices.

Teaching Methodology	Demo Videos, Review, PPT, Exercises, circuit simulation

Books for Study

1. Neamen, D. A. (2012). *Semiconductor physics and devices* (4th ed.). McGraw Hill Higher Education.
2. Malvino, A. (2014). *Electronics principles*, (4th ed.). McGrawHill Education.
3. Borse, R. Y. (2014). *Basic electronic passive components* (1st ed.). Adhyayan Publishers and Distributors.

Books for Reference

1. Thareja, B. L. (2012). *Basic electronics* (3rd ed.). S. Chand and Compnay.
2. Bell, D. (2009). *Electronic devices and circuits* (5th ed.). Oxford.
3. Mehta,V. K. (2008). *Principles of electronics* (11th ed.). S. Chand & Company.
4. Mims, F. M. (n.d). *Getting started in electronics*. E-book

Web Sources

1.https://www.instructables.com/Basic-Electronics/
2.https://www.tutorialspoint.com/electronic_circuits/electronic_circuits_filters.html
3.https://www.physics-and-radio-electronics.com/electronic-devices-and-circuits.html

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	describe various passive and active electronic components	**K1**
CO2	discuss the functioning of passive and active electronic devices	**K2**
CO3	apply the theory to understand the working of semiconducting devices	**K3**
CO4	compare the characteristics of active and passive components	**K4**
CO5	assess the need of modern society with professional ethics in Electronics and recommend solutions for the same	**K5**

Relationship Matrix											
Semester	**Course code**		**Title of the Course**							**Hours**	**Credits**
1	**23UEL13CC01**		**Core Course -1:** Semiconductor Theory and Electronic Devices							**5**	**5**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**3**	**3**	**2**	**2**	**1**	**3**	**3**	**3**	**2**	**2**	**2.4**
CO2	**3**	**3**	**3**	**2**	**1**	**3**	**2**	**2**	**2**	**2**	**2.3**
CO3	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**2**	**2**	**2.5**
CO4	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2.4**
CO5	**3**	**3**	**2**	**2**	**1**	**3**	**3**	**2**	**3**	**2**	**2.4**
Mean overall Score											**2.4 (High)**

Semester	Course Code	Title of the Course	Hours/ Week	Credits
1	23UEL13CP01	**Core Practical - 1**: Semiconductor Devices	3	3

Course Objectives
To define various semiconductor devices
To summarize the characteristics of semiconductor devices
To apply the theory and verify it with the experiment results
To compare the properties of various devices
To evaluate the operations of semiconductor devices

List of Experiments (Any twelve experiments)

1. Verification of ohm's law
2. Study of Series and parallel connection of resistance in circuits
3. Study of series and parallel connection of capacitor in circuits.
4. Study of RC time constant using DC source
5. Study of Diode characteristics
6. Study of Zener Diode characteristics
7. Study of Transistor characteristics – CB
8. Study of Transistor characteristics – CE
9. Study of Transistor characteristics - CC
10. Study of opto electronic devices I- photodiode, phototransistor and LDR
11. Study of different colour LED characteristics
12. Energy band gap of semiconductor
13. Study of sinusoidal steady state analysis of series RC and LC
14. Study of steady state and transient analysis of series RLC circuit.
15. Study of transient analysis of series RC and LC
16. Study of steady state and transient analysis of Parallel RLC circuit.
17. JFET Characteristics
18. MOSFET Characteristics
19. Diode rectifiers
20. Voltage regulator using Zener diode
21. Characteristics of LASER diode
22. Inductor and Transformer characteristics

Book for Study

1. Practical Manual prepared by the Department

Semester	Course code	Title of the Course	Hours/Week	Credits
1	23UMA13AC01E	**Allied Course 1:** Mathematics for Electronics 1	6	5

Course Objectives
To explore the basic ideas of matrices
To know the methods of solving differential equations
To train the students to use their basic skills of differentiation for successive differentiation
To have knowledge on integration and its properties
To understand the nature of Central tendency

UNIT I **(18 Hours)**

Solutions of system of linear equations –Using Cramer's rule - Eigen values and Eigen vectors of a matrix – Cayley Hamilton's Theorem (Without proof).

UNIT II **(18 Hours)**

Expansion of cos $n\theta$ and sin $n\theta$ – Powers of sines and cosines of θ in terms of functions of multiples of θ.

UNIT III **(18 Hours)**

Second order differential equations – all the types of equations including Constant coefficients and particular integral when X is of the form x, sin x and cos x.

UNIT IV **(18 Hours)**

Integration – Definite Integral – Methods of Integration – Fourier series – Even and odd functions - Half range Fourier series.

UNIT V **(18 Hours)**

Measures of Central tendency: Mean, Median, Mode (Direct method only) – Measures of variation: Range, Standard deviation.

Teaching Methodology	Lectures, Demonstrations

Books for Study

1. Venkataraman, M. K. (1988). *Engineering mathematics (Vol-II)* (3rd ed.). The National Publishing Company.
   Unit – I: Chapter 1 (*Pages: 534-570)*
   Unit – III: Chapter 5, Sections 5.1 – 5.3 *(Pages: 220 – 242)*.
2. Narayanan, S., Rao, R. H., Pillay, T. K. M. & Kandaswamy. (2010). Ancillary mathematics, Vol-I. Viswanathan, S., Printers & Publishers Pvt Ltd.
   Unit – II: Chapter 5, Sections 5.1 – 5.3 *(Pages: 220 – 242)*.

3. Narayanan, S., Rao, R. H., Pillay, T. K. M. & Kandaswamy. (2010). Ancillary mathematics, Vol-II. Viswanathan, S., Printers & Publishers Pvt Ltd.
Unit – IV: Chapter 1 *(Pages 1 – 14)* Chapter 2 *(Pages 123 – 149)*
4. Pillai, R. S. N & Bagavathi. (2014), *Statistics -Theory and practice*, S. Chand & Company .Ltd.
Unit – V: Chapter 9 *(Pages 124 – 170)* Chapter 10 *(pages 241 - 245, 259 - 267)*

Books for Reference

1. Narayanan, S. & Pillay, T. K. M. (1999), Ancillary mathematics, Book II. Viswanathan, S., Printers & Publishers Pvt Ltd.
2. Vittal, P. R. (2004). *Mathematical statistics*, Margham Publications.
3. Kapur, J. N. & Saxena, H. C. (2010). *Mathematical statistics (*20th ed.). S. Chand & Company Ltd, New Delhi.

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	acquire knowledge of basics of matrices and understand the process of finding the eigen values and eigen vectors	**K1**
CO2	understand the types of second order differential equations	**K2**
CO3	apply the various method in real life problems in Measures of central tendency and measures of variation	**K3**
CO4	analyse the importance of cos $n\theta$ and sin $n\theta$	**K4**
CO5	evaluate Integration and Fourier series	**K5**

Relationship Matrix

Semester	Course code	Title of the Course	Hours	Credits
1	23UMA13AC01E	**Allied Course 1:** Mathematics for Electronics 1	6	5

Course Outcomes	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	2	2	1	3	3	2	2	3	2.3
CO2	3	2	2	1	2	3	3	3	2	3	2.4
CO3	2	3	2	2	1	2	3	2	3	2	2.2
CO4	2	3	2	3	1	2	3	2	2	3	2.3
CO5	2	2	2	2	1	2	3	2	2	3	2.1
										Mean overall Score	2.26 (High)

Semester	Course Code	Title of the Course	Hours/ Week	Credits
1	23UEL14FC01	**Foundation Course:** Introductory Electronics	2	2

Course Objectives
To describe the tools used to service electronic devices
To classify the electronic components
To apply the techniques to troubleshoot the electronic devices
To point out the problems in electronic devices
To wire a house and develop the circuits

UNIT I: Tools **(6 Hours)**

Line tester – Multimeter – CRO – DSO - Function Generator - LCR meter – soldering station De soldering pump.

UNIT II: Electronic components **(6 Hours)**

Electronic components identification - Transformer Identification - Resistance color code calculation and verification - testing and troubleshooting using tools

UNIT III: PCB and Components assembling **(6 Hours)**

PCB Layout design and etching - Soldering and de-soldering the components in PCB - SMD component Soldering and De-soldering - Construction of single power supply - Construction of Dual Power supply - SMPS

UNIT IV: Circuits **(6 Hours)**

LEDs in series and parallel - Simple emergency lamp with 12V battery - Hobby circuits

UNIT V: House wiring **(6 Hours)**

House wiring-I (fitting switches, AC pin sockets and indicator lamp in switch box) - House wiring-II (Two-way switches, circuit breaker-ELCB, MCB) – Industrial wiring – Safety.

Teaching Methodology	Practical, Demo Videos, PPT, simulation

Books for Study

1. Text prepared by the department

Books for Reference

1. Gates, E. (2009). *Introduction to electronics* (6th ed.). Cengage Learning India Private Limited.
2. Tucker, D. G. (1959). *Introductory electronics*. Nature.
3. McComb, G. (2005). *Electronics for dummies*, Wesley Publishing Inc.

Web Sources

1. https://www.makerspaces.com/basic-electronics/
2. https://www.open.edu/openlearn/science-maths-technology/an-introduction-electronics/content-section-0
3. https://www.explainthatstuff.com/electronics.html
4. https://www.makerspaces.com/basic-electronics/
5. https://ocw.mit.edu/courses/6-071j-introduction-to-electronics-signals-and-measurement-spring-2006/

Course Outcomes		
CO No.	**CO-Statements**	**Cognitive Levels (K - Level)**
	On successful completion of this course, students will be able to	
CO1	List the tools available to study the electronic devices	**K1**
CO2	Explain the procedure of components handling	**K2**
CO3	Use the components in electronic devices	**K3**

Relationship Matrix											
Semester	**Course Code**	**Title of the Course**								**Hours**	**Credits**
1	**23UEL14FC01**	**Foundation Course:** Introductory Electronics								**2**	**2**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2.6**
CO2	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**	**2**	**2.7**
CO3	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**2.7**
Mean overall Score											**2.67 (High)**

Semester	Course Code	Title of the Course	Hours/ Week	Credits
1	23UEL14SE01	**Skill Enhancement Course - 1(Non Major Elective):** Consumer Electronics	2	2

Course Objectives
To define the operations of house hold electronic devices
To illustrate functions of different electronic devices
To apply the devices in home applications
To classify the electronic devices
To appraise the working of electronic devices

UNIT I: Audio System **(6 Hours)**

Moving Coil Microphones - Capacitor Microphones - Wireless Microphones - Anatomy of a Hi-Fi system - Source Units - Signal Propagation - Stereo Multiplex – Compatibility - Theatre Sound System: DTS – DolbySound

UNIT II: Smart Devices **(6 Hours)**

Tab – Smart Watch – Smart TV – DTH System – LCD Projector – Smart Door Lock – Smart LED Light.

UNIT III: Remote Controls **(6 Hours)**

Ultrasonic Transducers - Remote Control Transmitter – Remote Control System - Remote Control Operation – NFC - Troubleshooting Remote Control Systems.

UNIT IV: Cctv And Smart Devices **(6 Hours)**

CCTV Camera - Digital Video Recorder - Network Video Recorder – CCTV Installation Digital Voice Assistants - Google Assistants – Managing Smart Home Devices – Smart Security

UNIT V: Washing Machines **(6 Hours)**

Electronic Controller for Washing Machines - Washing Machine Hardware - Hardware and Software Development – Types - Fuzzy Logic Washing Machines - Miscellaneous Features.

Teaching Methodology	Demo Videos, PPT, Handouts

Books for Study

1. Study material by the department

Books for Reference

1. Chitode, J. S. (2007). *Consumer electronics* (1st ed.). Technical Publications, Pune.
2. Bali, S. P. (2008). *Consumer electronics* (1st ed.). Pearson Education Asia Pvt., Ltd.
3. Davidson, H. L. (2000). *Consumer electronics troubleshooting and repair hand book* (1st ed.). McGraw Hill.

Web Sources

1. https://www.sciencedirect.com/topics/engineering/consumer-electronics
2. https://www.pcmag.com/encyclopedia/term/consumer-electronics
3. https://www.ltts.com/industry/consumer-electronics

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	describe the electronic concepts used in consumer electronics systems.	**K3**
CO2	compare the preventive maintenance in various electronic appliances.	**K4**
CO5	use different product safety, compliance standards and techniques associated with electronic products.	**K5**

Relationship Matrix											
Semester	**Course code**	**Title of the Course**								**Hours**	**Credits**
1	**23UEL14SE01**	**Skill Enhancement Course - 1(Non Major Elective):** Consumer Electronics								**2**	**2**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO 1**	**PSO 2**	**PSO3**	**PSO 4**	**PSO5**	
CO1	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2.4**
CO2	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2.4**
CO3	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2.4**
Mean overall Score											**2.4 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
1	23UHE14VE01	**Value Education - 1:** Essentials of Humanity	2	1

Course Objectives
To identify one's own potentials, strengths and weaknesses
To identify various challenges (physical, emotional, and social) in adolescence
To consciously overcome one's challenges and move towards self-esteem
To maximize one's own potential in enabling a holistic development
To assimilate human values comprehensively

UNIT I: Principles of Value Education

Introduction to values - Characteristics and Roots of Values - Value Education & Value Clarification - Moral Characters - Kinds of Values - Objectives of Values

UNIT II: Development of Human Personality

Personality: Introduction, Theories, Integration & Factors influencing the development of personality - SEL Series - Discovering self - Defence Mechanism Power of positive thinking - Why worry?

UNIT III: The Dimensions of Human Development

Areas of Development: Physical, Intellectual, Emotional, Social Development, Moral & Spiritual development

UNIT IV: Responsible Parenthood

Human Sexuality - Marriage and Family - Sex and Love - Characteristics of Responsible parent - Causes of Marriage disharmony - Art of wise parenting

UNIT V: Gender Equality and Empowerment

Historical perspective - Women in Independence struggle - Women in Independent India - Education & Economic development - Crimens against Women - Women rights - Time-line of Women achievements in India

Teaching Methodology	

Book for Study

Department of Human Excellence. (2021). *Essentials of Humanity.* St. Joseph's College.

Books for Reference

1. Xavier, A. (2012). *You Shall Overcome,* (6th ed.). ICRDE Publication.
2. Alex, K. (2009). *Soft Skills.* S. Chand.
3. Kalam, A.A. P. J. (2012). *You Are Unique.* Punya Publishing.

Websites and eLearning Sources

1. http://livingvalues.net. Accessed 05 March 2021.
2. http://www.apa.org/topics/personality#. Accessed 05 March 2021.
3. http://www.peacecorps.gov/educators/resources/global-issues-gender-equaligy-and-womens-empowerment/. Accessed 05 March 2021.

Course Outcomes		
CO No.	**CO-Statements**	**Cognitive Levels (K - Level)**
	On completion of this course, students will be able to	
CO1	recall the prescribed values and their dimensions.	**K1**
CO2	examine themselves by learning the developmental changes happening in the course of their lifetime.	**K2**
CO3	Apply the trained values in the day-to-day life.	**K3**

Relationship Matrix											
Semester	**Course code**	**Title of the Course**								**Hours**	**Credits**
1	**23UHE14VE01**	**Value Education - 1:** Essentials of Humanity								**2**	**1**
Course Outcomes	**Programme Outcomes(POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	3	3	3	2	3	3	2	3	3	
CO2	3	2	2	3	3	2	3	3	2	2	
CO3	2	3	3	3	2	3	3	3	3	3	
Mean overalls core											

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UTA21GL02	General Tamil - 2	4	3

கற்றலின் நோக்கங்கள்
தமிழ் இலக்கிய வரலாற்றை அறிதல்.
எழுத்து, சொல் இலக்கணங்களின் அடிப்படைகளைக் கண்டறிதல்.
அயலகக் கவிதை வடிவங்களை விளங்கிக் கொள்ளுதல்.
மொழிபெயர்ப்புக் கவிதைகளின் வாயிலாக மொழிபெயர்ப்புத் திறனை வளர்த்தெடுத்தல்.
போட்டித் தேர்வுகளை எதிர்கொள்வதற்கான இலக்கண அறிவு பெறுதல்.

அலகு – 1 **(12 மணிநேரம்)**

பாரதியார் கவிதைகள் – குயில்பாட்டு (குயில் தன் பூர்வ ஜென்மக் கதை உரைத்தல்)
பாரதிதாசன் கவிதைகள் – சஞ்சீவி பர்வதத்தின் சாரல்
நற்றமிழ்க்கோவை – முதல் மூன்று கட்டுரைகள்

அலகு - 2 **(12 மணிநேரம்)**

வெ.இராமலிங்கனார் – சொல், தமிழன் இதயம்
முடியரசனார் – உயிர் வெல்லமோ, மனத்துயர்மை
பெருஞ்சித்திரனார் – அஞ்சாதீர், மொழி,இனம்,நாடு
பட்டுக்கோட்டை கலியாண சுந்தரனார் – வருங்காலம் உண்டு, உழைக்காமல் சேர்க்கும் பணம்
இலக்கணம் – எழுத்து
இலக்கிய வரலாறு – புதுக்கவிதை, தமிழில் புதிய கவிதை வடிவங்கள்

அலகு–3 **(12மணி நேரம்)**

சுரதா - நல்ல தீர்ப்பு
கண்ணதாசன் - ஒரு பானையின் கதை
அப்துல் ரகுமான்- வீடு
மேத்தா - ஒரேகுரல்
இலக்கிய வரலாறு – தமிழ்ச்சிறுகதைகள், இருபதாம் நூற்றாண்டு உரைநடை வளர்ச்சி
சிறுகதை – முதல் மூன்று சிறுகதைகள்

அலகு – 4 **(12 மணிநேரம்)**

அரசியல் கவிதைகள்
ஈரோடு தமிழன்பன்- அகல் விளக்காக இரு
ஆதவன் தீட்சண்யா– இன்னும் இருக்கும் சுவர்களின் பொருட்டு
சுகிர்தராணி– என் கண்மணியே இசைப்பிரியா
சக்தி ஜோதி – யுகாந்திர உறக்கம்
பழநி பாரதி- வெள்ளைக்காகிதம்
லிவிங்ஸ்மைல் வித்யா – நினைவில் பால்யம் அழுத்தம்
இலக்கணம் - சொல்

அலகு – 5 **(12 மணிநேரம்)**

அயலகக் கவிதைகள்
ஓசேரிசால் (தமிழில் நெய்தல்)- விடைகொடு என்தாய் மண்ணே
ஹைபுன் கவிதைகள்
சிறுகதை – நான்கு முதல் ஆறு சிறுகதைகள்
நற்றமிழ்க் கோவை – நான்கு முதல்ஆறு கட்டுரைகள்

கற்பித்தல் முறை (Teaching Methodology)	**விரிவுரை** (Lecture), **காணொளிக் காட்சி** (Videos), **விளக்கக் காட்சி** (PPT presentation)

பாடநூல்கள்

1. *தமிழாய்வுத்துறை* (2023). *பொதுத்தமிழ் -2, தூய வளனார் தன்னாட்சிக் கல்லூரி.*
2. *தமிழாய்வுத்துறை* (2021). *நற்றமிழ்க் கோவை, தூய வளனார் தன்னாட்சிக் கல்லூரி.*

Websites and eLearning Sources

1. https://www.chennailibrary.com/bharathiyar/kuyilpattu.html
2. www.tamildigitallibrary.in
3. https://eluthu.com/kavithai
4. https://podhutamizh.blogspot.com/2017/09/blog-post_42.html
5. https://thamizhsudar.com
6. https://ta.wikipedia.org/wiki

Course Outcomes		
CO No.	**CO-Statements** ***இப்பாடத்தின் நிறைவில் மாணவர்கள்***	**Cognitive Levels (K - Level)**
CO1	*தமிழ் இலக்கிய நூல்கள் பற்றிய அறிவைப் பெறுவர்.*	**K1**
CO2	*தமிழ் இலக்கண வளர்ச்சியைப் புரிந்து கொள்வர்.*	**K2**
CO3	*பிழையின்றி எழுதும் திறன் பெறுவதோடு கற்றல் திறனையும் வளர்த்துக்கொள்வர்.*	**K3**
CO4	*பிற கவிதை வடிவங்களைக் கையாளும் திறன் பெறுவர்.*	**K4**
CO5	*போட்டித் தேர்வுகளை எதிர்கொள்ளும் திறனைப் பெறுவர்.*	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**					**Hours**		**Credits**
2	**23UTA21GL02**			General Tamil - 2					**4**		**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	2	1	2	2	3	3	3	2	3	2	**2.3**
CO2	2	1	2	2	2	3	2	2	2	2	**2.0**
CO3	2	1	2	2	3	3	3	2	3	2	**2.3**
CO4	1	2	1	2	2	3	2	2	3	2	**2.0**
CO5	1	1	2	2	3	3	3	2	3	2	**2.2**
										Mean Overall Score	**2.16 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UFR21GL02	French - 2	4	3

Course Objectives
To construct simple phrases with pronominal verbs
To apply the different types of articles
To understand the usage of pronouns
To analyse the French culture through French culinary art
To evaluate and compare the French fashion in current scenario

UNIT I: **(12 Hours)**

- TITRE: Les Loisirs
- GRAMMAIRE : les adjectifs interrogatifs, les nombres ordinaux, les verbes pronominaux
- LEXIQUE : les différentes activités quotidiennes, les loisirs, les activités quotidiennes, les matières
- PRODUCTION ORALE : parler sur votre passe-temps
- PRODUCTION ECRITE : décrire sa journée

UNIT II: **(12 Hours)**

- TITRE: La routine
- GRAMMAIRE : les pronoms personnels COD, les verbes du premier groupe en e/er/eler/eter, le verbe prendre
- LEXIQUE : exprimer ses goûts et ses préférences, le temps, l'heure, la fréquence
- PRODUCTION ORALE : savoir comment dire l'heure
- PRODUCTION ECRITE : écrire vos préférences en quelques lignes

UNIT III: **(12 Hours)**

- TITRE: Où Faire Ses Courses?
- GRAMMAIRE : les articles partitifs, le pronom en (la quantité), très ou beaucoup
- LEXIQUE : inviter et répondre à une invitation, les commerces et les commerçants, demander et dire le prix, les quantités
- PRODUCTION ORALE : faire des courses pour une soirée
- PRODUCTION ECRITE : écrire un message en acceptant l'invitation

UNIT IV: **(12 Hours)**

- TITRE: Découvrez et Dégustez
- GRAMMAIRE : l'impératif, il faut, les verbes devoir, pouvoir, savoir, vouloir
- LEXIQUE : Commander et commenter sur un plat de la carte, les aliments, les services, les moyens de paiement
- PRODUCTION ORALE : Jeu de rôle – au restaurant (entre vous et le garçon)
- PRODUCTION ECRITE : faire une comparaison avec la carte française et indienne

UNIT V: **(12 Hours)**

- TITRE: Tout le monde s'amuse/ les ados au quotidien
- GRAMMAIRE : les adjectifs démonstratifs, le pronom indéfini on, le futur proche, le passé composé, les verbes en –yer, voir et sortir
- LEXIQUE : connaître les marques connues sur les vêtements, les sorties, situer dans le temps, les vêtements et les accessoires

- PRODUCTION ORALE : décrire une tenue
- PRODUCTION ECRITE : écrire une lettre amicale, une carte postale

Teaching Methodology	Chalk and talk, visual cues like flashcards, one to one conversation

Book for Study

1. Dauda, P., Giachino, L. & Baracco, C. (2016). *Generation A1.* Didier.

Books for Reference

1. Girardet, J. & Pecheur, J. (2017). *Echo A1.* CLE International, (2nd Ed.).
2. Mérieux, R. & Loiseau, Y. (2012). *Latitudes A1.* Didier.
3. Fournier, I. (2011). *Talk French.* Goyal Publishers.

Websites and eLearning Sources

1. https://www.frenchtoday.com/blog/french-verb-conjugation/french-reflexive-verbs-list- exercises/
2. https://www.fluentu.com/blog/french/french-subject-pronouns/
3. https://grammarist.com/french/french-partitive-article/
4. https://www.talkinfrench.com/guide-french-food-habits/
5. https://www.fluentu.com/blog/french/talking-about-clothes-in-french/

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Levels)**
CO1	Relate pronominal verbs in expressing one's day today activity	**K1**
CO2	compare the different types of articles – article partitif and contracte	**K2**
CO3	construct texts using pronouns – passages and dialogues	**K3**
CO4	discover the food habits of the French culture	**K4**
CO5	appraise the French fashion	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**					**Hours**		**Credits**
2	**23UFR21GL02**			**French - 2**					**4**		**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	3	3	3	1	3	1	2	2	2	**2.2**
CO2	2	1	2	3	2	3	1	2	2	2	**2.0**
CO3	3	2	3	2	2	3	3	1	3	2	**2.4**
CO4	3	2	2	1	3	3	3	1	1	3	**2.2**
CO5	2	1	2	2	3	3	3	2	2	2	**2.2**
Mean Overall Score											**2.2 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UHI21GL02	HINDI - 2	4	3

Course Objectives
To understand the basics of Hindi Language
To make the students to be familiar with the Hindi words
To enable the students to develop their effective communicative skills in Hindi
To introduce the socially relevant subjects in Modern Hindi Literature
To empower the students with globally employable soft skills

UNIT I: **(12 Hours)**

- Kafan
- Letter Writing - Chutti Patra
- Bakthikal - Namakarn
- Sarkari Kariyalayom Ka Naam

UNIT II: **(12 Hours)**

- Baathcheeth - Dookan Mein
- Kriya
- Letter Writing - Rishthedarom Ko Patra
- Bakthikal - Samajik Paristhithiyam

UNIT III: **(12 Hours)**

- Vah Thodthi Patthar
- Adverb
- Letter Writing - Naukari Keliye Avedan Patra
- Bakthikal - Sahithyik Paristhithiyam

UNIT IV: **(12 Hours)**

- Mukthi
- Samas
- Letter Writing - Kitab Maangne Keliye Patra
- Bakthikal - Salient Features, Main Divisions

UNIT V: **(12 Hours)**

- Anuvad
- Sandhi
- Letter Writing - Nagarpalika Ko Patra
- Bakthikal - Visheshathayem

Teaching Methodology	Peer Instruction Exercise, Videos, PPT, Quiz, Group Discussion

Books for Study

1. Viswanath Tripaty. (2018). *Kuchh Kahaniyan*, Rajkamal Prakashan Pvt. Ltd.
2. Kamathaprasad Gupth, M. (2020). *Hindi Vyakaran*. Anand Prakashan.

3. Sadananth Bosalae. (2020). *kavya sarang*, Rajkamal Prakashan.

Books for Reference

1. Acharya Ramchandra Shukla. (2021). *Hindi Sahitya Ka Itihas*. Prabhat Prakashan.
2. Krishnakumar, G. (2016). *Anuvad vigyan ki Bhumika*. Rajkamal Prakashan.
3. Aravind Kumar. (2019). *Sampoorna Hindi Vyakaran our Rachana*, Lucent publisher.
4. Lakshman Prasad Singh. (2017). *Kavya ke sopan*. Bharathy Bhavan Prakashan.

Websites and e-Learning Sources

1. https://hindigrammar.in/sandhi.html
2. https://www.successcds.net/class10/hindi/samas-in-hindi
3. https://mycoaching.in/kriya-ke-bhed-verb-in-hindi
4. https://namastesensei.in/adverb-in-hindi-examples/
5. https://viahindi.in/hindi-vyakaran/sandhi-paribhasha-prakar-or-udaharan

Course Outcomes		
CO No.	**CO-Statements** On successful completion of the course, the student will be able to	**Cognitive Levels (K - Level)**
CO1	Find out the Terms & Expressions related to letter writing.	**K1**
CO2	Explain the works of Hindi writers.	**K2**
CO3	Complete the sentences in Hindi using basic grammar.	**K3**
CO4	Analyze the social & political conditions of Devotional period in Hindi Literature.	**K4**
CO5	Justify the human values stressed on the works of the following authors “Premchand, Nirala, etc.”.	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**				**Hours**		**Credits**	
2	**23UHI21GL02**			**HINDI - 2**				**4**		**3**	
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	2	3	3	2	2	3	3	3	2	2	**2.5**
CO2	1	3	1	2	2	3	3	3	2	3	**2.3**
CO3	3	2	3	2	2	3	2	3	2	2	**2.4**
CO4	2	3	3	1	3	2	3	2	1	2	**2.2**
CO5	3	2	2	2	3	2	3	2	3	2	**2.4**
										Mean Overall Score	**2.36 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23USA21GL02	Sanskrit - 2	4	3

Course Objectives
To bring out the salient aspects of classical Sanskrit poetry
To introduce court epics in Sanskrit
To train students in declensions of pronouns in Sanskrit
To coach the students in the conjugation patterns of verbs in Sanskrit
To offer coaching in morpho-phonemic rules and their applications in Sanskrit

UNIT I **(12 Hours)**

Asmathi usmath tat kim (MFN) sarvanaam asabdaha

UNIT II **(12 Hours)**

Sandhi Niyamaah Abhyaash (Guna , Visarga , Dirgha , Vrddhi)

UNIT III **(12 Hours)**

Lang lakaarah Kriyapadaani Prayoga Vivaranam

UNIT IV **(12 Hours)**

Raguvamsaha Pratama sargaha (1 –15 slokas)

UNIT V **(12 Hours)**

Suvacanani Vakya Prayoga Vivaranam

Teaching Methodology	Videos, PPT, Blackboard, Demonstration, Exercises

Books for Study

1. Saralasamkritham Skisha. (2021).
2. Dhaatu Manjari. (2021).

Books for Reference

1. Paindrapuram Ashram, Srirangam. (2019).
2. Vadhyar, R. S., & Sons, Book – Seller and Publishers. (2021).
3. Kulapthy, K. M. (2018). *Saral Sanskrit Balabodh*. Bharathiys Vidya Bhavan.

Websites and eLearning Sources

1. https://www.meritnation.com
2. https://www.aplustopper.com
3. https://mycoaching.in/lang-lakar
4. https://sanskritdocuments.org/sites/giirvaani/giirvaani/rv/sargas/01_rv.htm
5. https://resanskrit.com/blogs/blog-post/sanskrit-shlok-popular-quotes-meaning-hindi-english

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	Remembering names of different objects, remembering different verbal forms and sandhi	**K1**
CO2	Contrast different verbal forms Explain good sayings, Relate good saying to life.	**K2**
CO3	Apply and build small sentences	**K3**
CO4	Analyze different forms of Verbs and nouns	**K4**
CO5	Appreciate subhashitas and Sanskrit poetry	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**						**Hours**	**Credits**
2	**23USA21GL02**			Sanskrit - 2						**4**	**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Scores of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	2	1	3	2	2	2	3	3	2	1	**2.1**
CO2	3	2	3	2	2	3	2	3	3	2	**2.5**
CO3	2	2	3	2	2	2	2	3	3	1	**2.1**
CO4	3	2	3	3	1	2	3	3	3	1	**2.4**
CO5	3	2	2	2	3	2	2	3	3	1	**2.3**
										Mean Overall Score	**2.28 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UEN22GE02	General English - 2	5	3

Course Objectives
To develop an expanded and specialised vocabulary related to diverse themes such as education, entertainment, career, and society through activities like word grids, reading, and discussions.
To enhance problem-solving abilities through activities like debates, role-playing, and scenario analysis.
To enable students to express ideas with precision and clarity by practising different forms of expressing quality, comparison, and actions in various contexts.
To equip students with language skills relevant to professional settings.
To encourage students to explore language as a tool for creative expression and communication.

UNIT I **(15 Hours)**

01. Education Word Grid
02. Reading Problems and Solutions
03. Syllabification
04. Forms for Expressing Quality
05. Expressing Comparison
06. Monosyllabic Comparison
07. Di/polysyllabic Comparison
08. The Best Monosyllabic Comparison
09. The Best Di/Polysyllabic Comparison
10. Practising Quality Words

UNIT II **(15 Hours)**

11. Wh Words
12. Yes/No Recollection
13. Unscramble Wh Questions
14. Wh Practice
15. Education and the Poor
16. Controlled Role Play
17. Debate on Education
18. Education in the Future
19. Entertainment Word Grid
20. Classify Entertainment Wordlist
21. Guess the Missing Letter
22. Proverb-Visual Description
23. Supply Wh Words
24. Rearrange Questions
25. Information Gap Questions

UNIT III **(15 Hours)**

26. Asking Questions
27. More about Actions
28. More about Actions and Uses
29. Crime Puzzle
30. Possessive Quiz
31. Humourous News Report

32. Debate on Media and Politics
33. Best Entertainment Source

UNIT IV **(15 Hours)**

34. Career Word Grid
35. Job-Related Wordlist
36. Who's Who?
37. People at Work
38. Humour at Workplace
39. Profession in Context
40. Functions and Expressions
41. Transition Fill-in
42. Transition Word Selection
43. Professional Qualities
44. Job Procedures
45. Preparing a Resume
46. Interview Questions
47. Job Cover Letter Format
49. Emailing an Application
50. Mock Interview

UNIT V **(15 Hours)**

51. Society Word Grid
52. Classify Society Wordlist
53. Rearrange the Story
54. Storytelling
55. Story Cluster
56. Words Denoting Time
57. Expressing Time
58. What Can You Buy?
59. Noise Pollution
60. Positive News Headlines
61. Negative News Headlines
62. Matching Conditions
63. What Would You Do?
64. If I were the Prime Minister
65. My Dream Country

Teaching Methodology	Lecture Method, Use of ICT Tools and Interactive method

Book for Study

1. Joy, J.L. & Peter, F.M. (2014). *Let's Communicate 2*, Trinity Press.

Books for Reference

1. Ahrens, Sönke. (2017). *How to Take Smart Notes: One Simple Technique to Boost Writing, Learning and Thinking*. Create Space.
2. Aspinall, Tricia. (2002). *Test Your Listening.* Pearson.
3. Bailey, Stephen. (2004). *Academic Writing: A Practical Guide for Students*. Routledge.
4. Fitikides, T.J. (2002). *Common Mistakes in English,* (6th Ed.). Longman
5. Wainwright., Gordon. (2007). *How to Read Faster and Recall More: Learn the Art of Speed Reading with Maximum Recall,* (3rd Ed.). How to Books.

Websites and eLearning Sources

1. https://learnenglish.britishcouncil.org/
2. https://oneminuteenglish.org/en/best-websites-learn-english/

3. https://www.dailywritingtips.com/best-websites-to-learn-english/

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	write paragraphs with apt punctuation marks	**K1**
CO2	discuss basic issues with friends, relatives and members of the family	**K2**
CO3	use polite expressions in appropriate ways	**K3**
CO4	evaluate the language and communication aspects of the topics	**K4**
CO5	create and produce various forms of communication, including professional documents like resumes and cover letters, debates	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**					**Hours**		**Credits**
2	**23UEN22GE02**			**General English - 2**					**5**		**3**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	2	3	2	2	3	2	3	2	3	2	**2.4**
CO2	2	2	3	2	3	3	2	3	2	2	**2.3**
CO3	2	3	2	3	2	2	3	2	3	2	**2.4**
CO4	2	2	3	2	3	3	2	3	2	3	**2.5**
CO5	2	2	2	3	2	2	2	3	2	2	**2.2**
Mean Overall Score											**2.36 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UEL23CC02	**Core Course - 2** : Electric Circuit Analysis	5	4

Course Objectives
To introduce fundamental laws and elements of circuits.
To understand different methods of circuit analysis using network theorems.
To provide the ability to apply circuit analysis for DC and AC circuits
To analyse the transient and steady state response of RC, RL and RLC circuits.
To evaluate the performance of electrical circuits in real time applications

UNIT I: Circuit Analysis **(15 Hours)**

The Circuit - Ohm's Law - Kirchhoff's Voltage Laws - Voltage Division - Power in Series Circuit - Kirchhoff's Current Law - Current Division - Power in a Parallel Circuit - Tree and Co-tree - Incidence Matrix and KCL - Cut-Set and Tree Branch Voltages - Mesh Analysis - Nodal Analysis.

UNIT II: Network Theorems **(15 Hours)**

Star-Delta Transformation - Superposition Theorem - Thevenin's Theorem - Norton's Theorem - Reciprocity Theorem - Compensation Theorem - Maximum Power Transfer Theorem - Duals and Duality - Sample Problems.

UNIT III: Series and Parallel AC Circuits **(15 Hours)**

Purely Resistive- Inductive and Capacitive AC Circuit - R-L Series AC Circuit - R-C Series AC Circuit - R-L-C Series AC Circuit - Series Resonance - Q-factor - Bandwidth and Selectivity - Power in AC Circuits - Power Triangle and Power Factor - R-L Parallel AC Circuit - R-C Parallel AC Circuit - L-C Parallel A.C. Circuit - L-R-C Parallel A.C. Circuit - Three Phase Supply - Star Connection - Delta Connection - Power in Three Phase System - Measurement of Power in Three-Phase Systems - Comparison of Star and Delta Connection.

UNIT IV: Steady State and Transient Response of Circuits **(15 Hours)**

Steady State and Transient Response - DC Response of an R-L Circuit - DC Response of an R-C Circuit - DC Response of an R-L-C Circuit - Practice Problems - Sinusoidal Response if an R-L Circuit - Sinusoidal Response of an R-C Circuit - Sinusoidal Response of an R-C Circuit - Sinusoidal Response of an R-L-C Circuit - Simple Problems.

UNIT V: Coupled Circuits **(15 Hours)**

Conductivity Coupled Circuit and Mutual Impedance **-** Mutual Inductance - Dot Convention - Coefficient of Coupling - Analysis of Multi-Winding Coupled Circuits - Tuned Circuits - Simple Problems.

Teaching Methodology	Demo Videos, PPT, Handouts, Study materials

Books for Study

1. Sudhakar A., Shymmohan, S.P. (2017). *Circuits and Networks Analysis and Synthesis,* (5th Ed.). Tata McGraw Hill Publishing Company Ltd.
2. John, B. (2010). *Electrical Circuit Theory and Technology,* (4th Ed.). Elsevier Ltd.

Unit	Book	Chapter	Sections
I	1	1,2	1.4, 1.9 - 1.15, 2.2, 2.6, 2.12
II	1	3	3.1 - 3.8
III	2	15,16,19	15.1 - 15.11, 16.1 - 16.7,19.2 - 19.7
IV	1	11	11.1 - 11.7

V	1	10	10.2 -10.5, 10.7, 10.10

Books for Reference

1. Paranjothi, S.R. (2011). *Electric Circuit Analysis,* (4th Ed.). New Age International.
2. Theraja, B.L., Theraja, A.K. (2005). *A Textbook of Electrical Technology.* S.Chand and Company Ltd.
3. Robert, L.B. (2015). *Introductory Circuit Analysis*. (13th Ed.). Pearson.

Websites and eLearning Sources

1. https://www.khanacademy.org/science/electrical-engineering/ee-circuit-analysis-topic
2. https://www.khanacademy.org/science/electrical-engineering/ee-circuit-analysis-topic/eedc-circuit-analysis/a/ee-circuit-analysis-overview
3. https://www.circuitbasics.com/circuit-analysis/

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Level (K- Level)**
CO1	describe and write Network Theorems and Circuit concepts	**K1**
CO2	discuss and predict the appropriate electric circuits to the need	**K2**
CO3	illustrate and use the electric circuits in real time applications	**K3**
CO4	investigate and explain the responses of AC and DC circuits	**K4**
CO5	recommend Electrical Circuits for ecofriendly environment with energy saver mode.	**K5**

Relationship Matrix											
Semester	**Course Code**				**Title of the Course**				**Hours**		**Credits**
2	**23UEL23CC02**				**Core Course - 2**: Electric Circuit Analysis				**5**		**4**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	3	2	2	2	3	3	3	2	2	**2.5**
CO2	3	3	2	2	2	3	3	3	2	2	**2.5**
CO3	3	3	2	2	2	3	3	3	2	2	**2.5**
CO4	2	2	2	2	2	3	3	3	2	2	**2.3**
CO5	2	2	2	2	2	3	2	3	2	2	**2.2**
										Mean Overall Score	**2.4 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UEL23CP02	**Core Practical - 2 :** Circuit Analysis	3	2

List of Experiments (Any 12 experiments)

1. Verification of Kirchhoff's voltage law
2. Verification of Kirchhoff's current law.
3. Branch voltage identification using Mesh analysis
4. Node current measurement using Nodal analysis
5. Verification of Thevenin's theorem
6. Verification of Norton's theorem
7. Verification of Superposition theorem
8. Verification of Compensation theorem
9. Verification of Reciprocity theorem
10. Verification of Maximum power transformation theorem
11. Study of sinusoidal steady state analysis of series RC and LC
12. Study of steady state and transient analysis of series RLC circuit.
13. Study of transient analysis of series RC and LC
14. Study of steady state and transient analysis of Parallel RLC circuit.
15. Study of load current and load voltage in star delta transformation.
16. Determination of Z and Y parameters of a two-port network
17. determination of transmission and hybrid parameters of a two-port network

Book for Study

1. Practical manual by the Department

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UEL23WS01	**Workshop :** Circuit Design and Trouble Shooting	3	2

List of Practices (Any 10 Jobs)

1. Electronic components identification and testing using multimeter
2. Resistance color code calculation and verification
3. Study the function of CRO and Function Generator
4. Study the function of Multimeter and LCR meter
5. Soldering and de-soldering the components in PCB layout.
6. Construction of power supply-I (single supply)
7. Construction of Power supply-II (Dual supply)
8. Cabinet making for power supply.
9. Construction and testing of LEDs in serial and parallel
10. PCB layout preparation using software. (PCB track width and copper square area calculation)
11. PCB Layout design and etching.
12. SMD component Soldering and De-soldering
13. Transformer Identification and troubleshooting
14. Construction of Transformer-less power supply
15. Hobby circuit - I
16. Hobby circuit - II
17. Hobby circuit - III
18. House wiring-I (fitting switches, AC pin sockets and indicator lamp in switch box)
19. House wiring-II (Two-way switches, circuit breaker-ELCB, MCB)
20. PC hardware assembling
21. Audio system assembling (amplifier and speaker)
22. Mobile phone troubleshooting
23. Study of SMPS power supply
24. Simple emergency lamp with 12V battery

Book for Study

1. Practical manual by the Department

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UEL23AC02	**Allied Course - 2:** Mathematics for Electronics - 2	6	4

Course Objectives
To train the students in mastering the techniques of various branches of Mathematics.
To acquire knowledge of Laplace transform and its applications.
To understand numerical problems and its applications.
To understand Correlation coefficient problems and its applications.
To motivate the students to apply the techniques in their respective major discipline.

UNIT I **(18 Hours)**

Correlation coefficient- Rank correlation - curve fitting by least square methods - Fitting a straight line (No derivation, Numerical problems only)

UNIT II **(18 Hours)**

Laplace Transforms - Definition - properties the inverse transforms- solving differential equations using Laplace transforms (simple problem only).

UNIT III **(18 Hours)**

Solving algebraic and transcendental equations: Bisection Method - Newton-Raphson method. Solving simultaneous equations - Gauss elimination - Gauss-Seidal Methods (problems only).

UNIT IV **(18 Hours)**

Numerical Integration - Trapezoidal rule and Simpson's 1/3rd rule. Interpolation - Newton Gregory forward and backward interpolation formulae - Lagrange's interpolation formula.

UNIT V **(18 Hours)**

Initial value Problems for ordinary differential equations: single step methods -Taylor's series method - Euler's Method- Method - Runge Kutta Method for solving (fourth order only)

Teaching Methodology	Chalk and Talk, PPT, Group Discussion.

Books for Study

1. Pillai, R. S. N. & Bagavathi. (2014*). Statistics- Theory and Practice.* S. Chand and Co. Ltd.
   Unit I *Chapter 12 (Pages 396-410)*, *Chapter 15 (Pages 602-608).*
2. Narayanan, S. & Pillay, T.K.M. *Ancillary Maths Book I.,* S. Viswanathan Pvt. Ltd.
   Unit II *Chapter 12 (Pages 289-311).*
3. Venkataraman, M. K. (1987). *Numerical Methods in science and Engineering*, (2nd Ed.). The National Publishing Co.
   Unit III *Chapter 3 (Sec: 5*),
   Chapter IV (Sec: 1,6) *(Pages* 81-85,97-106,113-120,140-146).
   Unit IV *Chapter 6: Sec-3 (pages 195-206), Chapter 8: Sec-4 (pages 253-259)*
   Chapter 9: Sec-8 (pages 281), sec-10 (pages 285-287, 290-291, 293-295)
   Unit V *Chapter 11 (Sec: 6,10,12,13*) *(Pages pages 350-357*, *357-364*).

Books for Reference

1. Vitta, P.R. (2003). *Allied Mathematics*. Margham Publications, Reprint.
2. Kandasamy, P., Thilagavathy, K., & Gunavathy, K. (1999). N*umerical Methods.* S. Chand & Company Ltd.

Course Outcomes		
CO No.	**CO - Statements**	**Cognitive Levels (K - Level)**
	On successful completion of this course, students will be able to	
CO1	get equipped with the knowledge of Rank Correlation, Fourier series, numerical methods.	**K1**
CO2	understand methods and properties of Rank Correlation, Fourier series and numerical methods.	**K2**
CO3	apply the fundamental concepts of Rank Correlation, Fourier series, and numerical methods.	**K3**
CO4	analyze the Half range Fourier series and the roots of equations using numerical methods.	**K4**
CO5	evaluate the efficiency of different numerical methods.	**K5**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**					**Hours**		**Credits**
2	**23UEL23AC02**			**Allied Course - 2:** Mathematics for Electronics - 2					**6**		**4**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Scores of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	2	3	2	1	3	3	1	2	3	**2.3**
CO2	2	3	2	1	2	3	3	2	2	2	**2.3**
CO3	3	2	3	1	2	2	3	2	3	2	**2.3**
CO4	3	2	3	1	2	3	2	1	2	3	**2.2**
CO5	2	3	3	2	2	2	3	1	2	3	**2.4**
Mean Overall Score											**2.3 (High)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UHE24VE02	**Value Education - 2:** Fundamentals of Human Rights	2	1

Course Objectives
To sensitize students about various human rights and their importance
To empower them with the right understanding of human rights
To enable them to understand the Fundamental rights and the duties in the constitution of India
To help them comprehend the background, principles and the articles of UDHR
To make them involved in activities to defend human rights

UNIT I: Human Rights - An Introduction **(6 Hours)**

Introduction- Classification of Human Rights- Scope of Human Rights-Characteristics of Human Rights - Challenges for Human Rights in the 21st Century.

UNIT II: Historical Development of Human Rights **(6 Hours)**

Human Rights in Pre-World War Era- Human Rights in Post-World War Era- Evolution of International Human Rights Law - the General Assembly Proclamation- Institution Building, Implementation and the Post- Cold War Period. The ICC.

UNIT III: India and Human Rights **(6 Hours)**

Introduction- Preamble to Indian Constitution - Classification of Fundamental Rights-Salient Features of Fundamental Rights-and Fundamental Duties.

UNIT IV: Human Rights of Women and Children **(6 Hours)**

Women's Human Rights- Issues related to women's rights - and Rights of Women's and Children

UNIT V: Human Rights Violations and Organizations **(6 Hours)**

Human Rights Violations - Human Rights Violations in India - the Human Rights Watch Report, January 2012- Human Rights Organizations – NHRC – SHRC.

Teaching Methodology	Chalk and Talk, Power point, Handouts and Group discussion

Book for Study

1. Department of Human Excellence, (2021). *Techniques of Social Analysis: Fundamentals of Human Rights.*

Books for Reference

1. Venkatachalem. (2005). *The Constitution of India*, *Giri Law House.*
2. Naik, V. & Shany, M. (2011). *Human rights education and training*, Crescent Publishing Corporation.
3. Neera, B. (2011). *Human Rights Content and Extent.* Swastika Publications.

Websites and eLearning Sources

1. https://www.un.org/en/universal-declaration-human-rights/
2. https://www.ilo.org/global/lang--en/
3. https://www.amnesty.org/en/

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	Identify the importance and the values of human rights	**K1**
CO2	Understand the historical background and the development of Human Rights and the related organizations	**K2**
CO3	Apply the provisions of National and International human rights to themselves and the society	**K3**

Relationship Matrix											
Semester	**Course Code**			**Title of the Course**						**Hours**	**Credits**
2	**23UHE24VE02**			**Value Education - 2:** Fundamentals of Human Rights						**2**	**1**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	2	1	2	2	3	2	2	2	2	**2.1**
CO2	3	2	1	2	2	3	2	2	2	2	**2.1**
CO3	3	2	2	2	2	2	3	2	1	2	**2.1**
Mean Overall Score											**2.1 (Medium)**

Semester	Course Code	Title of the Course	Hours/Week	Credits
2	23UHE24AE01	**Ability Enhancement Compulsory Course - 2:** Environmental Studies	2	1

Course Objectives
To enable students connect themselves with nature
To Impart knowledge of the concept of Biodiversity
To create awareness of the causes and consequences of various pollution
To help them recognize the available natural resources and the need to sustain them
To enable them to Identify the environmental problems and offer alternatives by making interventions both individually and collectively

UNIT I: Introduction to Environmental Studies **(6 Hours)**

Introduction – Scope and Importance – Subsystems of Earth – Various recycling Methods – Environmental Movements in India – Eco- Feminism – Public awareness – Suggestions to conserve environment

UNIT II: Natural Resources **(6 Hours)**

Food Resources – Land Resources – Forest resources – Mineral Resources – Water Resources – Energy Resources

UNIT III: Ecosystems, Biodiversity and Conservation **(6 Hours)**

General structure of ecosystem - Functions of Ecosystem - Energy flow and Ecological pyramids – Levels of Biodiversity - Hot spots of Biodiversity - Endangered and Endemic Species - Value of Biodiversity - Threats to Biodiversity - Conservation of Biodiversity

UNIT IV: Environmental Pollution **(6 Hours)**

Air Pollution – Water Pollution – Oil Pollution – Soil Pollution – Marine Pollution – Noise Pollution - Thermal Pollution – Radiation Pollution

UNIT V: Environmental Organizations and Treatise **(6 Hours)**

United Nations Environment Program (UNEP) - International treaties on Environmental protection - Ministry of Environment, Forest and Climate Change - Important National Environmental Acts and rules– Environmental Impact assessment - Issues deals with Population growth.

Teaching Methodology	Chalk and Talk, Power point and Field visit

Book for Study

1. Department of Human Excellence, (2021). *Environmental Studies.*

Books for Reference

1. Rathor, V.S. & Rathor B. S. (2013). *Management of Natural Resources for Sustainable Development*. Daya Publishing House.
2. Sharma P.D. (2010). *Ecology and Environment*, (8th Ed.). Rastogi Publications.
3. Agrawal, A & Gibson, C.C. (2001). *Introduction: The Role of Community in Natural Resource Conservation.* Rutgers University Press.

Websites and eLearning Sources

1. https://www.unep.org/
2. http://moef.gov.in/en/
3. https://www.ipcc.ch/reports/

Course Outcomes		
CO No.	**CO-Statements** On successful completion of this course, students will be able to	**Cognitive Levels (K - Level)**
CO1	Identify the concepts related to global ecology and the environment	**K1**
CO2	Comprehend the natural resources and environmental organizations	**K2**
CO3	Apply the acquired knowledge to sensitize individuals and public about the environmental crisis	**K3**

Relationship Matrix											
Semester	**Course Code**	**Title of the Course**								**Hours**	**Credits**
2	**23UHE24AE01**	**Ability Enhancement Compulsory Course - 2:** Environmental Studies								**2**	**1**
Course Outcomes	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**					**Mean Score of COs**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	2	1	2	2	3	2	2	2	2	**2.1**
CO2	3	2	1	2	2	3	2	2	2	2	**2.1**
CO3	3	2	2	2	2	2	3	2	1	2	**2.1**
Mean Overall Score											**2.1 (Medium)**