



BHARATHIYAR

INSTITUTE OF ENGINEERING FOR WOMEN

(An Autonomous Institution)

Approved by AICTE, Affiliated to Anna University, Accredited by NAAC
Deviyakurichi, Thalaivasal Tk, Salem Dt – 636112, Tamil Nadu, India.

REGULATIONS-2026

CHOICE BASED CREDIT SYSTEM

B.E.-ELECTRICAL AND ELECTRONICS ENGINEERING

CURRICULUM AND SYLLABI

(For the Students Admitted from the Academic Year 2026-27 Onwards)

Vision of the Institute

To achieve the dream of Tamil Poet **Mahakavi Bharathiyar** “**Kanavu Meipada Vendum**”, we committed to serve the State and the Nation by grooming Professionally Educated, broadly talented Women Engineering Graduates, developing innovative technologies through high quality Research and empowering Women Students to meet the challenges in the Society.

Mission of the Institute

1. To Prepare our Students By Imparting Knowledge with Focuses on Academic Competence, Social Skills and Moral Values.
2. To Empower our Students as Capable Engineers with Inventiveness and Truthfulness to Meet the Technological Challenges in their Career.
3. To Create our Students having Strong Bond Between the Institute and Industry for Technology Updation.
4. To Develop our Students as Intellectual Leaders to Emerge in their Professions.

Vision of the Department

To empower female students through high-quality education in Electrical and Electronics Engineering, foster technological innovation to serve global society, and ultimately improve the quality of life.

Mission of the Department

1. To empower students by providing a good infrastructure facilities and Knowledge-based education.
2. To promote innovation and research to make successful professionals and entrepreneurs.
3. To encourage lifelong ethical learning among students in order to Cultivate responsible individuals.

Program Educational Objectives(PEOs)

Bachelor of Electrical and Electronics Engineering curriculum is designed to prepare the graduates having attitude and knowledge.

1. **PEO1:** Graduates have successful technical and professional careers in fields like circuit theory, field theory, control theory, and computational platforms.
2. **PEO2:** Motivate students to engage in a lifelong learning process to stay abreast of new advancements in the field of electronics and their applications to power engineering.

Program Outcomes(POs)

After going through the four years of study, our Electrical and Electronics Engineering Graduates will exhibit ability to:

1. **PO1:Engineering Knowledge:** Apply math, science, and engineering fundamentals to complex problems.
2. **PO2:ProblemAnalysis:** Identify and analyze complex problems using research and sustainability principles.
3. **PO3:Design Solutions:** Design systems and processes considering health, safety, cost, culture, and environment.
4. **PO4:Investigations:**Use experiments, modelling, and data analysis to reach valid conclusions.
5. **PO5:EngineeringTools:** Apply modern tools for modeling and problem-solving, recognizing their limits.
6. **PO6:Society & Environment:** Assess societal, legal, and environmental impacts of engineering solutions.
7. **PO7:Ethics:**Committo ethics, human values, diversity, and legal compliance.
8. **PO8:Teamwork:**Work effectively as an individual and in multidisciplinary teams.

9. **PO9:Communication:** Communicate clearly in reports, presentations, and documentation across diverse groups.
10. **PO10:Management & Finance:** Apply management and economic principles in projects and teamwork.
11. **PO11:Lifelong Learning:** Engage in continuous learning, adapt to new technologies, and think critically.

Program Specific Outcomes (PSOs)

Upon completing the Electrical and Electronics Engineering program, graduates will achieve the following Program Specific Outcomes:

1. **PSO1:** Analyze, design, and develop electrical circuits and systems for various industrial and societal requirements.
2. **PSO2:** Utilize modern tools and techniques for solving complex problems in electrical and electronic systems and provide sustainable solutions.
3. **PSO3:** Upskill with rapid advancements in the field of Electrical Engineering and exhibit research aptitude, work effectively as team and uphold ethical practices.



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SEMESTER-I									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26IPL101	Induction Programme	-	-	-	-	-	-	-
2.	U26ENT102	Technical English-I	T	2	1	0	3	3	HUM
3.	U26MAT103	Calculus	T	3	1	0	4	4	BS
4.	U26PHT104	Engineering Physics-I	T	3	0	0	3	3	BS
5.	U26TAT105	தமிழர் மரபு / Heritage of Tamils	T	1	0	0	1	1	HUM
6.	U26CST106	Programming in C	T	3	0	0	3	3	ES(G)
7.	U26CYT107	Engineering Chemistry	T	3	0	0	3	3	BS
8.	U26ECT108	Electronic Devices	T	3	0	0	3	3	ES(PC)
9.	U26CSL109	Programming in C Laboratory	L	0	0	4	4	2	ES(G)
10.	U26PCL110	Physics and Chemistry Laboratory	L	0	0	4	4	2	BS
11.	U26ECL111	Electronic Devices Laboratory	L	0	0	4	4	2	ES(PC)
TOTAL				18	2	12	32	26	

SEMESTER-II									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26ENT201	Technical English-II	T	2	1	0	3	3	HUM
2.	U26MAT202	Linear Algebra	T	3	1	0	4	4	BS
3.	U26PHT203	Engineering Physics-II	T	3	0	0	3	3	BS
4.	U26TAT204	தமிழர்களும் தொழில்நுட்பமும்/ Tamils and Technology	T	1	0	0	1	1	HUM
5.	U26CST205	Object Oriented Programming	T	3	0	0	3	3	ES(G)
6.	U26GET206	Engineering Drawing	T	2	0	4	4	4	ES(G)
7.	U26SDT207	Aptitude Skills-I	T	1	0	0	1	1	SD
8.	U26CSL208	Object Oriented Programming Laboratory	L	0	0	4	4	2	ES(G)
TOTAL				15	2	8	23	21	

SEMESTER–III									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26MAT302	Transforms and Numerical Methods	T	3	1	0	4	4	BS
2.	U26ECT301	Signals and Systems	T	3	1	0	4	4	ES(PC)
3.	U26EET301	Electromagnetic Theory	T	3	0	0	3	3	ES(PC)
4.	U26EET302	Electric Circuit Analysis	T	3	1	0	4	4	ES(PC)
5.	U26EET303	Electrical Machines-I	T	3	0	0	3	3	ES(PC)
6.	U26CST301	Problem Solving Using Python	T	3	0	0	3	3	ES(G)
7.	U26SDT301	Aptitude Skills–II	T	1	0	0	1	1	SD
8.	U26EEL304	Electric Circuit Analysis Laboratory	L	0	0	4	4	2	ES(PC)
9.	U26EEL305	Electrical Machines-I Laboratory	L	0	0	4	4	2	ES(PC)
10.	U26SDL302	Communication Skills	L	0	0	2	2	1	SD
TOTAL				19	3	10	32	27	

SEMESTER–IV									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26GET401	Climate Change & Sustainability	T	2	0	0	2	2	HUM
2.	U26ECT401	Linear Integrated Circuits	T	3	0	0	3	3	ES(PC)
3.	U26EET401	Transmission and Distribution	T	3	1	0	4	4	ES(PC)
4.	U26EET402	Control Systems	T	3	1	0	4	4	ES(PC)
5.	U26EET403	Electrical Machines-II	T	3	0	0	3	3	ES(PC)
6.	U26EET404	Digital Electronics	T	3	0	0	3	3	ES(PC)
7.	U26EEL405	Electrical Machines-II Laboratory	L	0	0	4	4	2	ES(PC)
8.	U26ECL405	Linear and Digital Circuits Laboratory	L	0	0	4	4	2	ES(PC)
9.	U26EEL406	Control systems Laboratory	L	0	0	4	4	2	ES(PC)
10.	U26SDL401	Coding Skills-I	L	0	0	2	2	1	SD
TOTAL				17	2	14	33	26	

SEMESTER-V									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EET501	Power System Analysis	T	3	1	0	4	4	ES(PC)
2.	U26EET502	Power Electronics	T	3	0	0	3	3	ES(PC)
3.	U26ECT502	Microprocessor and Microcontroller	T	3	0	0	3	3	ES(PC)
4.	U26EET503	Protection and Switchgear	T	3	0	0	3	3	ES(PC)
5.	U26EET504	Measurement and Instrumentation	T	3	0	0	3	3	ES(PC)
6.	U26EEE5XX	Programme Elective-I	T	3	0	0	3	3	PE
7.	U26MCT5XX	Mandatory Course-I	T	3	0	0	3	0	-
8.	U26EEL505	Power Electronics Laboratory	L	0	0	4	4	2	ES(PC)
9.	U26ECL505	Microprocessor and Microcontroller Laboratory	L	0	0	4	4	2	ES(PC)
10.	U26SDL501	Coding Skills-II	L	0	0	2	2	1	SD
TOTAL				21	1	10	32	24	

*Mandatory Course-I is a Non-credit Course (Student shall select one course from the list given under Mandatory course-I)

SEMESTER-VI									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EET601	Power System Operation and Control	T	3	0	0	3	3	ES(PC)
2.	U26EET602	High Voltage Engineering	T	3	0	0	3	3	ES(PC)
3.	U26EET603	Solid State Drives	T	3	0	0	3	3	ES(PC)
4.	U26EEE6XX	Programme Elective-II	T	3	0	0	3	3	PE
5.	U26EEE6XX	Programme Elective-III	T	3	0	0	3	3	PE
6.	U26OET6XX	Open Elective-I	T	3	0	0	3	3	OE
7.	U26MCT6XX	Mandatory Course-II	T	3	0	0	3	0	-
8.	U26EEL604	Power System Simulation Laboratory	L	0	0	4	4	2	ES(PC)
9.	U26SDL601	Industry Oriented Course	L	-	-	-	-	1	SD
TOTAL				21	0	4	25	21	

*Mandatory Course-II is a Non-credit Course (Student shall select one course from the list given under Mandatory course-II)

SEMESTER–VII									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26GET701	Human Values and Ethics	T	3	0	0	3	3	HUM
2.	U26EEE7XX	Programme Elective-IV	T	3	0	0	3	3	PE
3.	U26EEE7XX	Programme Elective-V	T	3	0	0	3	3	PE
4.	U26OET7XX	Open Elective-II	T	3	0	0	3	3	OE
5.	U26PWL701	Mini Project	L	0	0	2	2	1	SD
6.	U26SDL701	Technical Comprehension and Mock Interview	L	0	0	2	2	1	SD
TOTAL				12	0	4	16	14	

SEMESTER– VIII									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26PWL801	Project Work/Internship	L	0	0	16	16	8	SD
TOTAL				0	0	16	16	8	

TOTAL CREDITS = 167

MANDATORY COURSES I								
S. No.	Course Code	Course Title	Category	Period Per Week				Credit
				L	T	P	TCP	
1.	U26MCT5XX	Introduction to Women and Gender Studies	MC	3	0	0	3	0
2.	U26MCT5XX	Elements of Literature	MC	3	0	0	3	0
3.	U26MCT5XX	Film Appreciation	MC	3	0	0	3	0
4.	U26MCT5XX	Disaster Risk Reduction and Management	MC	3	0	0	3	0

MANDATORY COURSES II								
S. No.	Course Code	Course Title	Category	Period Per Week				Credit
				L	T	P	TCP	
1.	U26MCT6XX	Well Being with Traditional Practices- Yoga, Ayurveda and Siddha	MC	3	0	0	3	0
2.	U26MCT6XX	History of Science and Technology in India	MC	3	0	0	3	0
3.	U26MCT6XX	Political and Economic Thought for a Humane Society	MC	3	0	0	3	0
4.	U26MCT6XX	State, Nation Building and Politics in India	MC	3	0	0	3	0
5.	U26MCT6XX	Industrial Safety	MC	3	0	0	3	0

PROGRAMME ELECTIVE COURSES

Programme Elective-1: POWER ENGINEERING									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EEE501	Utilization and Conservation of Electrical Energy	T	3	0	0	3	3	PE
2.	U26EEE502	Under Ground Cable Engineering	T	3	0	0	3	3	PE
3.	U26EEE503	Substation Engineering and Automation	T	3	0	0	3	3	PE
4.	U26EEE504	HVDC and FACTS	T	3	0	0	3	3	PE
5.	U26EEE505	Energy Management and Auditing	T	3	0	0	3	3	PE
6.	U26EEE506	Power Quality	T	3	0	0	3	3	PE
7.	U26EEE507	Smart Grid	T	3	0	0	3	3	PE
8.	U26EEE508	Restructured Power Market	T	3	0	0	3	3	PE

Programme Elective-2: CONVERTERS AND DRIVES									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EEE601	Special Electrical Machines	T	3	0	0	3	3	PE
2.	U26EEE602	Analysis of Electrical Machines	T	3	0	0	3	3	PE
3.	U26EEE603	Multi level Power Converters	T	3	0	0	3	3	PE
4.	U26EEE604	Electrical Drives	T	3	0	0	3	3	PE
5.	U26EEE605	SMPS and UPS	T	3	0	0	3	3	PE
6.	U26EEE606	Power Electronics for Renewable Energy Systems	T	3	0	0	3	3	PE
7.	U26EEE607	Control of Power Electronics Circuits	T	3	0	0	3	3	PE

Programme Elective-3: EMBEDDED SYSTEMS

S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EEE608	Embedded System Design	T	3	0	0	3	3	PE
2.	U26EEE609	Embedded C-programming	T	3	0	0	3	3	PE
3.	U26EEE610	Embedded Processors	T	3	0	0	3	3	PE
4.	U26EEE611	Embedded Control for Electric Drives	T	3	0	0	3	3	PE
5.	U26EEE612	Smart System Automation	T	3	0	0	3	3	PE
6.	U26EEE613	Embedded System for Automotive Applications	T	3	0	0	3	3	PE
7.	U26EEE614	VLSI Design	T	3	0	0	3	3	PE
8.	U26EEE615	MEMS and NEMS	T	3	0	0	3	3	PE
9.	U26EEE616	Digital Signal Processing System Design	T	3	0	0	3	3	PE

Programme Elective-4: ELECTRIC VEHICLE TECHNOLOGY

S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EEE701	Electric Vehicle Architecture	T	3	0	0	3	3	PE
2.	U26EEE702	Design of Motor and Power Converters for Electric vehicles	T	3	0	0	3	3	PE
3.	U26EEE703	Electric vehicle Design, mechanics and Control	T	3	0	0	3	3	PE
4.	U26EEE704	Design of Electric Vehicles and Charging Systems	T	3	0	0	3	3	PE
5.	U26EEE705	Testing of Electric Vehicles	T	3	0	0	3	3	PE
6.	U26EEE706	Grid Integration of Electric Vehicles	T	3	0	0	3	3	PE
7.	U26EEE707	Intelligent Control of Electric Vehicles	T	3	0	0	3	3	PE

Programme Elective-5: DIVERSIFIED COURSES

S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26EEE716	Energy Storage Systems	T	3	0	0	3	3	PE
2.	U26EEE717	Hybrid Energy Technology	T	3	0	0	3	3	PE
3.	U26EEE718	Design and Modeling of Renewable Energy Systems	T	3	0	0	3	3	PE
4.	U26EEE719	Grid integrating Techniques and Challenges	T	3	0	0	3	3	PE
5.	U26EEE720	Sustainable and Environmental Friendly HV Insulation System	T	3	0	0	3	3	PE
6.	U26EEE721	Power System Transients	T	3	0	0	3	3	PE
7.	U26EEE722	PLC Programming	T	3	0	0	3	3	PE
8.	U26EEE723	Big Data Analytics	T	3	0	0	3	3	PE

OPEN ELECTIVE

Students shall choose the open elective courses, such that the course contents are not similar to any other course contents/title under other course categories.

OPEN ELECTIVE-I

S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26OET601	Space Science	T	3	0	0	3	3	OE
2.	U26OET602	Introduction to Industrial Engineering	T	3	0	0	3	3	OE
3.	U26OET603	Food, Nutrition and Health	T	3	0	0	3	3	OE
4.	U26OET604	Environmental and Social Impact Assessment	T	3	0	0	3	3	OE
5.	U26OET606	Artificial Intelligence and Machine Learning Fundamentals	T	3	0	0	3	3	OE
6.	U26OET607	Resource Management Techniques	T	3	0	0	3	3	OE
7.	U26OET608	Neural Networks and Deep Learning	T	3	0	0	3	3	OE
8.	U26OET609	Digital Marketing	T	3	0	0	3	3	OE
9.	U26OET610	Software Testing	T	3	0	0	3	3	OE

10.	U26OET611	Biomedical Instrumentation	T	3	0	0	3	3	OE
11.	U26OET612	Nanotechnology	T	3	0	0	3	3	OE
12.	U26OET613	Industrial Management	T	3	0	0	3	3	OE
13.	U26OET614	Foundation of Robotics	T	3	0	0	3	3	OE
14.	U26OET615	Applied Design thinking	T	3	0	0	3	3	OE
15.	U26OET617	IoT Concepts and Applications	T	3	0	0	3	3	OE
16.	U26OET618	Data Sciences Fundamentals	T	3	0	0	3	3	OE
17.	U26OET619	Augmented Reality/Virtual Reality	T	3	0	0	3	3	OE

OPEN ELECTIVE-II									
S. No.	Course Code	Course Title	Course Type	Period Per Week				Credit	Category
				L	T	P	TCP		
1.	U26OET701	Graph Theory	T	3	0	0	3	3	OE
2.	U26OET702	Fintech Regulation	T	3	0	0	3	3	OE
3.	U26OET703	Holistic Nutrition	T	3	0	0	3	3	OE
4.	U26OET704	IT in Agricultural System	T	3	0	0	3	3	OE
5.	U26OET705	Introduction to Control Engineering	T	3	0	0	3	3	OE
6.	U26OET706	Pharmaceutical Nanotechnology	T	3	0	0	3	3	OE
7.	U26OET707	Aviation Management	T	3	0	0	3	3	OE
8.	U26OET708	DevOps	T	3	0	0	3	3	OE
9.	U26OET709	Robotic Process Automation	T	3	0	0	3	3	OE
10.	U26OET710	Remote Sensing Concepts	T	3	0	0	3	3	OE

11.	U26OET711	Network Administration	T	3	0	0	3	3	OE
12.	U26OET712	Soft Computing	T	3	0	0	3	3	OE
13.	U26OET713	Project Report Writing	T	3	0	0	3	3	OE
14.	U26OET714	Geographical Information System	T	3	0	0	3	3	OE
15.	U26OET715	Food Safety and Quality Regulations	T	3	0	0	3	3	OE
16.	U26OET716	Fundamentals of Food Engineering	T	3	0	0	3	3	OE
17.	U26OET717	Industrial Safety	T	3	0	0	3	3	OE
18.	U26OET718	Sensors and Actuators	T	3	0	0	3	3	OE
19.	U26OET719	Drone Technologies	T	3	0	0	3	3	OE
20.	U26OET720	Fibre Science	T	3	0	0	3	3	OE
21.	U26OET722	Introduction to PLC Programming	T	3	0	0	3	3	OE

Summary

S.No.	Subject Area	CREDITSASPERSEMESTER								Total Credits	Percentage
		I	II	III	IV	V	VI	VII	VIII		
1.	HUM	4	4		2			3		13	7.78%
2.	BS	12	7	4						23	13.77%
3.	ES(G)	5	9	3						17	10.18%
4.	ES(PC)	5		18	23	20	11			77	46.11%
5.	PE					3	6	6		15	8.98%
6.	OE						3	3		6	3.59%
7.	SD		1	2	1	1	1	2	8	16	9.58%
TOTAL		26	21	27	26	24	21	14	8	167	100%

HUM – Humanities; **BS**– Basic Science; **ES** – Engineering Science Courses(General(G), Programme Core(PC)) including workshop, drawing, basics of electrical/mechanical/computer etc.**PE** – Programme Elective Courses relevant to chosen specialization/branch; **OE** – Open Electives from other technical and/or emerging subjects ; **SD**–Skill Development, Project work, Seminar and internship in industry or elsewhere.

U26ENT102	TECHNICAL ENGLISH-I	L	T	P	C
		3	0	0	3
Course Objectives: - To build fundamental skills in listening, speaking, reading, and writing for effective communication. - To develop a basic understanding of grammar and vocabulary for accurate and appropriate usage. - To enhance communication and comprehension skills for everyday and academic contexts, enabling clear expression of ideas in both speaking and writing.					
UNIT-I	LISTENING SKILLS	9			
Listening and understanding the main idea (Parts of Speech)-Listening to a conversation between two people (Opinions and emotions) – Listening to public announcements (Word formation)- Listening to formal talks and presentations (Note Taking and Note Making) , Listening: Exposure to diverse accents in listening.					
UNIT-II	SPEAKING SKILLS	9			
Introducing oneself and others (“Wh” type questions) – Just a minute (JAM)-Hobbies, Hometown, School life, Daily Routine–Describing people and places (Yes/No type questions) – Asking and answering simple questions (Lexical equivalents/opposites and contextual vocabulary) - Describing events/experiences (Interpreting and developing hints).					
UNIT-III	READING SKILLS	9			
Reading and its types (Skimming, Scanning, Intensive and Extensive) – Reading and interpreting conversation (Tenses)-Reading and comprehending short passages (Describing words) – Read and Making Inference (Guessing from context), Idioms and Phrasal verbs					
UNIT-IV	WRITING SKILLS	9			
Writing Short answers (Sentence Structure), Definition and Extended definition –Letter writing (Formal/informal) – E-mail writing (Professional/Academic), Creative Writing (Dialogue), Write a paragraph (Descriptive/Narrative/Expository).					
UNIT-V	LEXICAL AND GRAMMATICAL SKILLS	9			
Instructions (User Manual), Recommendations and Checklist, Subject verb agreement, British and American Vocabulary, Common Errors in English.					
TOTAL : 45 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%					
Text Books: - Murphy, Raymond. English Grammar in Use: A Self-Study Reference and Practice Book for Intermediate Learners, with Answers and Interactive e-Book. 5th ed., Cambridge University Press & Assessment, 2019. - Veena Selvametal. English for Science and Technology. Cambridge University Press, 2021.					

References:

1. Department of English, Anna University. English for Engineers and Technologists. Orient Blackswan, 2020.
2. Oshima, Alice, and Ann Hogue. Writing Academic English. Oxford University Press.
3. Rizvi, M. Ashraf. *Effective Technical Communication*. 2nd ed., McGraw Hill Education, 2017.
4. Raman, Meenakshi, and Sangeeta Sharma. Technical Communication: Principles and Practice. 4th ed., Oxford University Press, 2022.

E-RESOURCES:

1. [https://math.libretexts.org/Bookshelves/Calculus/Map%3ACalculusEarlyTranscendentals\(Stewart\)/](https://math.libretexts.org/Bookshelves/Calculus/Map%3ACalculusEarlyTranscendentals(Stewart)/)
2. <https://openstax.org/books/calculus-volume/>
3. <https://tutorial.math.lamar.edu/Classes/CalcII/CalcII.aspx> SCILAB, <https://www.scilab.org/>

CO's - PO's & PSO's MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	2	2	-	-	-	-	-
CO2	-	-	-	-	-	-	-	2	3	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	2	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	2	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Avg	-	-	-	-	-	-	-	2	2	-	-	-	-	-

1-low, 2 - medium, 3 - high, '-' – no correlation

U26MAT103	CALCULUS	L	T	P	C
		3	1	0	4
Course Objectives:					
• To familiarize the students with concepts of differential and integral calculus. • To familiarize the students with functions of several variables. • To acquaint the students with mathematical tools in evaluating multiple integrals and their applications in vector calculus.					
UNIT- I	DIFFERENTIAL CALCULUS	9 + 3			
Functions, Graph representation of functions, Limit, Continuity, Derivatives, Maxima and Minima functions of single variable, Mean value theorem.					
UNIT-II	INTEGRAL CALCULUS	9 + 3			
Fundamental theorem of Calculus, Indefinite integrals and Net Change Theorem, Techniques of integration: Integration by parts, Trigonometric integrals, Trigonometric substitutions, Integration of rational functions by partial fraction, Integration of irrational functions.					
UNIT-III	FUNCTIONS OF SEVERAL VARIABLES	9 + 3			
Partial derivatives, Chain rule, Jacobians, Maxima and Minima functions of two variables, Method of Lagrange’s Multipliers, Taylor’s series, Expansion of two variables, Applications problems in Engineering.					
UNIT- IV	MULTIPLE INTEGRALS	9 + 3			
Iterated integrals and Fubini’s theorem, Evaluation of double integrals, Change of order of integration, Change of variables between Cartesian and polar co-ordinates, Evaluation of triple integrals- Area enclosed by plane curves, Volume of solids, Cylindrical and Spherical co-ordinates.					
UNIT- V	VECTOR CALCULUS	9 + 3			
Vector introduction, Gradient and directional derivative, Irrotational and Solenoidal vectors- Green's theorem (Excluding proof) - Problems, Gauss divergence theorem (Excluding proof)- Problems and Stokes’ theorem (Excluding proof) - Problems, Engineering Applications.					
TOTAL: 60 PERIODS					
Weightage: Continuous Assessment:40%, End Semester Examinations:60%.					
TEXT BOOK:					
1. Thomas GB, Jr., Weir, M.D., Hass, J., & Heil, C.(2018). Thomas’ calculus: Early transcendental Pearson. 2. B. S. Grewal, Higher Engineering Mathematics, 2020, 44th Edition, Khanna Publishers.					
REFERENCES:					
1. T. Veerarajan, Engineering Mathematics-I © 2014, by McGraw Hill Education (India) Private Limited 2. Singh K.(2019). Engineering mathematics through applications, Bloomsbury Publishing. 3. Dr. G. Balaji, Applied Calculus, First Edition (August 2025).					

E-RESOURCES:

1. [https://math.libretexts.org/Bookshelves/Calculus/Map%3ACalculusEarlyTranscendentals\(Stewart\)/](https://math.libretexts.org/Bookshelves/Calculus/Map%3ACalculusEarlyTranscendentals(Stewart)/)
2. <https://openstax.org/books/calculus-volume-1/>
3. <https://tutorial.math.lamar.edu/Classes/CalcII/CalcII.aspx>SCILAB,<https://www.scilab.org/>

CO's - PO's & PSO's MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	3	2	-	-	-	-	-	-	-	-	-	-	-	-

1-low, 2 - medium, 3 - high, '-' – no correlation

U26PHT104	ENGINEERING PHYSICS - I	L	T	P	C
		3	0	0	3
Course Objectives:					
- Understand the basic concepts of properties of matter, acoustics, ultrasonics, and crystal structures. - Learn the fundamentals of lasers, fiber optics, and quantum mechanics and their practical applications.					
UNIT - I	PROPERTIES OF MATTER				9
Elasticity – Hooke’s law – Relationship between three moduli of elasticity – Poisson’s ratio – Factors affecting elastic modulus and tensile strength; Torsional stress and deformations – Twisting couple – Torsional pendulum – Double pendulum; Bending of beams – Bending moment – Cantilever – Uniform and non-uniform bending – I-shaped girders; Viscosity – Stokes method; Surface tension – Drop weight method.					
UNIT - II	LASER AND FIBER OPTICS				9
Lasers – Spontaneous and stimulated emission – Population inversion – Pumping methods – Einstein’s coefficients – Types of lasers – Nd-YAG laser, CO ₂ laser, Semiconductor lasers – Applications of lasers in industry and medical; Fiber optics – Propagation of light in optical fibres – Numerical aperture and acceptance angle – Types of optical fibres (material, refractive index, mode) – Fiber optic communication system – Fiber optic sensors (pressure and displacement) – Applications of fiber optics.					
UNIT – III	ACOUSTICS AND ULTRASONICS				9
Acoustics – Classification – Weber–Fechner law – Sabine’s formula – Absorption coefficient – Factors affecting acoustics of buildings and their remedies; Ultrasonics – Properties – Generation of ultrasonics – Magnetostriction method – Piezoelectric method – Velocity measurement – Ultrasonic flaw detector – Non-destructive testing – Medical applications – Sonogram.					
UNIT - IV	QUANTUM MECHANICS				9
Black body radiation – Planck’s theory (derivation) – Deduction of Wien’s displacement law – Rayleigh–Jeans law from Planck’s theory; Photoelectric effect – Compton effect (theory and experimental verification) – Wave particle duality; Schrödinger’s wave equation – Time independent and time dependent equations – Physical significance of wave function – Particle in a one-dimensional box – Barrier penetration – Quantum tunneling; Microscope – Scanning tunneling microscope.					
UNIT - V	CRYSTAL PHYSICS				9
Lattice and Basis – Unit cell – Crystal Systems – Bravais lattice – Miller indices – ‘d’ spacing in cubic lattice – Atomic radius – Coordination number – Atomic Packing factor for SC, BCC, FCC, and HCP structures – Diamond and graphite structures – Crystal imperfections: Point, Line, Surface and Volume defect – Burger vectors, Stacking faults – Role of imperfections in plastic deformation.					
TOTAL : 45 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%					

TEXT BOOK:

1. Thyagarajan K and Ajoy Ghatak, “Lasers – Fundamentals and Applications”, 2nd edition, Laxmi Publications Pvt Limited, New Delhi, 2019.
2. Bhattacharya D K and Poonam Tandon, “Engineering Physics”, 2nd Edition, Oxford University Press, Chennai, 2017.
3. William D Callister Jr "Materials Science and Engineering-An Introduction", John Wiley and Sons Inc., New York, 2018, Tenth edition.
4. Arumugam M. Engineering Physics. Anuradha publishers, 2010.
5. Marikani A, “Engineering Physics”, 3rd Edition, PHI publishers, Chennai, 2021.

REFERENCES:

1. Shatendra Sharma and Jyotsna Sharma, “Engineering Physics”, 2nd edition, Pearson India Education Services Private Limited, Chennai.2018.
2. Avadhanulu M N, Kshirsagar P G and Arun Murthy TVS, “A Text book Engineering Physics”, 2nd edition, S Chand Publishing, New delhi, 2018.

CO's - PO's & PSO's MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
CO4	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	3	2.5	2	-	-	-	-	-	-	-	-	-	-	-

1- low, 2 - medium, 3 - high, '-' – no correlation

U26TAT105	தமிழர் மரபு	L	T	P	C
		1	0	0	1
இயல்-1	மொழி மற்றும் இலக்கியம்			3	
இந்திய மொழிக் குடும்பங்கள், திராவிட மொழிகள், தமிழ் ஒரு செம்மொழி, தமிழ் செவ்விலக்கியங்கள், சங்க இலக்கியத்தின் சமயச் சார்பற்ற தன்மை, சங்க இலக்கியத்தில் பகிர்தல் அறம், திருக்குறளில் மேலாண்மைக் கருத்துக்கள், தமிழ்க் காப்பியங்கள், தமிழகத்தில் சமண பௌத்த சமயங்களின் தாக்கம், பக்தி இலக்கியம், ஆழ்வார்கள் மற்றும் நாயன்மார்கள், சிற்றிலக்கியங்கள், தமிழில் நவீன இலக்கியத்தின் வளர்ச்சி, தமிழ் இலக்கிய வளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகியோரின் பங்களிப்பு.					
இயல்-2	மரபு – பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை – சிற்பக்கலை			3	
நடுகல் முதல் நவீன சிற்பங்கள் வரை, ஐம்பொன் சிலைகள், பழங்குடியினர் மற்றும் அவர்கள் தயாரிக்கும் கைவினைப் பொருட்கள், பொம்மைகள், தேர் செய்யும் கலை, சுடுமண் சிற்பங்கள், நாட்டுப்புறத் தெய்வங்கள், குமரிமுனையில் திருவள்ளுவர் சிலை, இசைக் கருவிகள், மிருதங்கம், பறை, வீணை, யாழ், நாதஸ்வரம், தமிழர்களின் சமூக பொருளாதார வாழ்வில் கோவில்களின் பங்கு.					
இயல்-3	நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள்			3	
தெருக்கூத்து, கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து, ஓயிலாட்டம், தோல்பாவைக் கூத்து, சிலம்பாட்டம், வளரி, புலியாட்டம், தமிழர்களின் விளையாட்டுகள்.					
இயல்-4	தமிழர்களின் திணைக் கோட்பாடுகள்			3	
தமிழகத்தின் தாவரங்களும், விலங்குகளும், தொல்காப்பியம் மற்றும் சங்க இலக்கியத்தில் அகம் மற்றும் புறக் கோட்பாடுகள், தமிழர்கள் போற்றிய அறக்கோட்பாடு, சங்ககாலத்தில் தமிழகத்தில் எழுத்தறிவும், கல்வியும், சங்ககால நகரங்களும் துறை முகங்களும், சங்ககாலத்தில் ஏற்றுமதி மற்றும் இறக்குமதி, கடல்கடந்த நாடுகளில் சோழர்களின் வெற்றி.					
இயல்-5	இந்திய தேசிய இயக்கம் மற்றும் பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு			3	
இந்திய விடுதலைப்போரில் தமிழர்களின் பங்கு, இந்தியாவின் பிறப்பகுதிகளில் தமிழ்ப் பண்பாட்டின் தாக்கம், சுயமரியாதை இயக்கம் இந்திய மருத்துவத்தில், சித்த மருத்துவத்தின் பங்கு, கல்வெட்டுகள், கையெழுத்துப்படிகள், தமிழ்ப் புத்தகங்களின் அச்ச வரலாறு.					
TOTAL : 15 PERIODS					
References:					
1. தமிழக வரலாறு, மக்களும் பண்பாடும், கே.கே.பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்). 2. கணினித் தமிழ், முனைவர் இல.சுந்தரம் (விகடன் பிரசுரம்). 3. கீழடி, சைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு) 4. பொருறை, ஆற்றங்கரை நாகரிகம் (தொல்லியல் துறை வெளியீடு) 5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print) 6. Social Life of the Tamils – The Classical Period (Dr. S. Singaravelu) (Published by: International Institute of Tamil Studies). 7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D.Thirunavukkarasu) (Published by: International Institute of Tamil Studies). 8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies). 9. Keeladi – ‘Sangam City Civilization on the banks of river Vaigai’ (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 10. Studies in the History of India with Special Reference to Tamil Nadu (Dr. K.K.Pillay) (Published by: The Author). 11. Porunai Civilization (Jointly Published by: Department of Archeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by:RMRL) – Reference Book.					

U26TAT104	Heritage of Tamils	L	T	P	C
		1	0	0	1
UNIT-I	Language and Literature				3
Language Families in India, Dravidian Languages, Tamil as a Classical Language – Classical Literature in Tamil – Secular Nature of Sangam Literature, Distributive Justice in Sangam Literature, Management Principles in Thirukural, Tamil Epics and Impact of Buddhism & Jainism in Tamil Land, Bakthi Literature Azhwars and Nayanmars – Forms of minor Poetry – Development of Modern Literature in Tamil, Contribution of Bharathiyar and Bharathidhasan.					
UNIT-II	Heritage – Rock art Paintings to Modern Art – Sculpture				3
Hero stone to modern sculpture, Bronze icons, Tribes and their handicrafts – Art of temple car making, Massive Terracotta sculptures, Village deities, Thriuvalluvar Statue at Kanyakumari, Making of musical instruments, Mridhangam, Parai, Veenai, Yazh and Nadhaswaram, Role of Temples in social and Economic Life of Tamils.					
UNIT-III	Folk and Marital Arts				3
Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyilattam, Leather puppetry, Silambattam, Valari, Tiger dance – sports and Games of Tamils.					
UNIT-IV	Thinai Concept of Tamils				3
Flora and Fauna of Tamils & Aham and Puram Concept from Tholkappiyam and Sangam Literature, Aram Concept of Tamils, Education and Literacy during Sangam Age – Ancient cities and Ports of Sangam Age, Export and Import during Sangam Age – Overseas Conquest of Cholas.					
UNIT-V	Contribution of Tamils to Indian National Movement and Indian Culture				3
Contribution of Tamils to Indian Freedom Struggle, The Cultural Influence of Tamils over the other parts of India, Self-Respect Movement, Role of Siddha Medicine in Indigenous Systems of Medicine, Inscriptions & Manuscripts, Print History of Tamil Books.					
References:					
1. தமிழக வரலாறு, மக்களும் பண்பாடும், கே.கே.பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்). 2. கணினித் தமிழ், முனைவர் இல.சுந்தரம் (விகடன் பிரசுரம்). 3. கீழடி, சைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு) 4. பொருறை, ஆற்றங்கரை நாகரிகம் (தொல்லியல் துறை வெளியீடு) 5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print) 6. Social Life of the Tamils – The Classical Period (Dr. S. Singaravelu) (Published by: International Institute of Tamil Studies). 7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D.Thirunavukkarasu) (Published by: International Institute of Tamil Studies). 8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies). 9. Keeladi – ‘Sangam City Civilization on the banks of river Vaigai’ (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 10. Studies in the History of India with Special Reference to Tamil Nadu (Dr. K.K.Pillay) (Published by: The Author). 11. Porunai Civilization (Jointly Published by: Department of Archeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Publsihed by:RMRL) – Reference Book.					

U26CST106	PROGRAMMING IN C	L	T	P	C
		3	0	0	3
COURSE OBJECTIVES: • To understand the fundamental concepts of C programming. • To Develop problem solving skills using C. • To apply arrays, pointers, structures and file handling in programs. • To understand the concepts of Structures and Unions. • To Develop Applications in C using File Processing.					
UNIT-I	INTRODUCTION TO C				9
Introduction – Structure of C Program – C Programming: Data Types, Constants, Variables, Tokens, Character set, Keywords- Operators, Expressions-Input / Output statements-Assignment statements-Decision making statements –Looping statements-Preprocessor directives.					
UNIT-II	ARRAYS AND STRINGS				9
Introduction to arrays: Declaration, Initialization- One- dimensional and Multi-dimensional Arrays, Array operations and traversal - String Handling functions.					
UNIT-III	FUNCTIONS AND POINTERS				9
Functions: Definition and Declaration, Types of functions, Parameter Passing: Call by Value, Call by Reference, Recursion. Pointers– Pointer operators –Pointer arithmetic– Pointers and Arrays– Pointers and Functions-Pointers to Pointers – Parameter passing: Pass by value, Pass by reference.					
UNIT-IV	STRUCTURES, UNIONS AND DATA REPRESENTATION				9
Structures: Defining and using structures- Nested Structures-Pointers and Structures-Array of structures- Unions, Enumerations. Bit Fields: Definition and syntax – packing of data into bits – advantages and limitations. Memory Optimization: Efficient memory usage using unions and bit fields – structure padding and alignment – techniques to reduce memory wastage. Self-Referential Structures: Concept and implementation – structures containing pointers to same type – applications in linked lists, trees and other dynamic data structures.					
UNIT-V	FILE PROCESSING				9
Files– File Operations: Open, read, write, close file operations, File pointers, Error handling –Types of file processing: Sequential access, Random access – Sequential access file – Random access file – Command line arguments.					
TOTAL: 45 PERIODS					
Weightage : Continuous Assessment : 40%, End Semester Examinations: 60%					
Text Books: 1. Reema Thareja,(2021). Programming in C. Oxford University Press. 2. Balagurusamy, E. (2024). Programming in ANSIC, 9th Edition. Mc Graw Hill Education. References: 1. Yashvanth Kanetkar,(2020). Let us C, 16th Edition. BPB Publications. 2. Kalicharan,N.(2022). Learn to program with C: An introduction to programming using the C language. A press. 3. Forouzan, B.A., & Afyouni, H.(2023). Computer science: A structured programming approach in C. Cengage. 4. Paul Deitel and Harvey Deitel, C: How to Program, 8thedition, Pearson Education.					

1. Learn- C.org - <https://www.learn-c.org/>
2. Geeks for Geeks- C Programming-<https://www.geeksforgeeks.org/c-programming-language/>
3. GNUC Library Documentation -<https://www.gnu.org/software/libc/manual/>

CO1: Understand the basic structure of C programs, data types, operators and expressions
CO2: Apply control structures (decision making, looping) to solve computational problems.
CO3: Implement modular programming using functions and recursion
CO4: Use arrays, strings, and pointers effectively in problem solving.
CO5: And file handling for data management.

[illegible]

U26CYT107	ENGINEERING CHEMISTRY	L	T	P	C
		3	0	0	3
Course Objectives:					
• To inculcate sound understanding of water quality parameters, water treatment, electrochemistry, corrosion, and engineering materials for industrial applications. • To develop knowledge of energy sources, renewable technologies, and modern energy storage devices. • To gain insight into polymers, composites, and engineering materials, including their properties, processing techniques, and industrial applications.					
UNIT - I	WATER AND IT'S TREATMENT	9			
Water: Sources and impurities, Water quality parameters: Definition and significance of- colour, odour, turbidity, pH, hardness, alkalinity, TDS, COD and BOD, flouride and arsenic. Municipal watertreatment: primary treatment and disinfection (UV, Ozonation, break-point chlorination). Desalinationof brackish water: Reverse Osmosis. Boiler troubles: Scale and sludge, Boiler corrosion, Caustic embrittlement, Priming & foaming. Treatment of boiler feed water: Internal treatment (phosphate, colloidal, sodium aluminate and calgon conditioning) and External treatment – Ion exchange demineralisation and zeolite process.					
UNIT -II	ELECTROCHEMISTRY AND CORROSION	9			
Electrochemical cell - redox reaction, electrode potential- origin of electrode potential- oxidation potential- reduction potential, measurement and applications - electrochemical series and its significance - Nernst equation (derivation and problems). Corrosion- causes- factors- types- chemical, electrochemical corrosion (galvanic, differential aeration), corrosion control - material selection and design aspects - electrochemical protection – sacrificial anode method and impressed current cathodic method. Paints- constituents and function. Electroplating of Copper and electroless plating of nickel.					
UNIT- III	ENERGY AND STORAGE DEVICES	9			
Stability of nucleus: mass defect (problems), binding energy; Nuclear energy: light water nuclear power plant, breeder reactor. Solar energy conversion: Principle, working and applications of solar cells; Recent developments in solar cell materials. Wind energy; Geothermal energy; Batteries: Types of batteries, Primary battery - dry cell, Secondary battery - lead acid battery and lithium-ion battery; Electric vehicles-working principles; Fuel cells: H ₂ -O ₂ fuel cell, microbial fuel cell; Super capacitors: Storage principle, types and examples.					
UNIT -IV	POLYMERS AND COMPOSITES	9			
Polymers-definition – polymerization – types – addition and condensation polymerization – free radical polymerization mechanism – Plastics, classification – preparation, properties and uses of PVC, Teflon, polycarbonate, polyurethane, nylon-6,6, PET Rubber -vulcanization of rubber, synthetic rubbers – butyl rubber, SBR, Composites – definition, types polymer matrix composites – FRP only. Moulding of plastics compression, Injection and Transfer moulding.					
UNIT - V	ENGINEERING MATERIALS	9			
Abrasives: definition, classification or types, grinding wheel, abrasive paper and cloth. Refractories: definition, characteristics, classification, properties – refractoriness and RUL, dimensional stability, thermal spalling, thermal expansion, porosity; Manufacture of alumina, magnesite and silicon carbide, Portland cement- manufacture and properties - setting and hardening of cement, special					

cement waterproof and white cement-properties and uses. Glass - manufacture, types, properties and uses.

TOTAL : 45 PERIODS

Weightage: Continuous Assessment: 50%, End Semester Examinations: 50%

Text Books:

1. Gowariker V.R. , Viswanathan N.V. and Jayadev Sreedhar, “Polymer Science”, New Age International P (Ltd.), Chennai, 2006.
2. S.S. Dara, “A Text book of Engineering Chemistry”, S. Chand Publishing, 12th Edition, 2018.
3. R. Sivakumar, M.Sivakumar, ‘Engineering Chemistry’, McGraw-Hill Education (India) Pvt Limited, 2009.

References:

1. P. C. Jain and Monica Jain, “Engineering Chemistry”, 17th Edition, DhanpatRai Publishing Company (P) Ltd, New Delhi, 2018.
2. Sivasankar B., “Engineering Chemistry”, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 2008.
3. O.G. Palanna, “Engineering Chemistry” McGraw Hill Education (India) Private Limited, 2nd Edition, 2017.
4. Shikha Agarwal, “Engineering Chemistry-Fundamentals and Applications”, Cambridge University Press, Delhi, Second Edition, 2019.

CO's - PO's & PSO's MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	1	-	-	-	-	-	-	-	-	-	-	-
CO3	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	2	1	1	-	-	-	-	-	-	-	-	-	-	-
Avg	2.6	2	1	-	-	-	-	-	-	-	-	-	-	-

1-low, 2 - medium, 3 - high, '-' – no correlation

U26ECT108	ELECTRONIC DEVICES	L	T	P	C
		3	0	0	3
COURSE OBJECTIVES: • To give a comprehensive exposure to semiconductor fundamentals and carrier dynamics. • To analyze diode circuits and applications. • To evaluate transistor performance in different configurations. • To study FETs and CMOS circuits. • To explore opto electronic and power electronic devices.					
UNIT-I	SEMICONDUCTOR DEVICES	9			
Semiconductor: Types, Conductivity, Electron energy levels and energy band diagram, Carrier concentration, Mass action law, Characteristics and behaviour of intrinsic semiconductors, Variation in properties with temperature, Carrier drift and diffusion, Current density equation, Excess carrier generation and recombination rates, Carrier life time. Continuity equation.					
UNIT-II	DIODES	9			
PN Junction Diodes: Energy band diagram of open-circuited PN junction, Forward and reverse bias characteristics, Diode resistance, Transition and diffusion capacitance, Effect of temperature on diode behavior, clipper, clamper-Applications of PN junction diodes. Zener diode – breakdown mechanisms and voltage regulation, Varactor diode, Tunnel diode, Photo diode – construction, operation and application					
UNIT-III	BIPOLAR JUNCTION TRANSISTORS	9			
Construction, working, characteristics in CB, CE, and CC configurations, regions of operation, current gain, input/output characteristics, Early effect. Other Devices: Multi-emitter transistor– construction and applications.					
UNIT-IV	TRANSISTORS	9			
JFET–construction, working, characteristics, parameters. MOSFET, MOS capacitor, depletion and enhancement modes, nMOS and pMOS, threshold voltage, transfer and output characteristics. CMOS – introduction and basic operation. Uni junction Transistor (UJT): Construction, characteristics and application as relaxation oscillator.					
UNIT-V	OPTOELECTRONIC DEVICES	9			
Shockley diode, Silicon Controlled Rectifier (SCR), TRIAC and DIAC – operation and applications, Thyristor protection techniques. Optoelectronic Devices: LED, LCD, Photo transistor, Opto-coupler – principle, characteristics and applications. Power MOSFETs: Construction, switching characteristics and applications in power circuits.					
TOTAL: 45 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					

TEXTBOOKS:

1. Neamen, D.A.(2012).Semiconductor physics and devices. Tata McGraw-Hill.
2. Boylestad,R.L.,&Nashelsky,L.(2008).ElectronicdevicesandcircuittheoryPearson Prentice Hall.
3. Yang,C.Y.(1978).Fundamentals of semiconductor devices.McGraw-HiInternational.
4. Salivahanan,S.,SureshKumar,N.,&Vallavaraj,A.(2008).Electronicdevices an circuits. Tata McGraw-Hill.
5. Floyd, T. L.(2018). Electronic Devices: Conventional Current Version. Pearson.

REFERENCES:

1. Donald.A.Neamen,"ElectronicCircuitAnalysisandDesign",TataMcGrawHill,3rd Edition, 2010.
2. D.Schilling and C.Belove,"Electronic Circuits", McGraw Hill,3rdEdition,1989
3. Muhammad H.Rashid, "PowerElectronics", Pearson Education/ PHI, 2004.

COURSEOUTCOMES:

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

CO1:Explain the fundamentals of semiconductor and carrier transport mechanisms.

CO2:Analyse the characteristics and applications of PN junction diodes and Special diodes

CO3:Evaluate the operation and performance of Bipolar Junction Transistor(BJT).

CO4:Analyze and Compare the characteristics of FETs(JFET and MOSFET)and CMOS circuits

CO5:Explain the operation and applications of opto electronic devices and power devices.

CO's-PO's & PSO's MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	1	-		-	-	-	-	1	-	2	1
CO2	3	2	2	1	-		-	-	-	-	1	-	2	1
CO3	3	3	2	2	1		-	-	-	-	1	-	2	1
CO4	3	3	2	2	1		-	-	-	-	1	-	2	1
CO5	3	2	1	1	-	-	-	-	-	-	1	-	2	1
CO	3	2.6	1.4	1.4	0.4	-	-	-	-	-	1	-	2	1

1-low, 2-medium,3 -high,'-' -no correlation

U26CSL109	PROGRAMMING IN C LABORATORY	L	T	P	C
		0	0	4	2
COURSE OBJECTIVES:					
• To familiarize with C programming constructs. • To develop programs using arrays, strings, pointers and functions. • To apply structures, unions and file handling concepts. • To design and implement algorithms, flow charts and pseudo code for problem solving. • To enhanced e bugging skills through practical exercises.					
LIST OF EXPERIMENTS					
1. Create Algorithms, Flow charts and Pseudo code for simple C programs. 2. I/O statements, operators, expressions 3. Decision-making constructs: if-else, go to, switch-case, break-continue 4. Loops: for, while, do-while 5. Arrays: 1D and 2D, Multi-dimensional arrays, traversal 6. Strings: operations 7. Functions: call, return, passing parameters by (value, reference), passing arrays to function. 8. Recursion 9. Pointers: Pointers to functions, Arrays, Strings, Pointers to Pointers, Array of Pointers 10. Structures: Nested Structures, Pointers to Structures, Arrays of Structures and Unions. 11. Files: reading and writing, File pointers, file operations, random access, processor directives.					
TOTAL: 60 PERIODS					
Weightage:ContinuousAssessment:60%,EndSemesterExaminations:40%					

CO, PO & PSO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	-	2	-	-	-	-	-	-	1	2	1
CO2	3	3	2	-	2	-	-	-	-	-	-	1	3	2
CO3	3	3	3	1	2	-	-	-	-	-	-	1	2	2
CO4	2	3	2	2	1	-	-	-	-	1	-	1	2	1
CO5	2	2	2	2	2	-	-	-	2	1	-	2	3	2

U26PCL109	PHYSICS AND CHEMISTRY LABORATORY	L 0	T 0	P 4	C 2
PHYSICS LABORATORY: (Any Six Experiments to be conducted)					
COURSE OBJECTIVES: To introduce different experiments to test basic understanding of physics concepts applied in optics, properties of matter and liquids.					
LIST OF EXPERIMENTS: - Determination of rigidity modulus of wire and moment of inertia of the disc - Torsion pendulum. - Determine the Young's modulus of the material of the given cantilever by observing its simple harmonic oscillations. - Determination of Young's modulus of the material by Non-uniform bending method. - Determination of Young's modulus of the material by Uniform bending method. - Determination of the wavelength of the laser using Grating. - Determination of thickness of a thin wire – Air wedge method. - Determination of Ruling width of the compact disc using laser. - Determination of velocity of sound and compressibility of the liquid – Ultrasonic interferometer.					
TEXT BOOKS: Dr. B.Narasimha Rao, Dr.N.Ramaiah, Engineering Physics: Lab Manual, Publisher-Ink of Knowledge, Himmatnagar, 2024.					

CO's - PO's & PSO's MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	3	-	3	-	-	-	-	-	-	-	-	-	-
CO4	-	3	2	-	-	-	-	-	-	-	-	-	-	-
CO5	-	3	2	-	-	-	-	-	-	-	-	-	-	-
Avg	2.5	2.6	2	3	-	-	-	-	-	-	-	-	-	-

1- low, 2 - medium, 3 - high, '-' – no correlation

CHEMISTRY LABORATORY: (Any Five Experiments to be conducted)**Course Objectives:**

- To develop skills to analyze water parameters such as hardness, alkalinity, and dissolved oxygen for evaluating suitability and pollution levels.
- Acquire practical knowledge to determine molecular weights and properties of polymers using viscometric techniques.

LIST OF EXPERIMENTS

1. Determination of Total, Permanent and Temporary Hardness of water sample by EDTA method.
2. Determination of Alkalinity in water sample.
3. Determination of Dissolved Oxygen in water.
4. Determination of molecular weights of polymer samples using Ostwald's Viscometer.
5. Determination of strength of acids in a mixture of acids using conductivity meter.
6. Determination of strength of given hydrochloric acid using pH meter.

Text Books:

1. J. Mendham, R. C. Denney, J.D. Barnes, M. Thomas and B. Sivasankar, Vogel's Text book of Quantitative Chemical Analysis (2009).

CO's - PO's & PSO's MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	2	-	3	-	-	-	-	-	-	-	-	-	-	-
CO3	2	-	3	-	-	-	-	-	-	-	-	-	-	-
CO4	3	-	3	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	2.6	2	3	-	-	-	-	-	-	-	-	-	-	-

1- low, 2 - medium, 3 - high, '-' – no correlation

U26ECL111	ELECTRONIC DEVICES LABORATORY	L 0	T 0	P 4	C 2
COURSE OBJECTIVES: • To learn the characteristics of PN Junction diode and Zener diode. • To understand the operation of rectifiers and filters. • To study the characteristics of transistor-based devices.					
LIST OF EXPERIMENTS					
1. Characteristics of PN Junction Diode and Zenerdiode. 2. Full Wave Rectifier with Filters. 3. Design of Zener diode Regulator. 4. Common Emitter input-output Characteristics. 5. MOSFET Drain current and Transfer Characteristics. 6. Input and Output Characteristics of BJT. 7. Drain and Transfer Characteristics of FET. 8. Design clipper and clamper circuits. 9. VI Characteristics of SCR &UJT. 10. Demonstration of rectifier Circuits.					
TOTAL: 60 PERIODS					
Weightage: Continuous Assessment: 60%, End Semester Examinations: 40%					
COURSE OUTCOMES At the end of the laboratory course, the student will be able to CO1:Analyse the Characteristics of PN Junction Diode and Zener diode. CO2:Designand Testing of BJT and MOSFET amplifiers. CO3:Designand Evaluate rectifiers, filters and Zener voltage regulators. CO4:Examine the input –output and transfer characteristics of BJT, FET and MOSFET. CO5:Design and Examine the power electronic circuits.					

CO's-PO's & PSO's MAPPING:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	2	2	3	3	2	1	-	-	-	-	1	2	1
CO2	2	2	3	3	2	1	-	-	-	-	1	2	1
CO3	2		2	1	1	-	-	-		-	1	2	1
CO4	-	-	-	-	3	1	-	-	-	-	1	2	1
CO5	-	-	-	-	2	1	-	-	-	-	1	2	1
CO	2	2	2.6	3	2	1	-	-	-	-	1	2	1

1-low, 2-medium,3 -high, '-' -no correlation

U26ENT201	TECHNICAL ENGLISH-II	L	T	P	C
		3	0	0	3
Course objectives: - To develop effective listening and speaking skills for clear, confident academic and professional communication. - To build reading proficiency for comprehension, inference, and contextual understanding. - To enhance writing skills by improving grammar and vocabulary for clear, accurate and effective communication.					
UNIT-I	LISTENING SKILLS AND INFORMATION PROCESSING	9			
Listening-Active and Passive, Listening to news channels (Homophones and Homonyms), Listening to a short story and answering questions, Listening to group discussion sessions, Listening to telephonic conversation, Listening to motivational talks (Impersonal passive voice),Listening business meeting and writing minutes.					
UNIT-II	SPEAKING SKILLS AND ORAL COMMUNICATION	9			
Verbal and non- communication, Narrating a story, Situational Role enactment (Direct and Indirect speech), Practicing spoken communication through dialogues (One word substitution), Extempore speech, Discussions (Process/Product description) and Debates.					
UNIT-III	READING SKILLS AND INTERPRETATION	9			
Reading articles/essays from newspaper (If Conditionals), Reading short stories (Compound words), Predicting content (Contextual guessing), and Critical reading to analyse and interpret visual data (Graphical forms/bar charts /flowcharts),Speed reading-reading passages with time limit- Improving reading speed.					
UNIT-IV	ACADEMIC AND PROFESSIONAL WRITING	9			
Job application (Cover letter and resume Digital resume technique) Compare and contrast writing (Degrees of Comparison), Understanding text structure and use of reference words (Discourse Markers), Modal Verbs and Word soften confused.					
UNIT-V	PROFESSIONAL WRITING AND LANGUAGE USE	9			
Writing reports (Accident and Survey), Cause and effect & Purpose and function, One word substitution, Collocations (Fixed and semi-fixed expressions), Proof reading.					
TOTAL : 45 PERIODS					
Weightage: Continuous Assessment:40%, End Semester Examinations:60%					
Text Books: - Tiwari, Anjana. <i>Communication Skills in English</i>. Khanna Book Publishing, 2022. - Murphy, Raymond. <i>English Grammar in Use</i>. 5th ed., Cambridge University Press, 2019.					

References:

1. Sudharshana,N.P., and C.Savitha. Communication Skills for Engineers. Cambridge University Press.
2. Rizvi, M.Ashraf. Effective Technical Communication. McGraw Hill Education.
3. Raman, Meenakshi, and Sangeeta Sharma. Technical Communication: Principles and Practice. Oxford University Press.
4. Board of Editors. Fluent English: A Course Book for Engineering Students. Orient Black Swan.

CO's - PO's & PSO's MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	2	3	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	1	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	1	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Avg	-	-	-	-	-	-	-	2	2	-	-	-	-	-

1-low, 2 - medium, 3 - high, '-' – no correlation

U26MAT202	LINEAR ALGEBRA	L 3	T 1	P 0	C 4
Course Objectives: - To impart foundational knowledge in linear algebra for analyzing and solving Engineering problems. - To enable students to apply matrix decomposition techniques and least-squares methods to real engineering problems. - To strengthen problem-solving and analytical skills by connecting theoretical concepts to real-world applications and computational software.					
UNIT-I	MATRICES	9 + 3			
Matrices - Elementary transformation – Rank of matrix, Eigen values and Eigenvectors of a real matrix – Properties, Cayley–Hamilton theorem: Statement and its application, Diagonalization of matrices, Reduction of a quadratic form to canonical form by orthogonal transformation, Nature of quadratic forms, Applications: Stretching of an elastic membrane.					
UNIT- II	VECTOR SPACES	9 + 3			
Introduction to Vector Spaces, Polynomial space, Examples, Sub-spaces, Matrix subspace, Linear Combinations, Span, Generating Sets, Linear Dependence and Independence, Subset, Finite set, Basis and Dimension, Finite dimensional vector space, Dimension of Subspaces, Row space, Column space.					
UNIT-III	LINEAR TRANSFORMATIONS	9 + 3			
T-linear, One-to-one, Onto, Null space, Range, Basis for N(T) and R(T), Dimensions, Dimension Theorem (statement only), Matrix representation of a linear transformation.					
UNIT-IV	INNER PRODUCT SPACES	9 + 3			
Inner product, Norms, Matrix vector, Cauchy-Schwarz inequality, Gram-Schmidt orthogonalization, Inner product spaces-Orthogonal R^2, R^3, R^4 , P(R), Orthogonal Complement, Inner product spaces-Orthogonal projection, Simple problems (upto R^3).					
UNIT-V	MATRIX DECOMPOSITION	9 + 3			
QR decomposition, Eigen values by QR decomposition, Householder, Singular Value Decomposition (SVD), Least squares solutions- Simple problems (up to 3×3 matrices).					
TOTAL : 60 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%					
TEXT BOOK: 1.Lipschitz, S., & Lipson, M. (2009). Schaum's outlines of linear algebra. McGraw-Hill.					
REFERENCES: 1. Friedberg,S.H.,Insel,A.J.,& Spence, L.E.(2022).Linear algebra. Pearson.					

2. Bronson,R. (2011). Schaum’s outline of matrix operations. McGraw-Hill Education.
3. Strang,G., & Thomson,R.(2005).Linear algebra and its applications. Brooks/Cole.
4. KreyzigE.,“Advanced Engineering Mathematics”, Tenth Edition,
5. JohnWileyandsons,2011.
6. Dr. G. Balaji, Linear Algebra, First Edition (January 2026).

E-RESOURCES:

- 1.<https://tutorial.math.lamar.edu/Classes/LinAlg/LinAlg.aspx>
- 2.<https://tutorial.math.lamar.edu/Classes/CalcIII/CalcIII.aspx>
- 3.https://www.math.ucdavis.edu/~linear/?utm_source=chatgpt.com

CO’s - PO’s & PSO’s MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	3	2	-	-	-	-	-	-	-	-	-	-	-	-

1-low, 2 - medium, 3 - high, ‘-’ – no correlation

U26PHT203	ENGINEERING PHYSICS - II	L	T	P	C
		3	0	0	3
Course Objective(s): - Understand the electrical magnetic properties, semiconductor behavior, and optical properties of materials. - Learn the fundamentals of nano devices, quantum phenomena, and quantum computing with their applications.					
UNIT - I	ELECTRICAL AND MAGNETIC PROPERTIES OF MATERIALS				9
Classical free electron theory – Expression for electrical and thermal conductivity – Wiedemann-Franz law – Fermi distribution function – Density of energy states – Carrier concentration in metals. Magnetic moment – Bohr magneton – Magnetic permeability – Magnetic susceptibility – Classification: Dia, Para, Ferro, Anti ferro and Ferrimagnetism – Domain theory – Hysteresis – Soft and hard magnetic materials – Ferrites structure; Magnetic principles in computer data storage – Magnetic hard disk – GMR sensor.					
UNIT - II	SEMI CONDUCTING PROPERTIES OF MATERIALS				9
Intrinsic Semiconductors – Energy band diagram – Direct and indirect band gap semiconductors – Carrier concentration in intrinsic semiconductors – Extrinsic semiconductors – Carrier concentration in N-type & P-type semiconductors – Variation of carrier concentration with temperature – Carrier transport in Semiconductors – Hall effect and devices.					
UNIT – III	OPTICAL PROPERTIES OF MATERIALS				9
Classification – Carrier generation and Recombination processes – Absorption emission and scattering of light in metals, insulators and semiconductors (concepts only) – Photo current in P-N diode – Photo Detector – Solar cell – LED – Organic LED – Laser diodes – Optical data storage techniques – Optical modulators – Photonic integrated circuits.					
UNIT - IV	NANO DEVICES				9
Electron density in bulk material – Size dependence of Fermi energy – Quantum confinement – Quantum structures: Quantum wells, wires and dots – Band gap of nanomaterials. Tunneling – Coulomb blockade - single electron transistor - resonant-tunneling diode- Carbon nanotubes: Properties and applications. – Ballistic transport – Quantum resistance and conductance – Carbon nanotubes: Properties and applications – Spintronic devices and applications – Optics in quantum structures – quantum well laser.					
UNIT - V	QUANTUM COMPUTING				9
Introduction – Quantum system for information processing – Quantum states – Classical bits –					

Quantum bits (Qubits) – CNOT gate – Bloch sphere – Single and multiple qubits – Quantum gates (Pauli X, Y, Z, Hadamard, Phase, T gate) – Quantum entanglement – Quantum measurement – Quantum circuits – Universal gates – Basic quantum algorithms (Shor’s and Grover’s) – Quantum error correction – Decoherence – Physical realization of qubits – Quantum communication and cryptography – Applications and challenges of quantum computing.
TOTAL : 45 PERIODS
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%
TEXT BOOK: 1. William D CallisterJr "Materials Science and Engineering-An Introduction", John Wiley and Sons Inc., NewYork, 2018 , Tenth edition. 2. Jasprit Singh, “Semiconductor Devices: Basic Principles”, Wiley (Indian Edition), 2007. 3. S.O. Kasap. Principles of Electronic Materials and Devices, McGraw-Hill Education (Indian Edition), 2020. 4. G.W.Hanson. Fundamentals of Nanoelectronics. Pearson Education (Indian Edition), 2009. 5. Bernhardt, C. (2019). Quantum computing for everyone. MIT Press.
REFERENCES: 1. Marikani A, ”Materials Science”, 1st edition, PHI publishers, Chennai, 2017. 2. Jasprit Singh, Semiconductor Optoelectronics: Physics and Technology, McGraw-Hill Education (Indian Edition), 2019.

CO’s - PO’s & PSO’s MAPPING :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	2	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	2	-	-	-	-	-	-	-	-	-	-
CO4	3	2	2	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	2	-	-	-	-	-	-	-	-	-
Avg	3	2.2	2	2	2	-	-	-	-	-	-	-	-	-

1- low, 2 - medium, 3 - high, ‘-’ – no correlation

U26TAT204	தமிழர்களும் தொழில்நுட்பமும்	L	T	P	C
		1	0	0	1
இயல்-1	நெசவு மற்றும் பாணைத் தொழில்நுட்பம்				
சங்க காலத்தில் நெசவுத் தொழில், பாணைத் தொழில்நுட்பம், கருப்பு சிவப்பு பாண்டங்கள், பாண்டங்களில் கீறல் குறியீடுகள்.					
இயல்-2	வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம்				3
சங்க காலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் & சங்க காலத்தில் வீட்டுப் பொருட்களில் வடிவமைப்பு – சங்க காலத்தில் கட்டுமான பொருட்களும் நடுகல்லும், சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள், மாமல்லபுரம் சிற்பங்களும், கோவில்களும், சோழர் காலத்துப் பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத் தலங்கள், நாயக்கர் காலக் கோயில்கள், மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால், செட்டிநாட்டு வீடுகள், பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோ-சாரோசெனிக் கட்டிடக் கலை.					
இயல்-3	உற்பத்தித் தொழில் நுட்பம்				3
கப்பல் கட்டும் கலை, உலோகவியல், இரும்புத் தொழிற்சாலை, இரும்பை உருக்குதல், எஃகு, வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள், நாணயங்கள் அச்சடித்தல், மணி உருவாக்கும் தொழிற்சாலைகள், கல்மணிகள், கண்ணாடி மணிகள், சுடுமண் மணிகள், சங்கு மணிகள், எலும்புத்துண்டுகள், தொல்லியல் சான்றுகள், சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.					
இயல்-4	வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில் நுட்பம்				3
அணை, ஏரி, குளங்கள், மதகு, சோழர்காலக் குழுவித் தூம்பின் முக்கியத்துவம், கால்நடை பராமரிப்பு, கால்நடைபளுக்காக வடிவமைக்கப்பட்ட கிணறுகள், வேளாண்மை மற்றும் வேளாண்மைச் சார்ந்த செயல்பாடுகள், கடல்சார் அறிவு, மீன்வளம், முத்து மற்றும் முத்துக்குளித்தல், பெருங்கடல் குறித்த பண்டைய அறிவு, அறிவுசார் சமூகம்.					
இயல்-5	அறிவியல் தமிழ் மற்றும் கணித்தமிழ்				3
அறிவியல் மதிழின் வளர்ச்சி, கணித்தமிழ் வளர்ச்சி, தமிழ் நூல்களை மின்பதிப்பு செய்தல், தமிழ் மென்பொருட்கள் உருவாக்கம், தமிழ் இணையக் கல்விக்கழகம் - தமிழ் மின் நூலகம், இணையத்தில் தமிழ் அகராதிகள், சொற்குவைத் திட்டம்.					
TOTAL – 15 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations:60%					
Assessment Methodology: Quiz (20%), Assignments (30%), Internal examinations (50%)					
References:					
1. தமிழக வரலாறு – மக்களும் பண்பாடும் - கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியில் பணிகள் கழகம்). 2. கணித்தமிழ் - முனைவர் இல.சுந்தரம் (விகடன் பிரசுரம்). 3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு) 4. பொருளை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு) 5. Social Life of Tamils (Dr. K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print) 6. Social Life of the Tamils – The Classical Period (Dr. S.Singaravelu) (Published by: International Institute of Tamil Studies). 7. Historical Heritage of the Tamils (Dr. S.V.Subatamanian, Dr.K.D.Thirunavukkarasu) (Published by: International Institute of Tamil Studies). 8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil studies.) 9. Keeladi – ‘Sangam City Civilization on the banks of river Vaigai’ (Jointly Published by: department of Archeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 10. Studies in the History of India with Special Reference to Tamil Nadu (Dr. K.K>Pillay) (PublISHED by: The Author) 11. Porunai Civilization (jointly Published by : Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by:RMRL) – Reference Book.					

U26TAT204	Tamils and Technology	L	T	P	C
		1	0	0	1
UNIT-I	Weaving and Ceramic Technology				3
Weaving Industry during Sangam Age, ceramic technology, Black and Red Ware Potteries (BRW), Graffiti on Potteries.					
UNIT-II	Design and Construction Technology				3
Designing and Structural Construction House & designs in household materials during Sangam Age, Building materials and Hero stones of Sangam age, Details of stage Constructions in Silappathikaram, sculptures and Temples of Mamallapuram, Great Temples of Cholas and other worship places – Temples of Nayaka Period – Type study (Madurai Meenakshi Temple), Thirumalai Nayakar Mahal – Chetti Nadu Houses, Indo-Saracenic architecture at Madras during British Period.					
UNIT-III	Manufacturing Technology				3
Art of Ship Building – Metallurgical studies, Iron Industry, Iron smelting, steel – Copper and gold – Coins as source of history – Minting of Coins, Beads making-industries Stonebeads, Glass beads, Terracotta beads – Shell beads/bone beats, Archeological evidences – Gem stone types described in Silappathikaram.					
UNIT-IV	Agriculture and Irrigation Technology				3
Dam, Tank, Ponds, Sluice, Significance of Kumizhi Thoompu of Chola Period, Animal Husbandary – Wells designed for cattle use – aGriculrue and Agro Processing – Knowledge of sea, Fisheries, Pearl, Conche diving – Ancient Knowledge of Ocean – Knowledge Specific Society.					
UNIT-V	Scientific Tamil & Tamil Computing				3
Development of scientific Tamil, Tamil computing, Digitalization of Tamil Books, Development of Tamil Software, Tamil Virtual Academy, Tamil Digital Library, Online Tamil Dictionaries, Sorkuvai Project.					
TOTAL : 15 PERIODS					
Weightage: Continuous Assessment: 40%, End Semester Examinations:60%					
Assessment Methodology: Quiz (20%), Assignments (30%), Internal examinations (50%)					
References:					
1. தமிழக வரலாறு – மக்களும் பண்பாடும் - கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியில் பணிகள் கழகம்). 2. கணினித் தமிழ் - முனைவர் இல.சுந்தரம் (விகடன் பிரசுரம்). 3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு) 4. பொருதை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு) 5. Social Life of Tamils (Dr. K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print) 6. Social Life of the Tamils – The Classical Period (Dr. S.Singaravelu) (Published by: International Institute of Tamil Studies. 7. Historical Heritage of the Tamils (Dr. S.V.Subatamanian, Dr.K.D.Thirunavukkarasu) (Published by: International Institute of Tamil Studies). 8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil studies.) 9. Keeladi – ‘Sangam City Civilization on the banks of river Vaigai” (Jointly Published by: department of Archeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 10. Studies in the History of India with Special Reference to Tamil Nadu (Dr. K.K>Pillay) (PublISHED by: The Author) 11. Porunai Civilization (jointly Published by : Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu) 12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by:RMRL) – Reference Book.					

U26CST205	OBJECT ORIENTED PROGRAMMIN G	L	T	P	C
		3	0	0	3
COURSE OBJECTIVES: • To understand how C++ improves C with object - oriented features. • To learn how to write in line functions for efficiency and performance. • To learn how to implement constructors, overload functions and operators in C++. • To learn how inheritance and virtual function simplement dynamic binding with polymorphism. • To learn how to use exception and file handling in C++programs.					
UNIT– I	PRINCIPLES OF OBJECT-ORIENTED PROGRAMMING				9
OOPS Concepts - Procedure Oriented Programming vs. Object Oriented Programming - C++ constructs and syntax: Tokens, Variables, Data types, Type compatibility, Variable declaration, Dynamic initialization of variable, Reference variable, Type casting - Structure of C++ program - Class: Specifying a class, Access specifiers - Defining member functions: Inside class and Outside class – Object: Creating objects, Memory allocations for objects - Operators - Expressions -Flow ControlandDecisionmakingstatements-SpecialOperatorsinC++:Scoperesolutionoperator, Memory management operators, Manipulators.					
UNIT– II	FUNCTIONS AND CONSTRUCTORS				9
Functions: Inline function, Static data members, Static member function, Friend function: Using two different classes, Using non-member function - Array of objects - Object as function arguments - Constructors: Types of Constructors, Constructor Overloading– Constructors with default arguments- Destructors.					
UNIT– III	INHERITANCE AND POINTERS				9
Inheritance: Derived class, Visibility modes and effects, Types: Single, Multilevel, Multiple, Hierarchical, Hybrid- Virtual base class, Abstract class, Constructor in derived class- Pointers: Pointer operator, Address Operator, Pointers with Arithmetic operations, this pointer, Pointer to derived class and base class.					
UNIT– IV	TEMPLATES & POLYMORPHISM				9
Class Templates – Function Templates –Overloading of Template Functions –STL: Containers, Iterators - Compile time Polymorphism: Function over loading, Operator over loading: unary and binary Operator Overloading, Operator Overloading with Friend functions- Runtime polymorphism: Virtual function, Late Binding - Pure Virtual Function - Compile time Vs. Runtime Polymorphism.					
UNIT– V	EXCEPTIONHANDLINGANDFILE I/O				9
Exception Handling - C++ Streams- Formatted and Unformatted I/O – File stream classes - File modes - File operations - Types of file: Random access, Sequential access - Binary and ASC II Files - Error handling in File I/O with member function.					
TOTAL : 45 Periods					
Weightage: ContinuousAssessment:40%,EndSemesterExaminations:60%					
REFERENCES: 1. Deitel,P.,& Deitel, H.(2024).C++ how to program: An objects-natural approach. Pearson Education. 2. Balagurusamy,E.(2020).ObjectorientedprogrammingwithC++.McGrawHillEducation. 3. Bronson,G. (2011). A first book of C++. Course Technology Inc. 4. K.R.Venugopal (2017) Mastering C++.McGraw Hill Education					

E – RESOURCES:

1. <https://en.cppreference.com/w/cpp>
2. <https://www.w3schools.com/cpp>

COURSE OUTCOMES:

CO1: Develop applications for arrange of problems using object- oriented programming techniques.

CO2: Apply Object Oriented Paradigms to solve problems using C++

CO3: Design and Analyze solutions involving codere usability and complexity management

CO4: Develop programs for handling files and exceptions in programming.

CO5: Demonstrate life-long learning skills through application development.

CO, PO & PSO Mapping:

PO,PSO (CO)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 10	PO1 11	PSO 1	PSO 2
CO1	3	3	2	1	2	0	0	0	1	1	0	2	3
CO2	3	3	3	2	3	0	0	0	1	1	0	2	3
CO3	3	3	3	2	2	0	0	0	2	1	0	2	3
CO4	3	2	3	3	3	0	0	0	1	1	0	2	3
CO5	2	2	2	2	3	0	0	0	3	3	2	3	2
Average Mapping	3	3	2	1	2	0	0	0	1	1	0	2	3

Note: Correlation levels are 3(High), 2 (Medium), 1(Low) and -(None).

U26GET206	ENGINEERING DRAWING	L	T	P	C
		1	0	3	4
COURSE OBJECTIVES: The main learning objectives of this course is to prepare the students for: • Drawing engineering curves. • Drawing orthographic projection of solids and section of solids. • Drawing development of solids. • Drawing isometric and perspective projections of simple solids.					
UNIT - I	PLANE CURVES AND FREE HAND SKETCHING				6+12
Basic Geometrical constructions, Curves in engineering practices: Conics - Construction of ellipse, parabola and hyperbola by eccentricity method - Drawing of tangents and normal to the above curves Free Hand sketching: Visualization principles - Representation of Three dimensional objects -Layout of views - Free hand sketching of multiple views from pictorial views of objects					
UNIT - II	PROJECTION OF POINTS, LINES AND PLANE SURFACES				6+12
Orthographic projection - Principles - Principal Planes - First angle projection - projection of points, Projection of straight lines (only First angle projections) inclined to both the principal planes - Determination of true lengths and true inclinations by rotating line method - Projection of planes (polygonal and circular surfaces) inclined to both the principal planes by rotating object method					
UNIT - III	PROJECTION OF SOLIDS				6+12
Projection of simple solids like Prisms, Pyramids, Cylinders and Cone when the axis is inclined to one of the principal planes and parallel to other by the rotating object method					
UNIT - IV	PROJECTION OF SECTIONED SOLIDS & DEVELOPMENT OF SURFACES				6+12
Sectioning of above solids in simple vertical position when the cutting plane is inclined to one of the principal planes and perpendicular to the other - obtaining true shape of section - Development of lateral surfaces of simple and sectioned solids - Prisms, Pyramids, Cylinders and Cones					
UNIT - V	ISOMETRIC PROJECTION AND PERSPECTIVE PROJECTIONS				6+12
Principles of isometric projection - Isometric Scale - Isometric projections of simple solids - Prisms, pyramids, cylinders, cones. Perspective projection of simple solids - Prisms and pyramids by visual ray method.					
TOTAL: 90 PERIODS					
Weightage: Continuous Assessment: 50%, End Semester Examinations: 50%					
Activities: 1. Identify real-life applications of conic sections (bridges, satellite dishes). 2. Compare first angle Vs third angle projection. Solve mixed problems on projections. 3. Create 3D paper models of solids and draw their projections. 4. Application of development in sheet metal design. 5. Sketch everyday objects (Book, Table, Chair) in different views.					

TEXT BOOKS:

1. Bhatt N.D. and Panchal V.M., “Engineering Drawing”, Charotar Publishing House, 53rd Edition, 2019.
2. Natarajan K.V., “A Text Book of “Engineering Graphics”, Dhanalakshmi Publishers, Chennai, 2018.
3. Parthasarathy N. S. and Vela Murali, “Engineering Drawing”, Oxford University Press, 2015.

REFERENCES:

1. Basant Agarwal and Agarwal C.M., “Engineering Drawing”, Mc Graw Hill, 2nd Edition, 2019.
2. Venugopal, K., & Prabhu Raja, V. (2022). Engineering Drawing + AutoCAD. New Age International Publishers.

E-RESOURCES:

1. Engineering Drawing and Computer Graphics, Prof. Rajaram Lakkaraju (IIT Kharagpur) - https://onlinecourses.nptel.ac.in/noc22_me105/preview
2. MIT Design Handbook: Engineering Drawing and Sketching - https://ocw.mit.edu/courses/2-007-design-and-manufacturing-i-spring2009/pages/related-resources/drawing_and_sketching

	Description of CO	PO	PSO
CO1	Describe the advantages of Engineering Drawing in engineering applications	---	---
CO2	Apply the concepts of projections in formulating various solid parts in engineering systems	PO1(3)	PSO1(2)
CO3	Analyze the various view and interpret the Engineering Drawings.	PO2(3)	PSO1(2)
CO4	Draw the Orthographic, Isometric and Perspective Projections of simple solids.	PO3(1)	PSO2(2)
CO5	Critically think and develop innovative models.	PO11(1)	PSO3(1)

U26SDT207	APTITUDE SKILLS – I	L	T	P	C
		1	0	0	1
Course objectives: - To enhance problem-solving skills in quantitative aptitude topics. - To build speed and accuracy in calculations for competitive exams and placements. - To develop fundamental knowledge in number systems and basic arithmetic concepts.					
UNIT - I	NUMBER SYSTEM	3			
Classification of Numbers (Natural, Integers, Rational, Real), Divisibility Rules and Applications, Factors & Multiples (Prime factorization, Number of factors), HCF & LCM (Problem-Solving applications).					
UNIT - II	QUANTITATIVE ABILITY	3			
Permutation and Combinations, Percentage, Profit and Loss, Simple and Compound interest, Time, Speed and distance, Time and Work, Ratio and Proportion, Area.					
UNIT - III	DEDUCTIVE REASONING	3			
Number and letter series, Calendars, Clocks, Venn Diagrams, Mathematical Operations, Directions, Problem Solving & Decision Making.					
UNIT - IV	LOGICAL REASONING	3			
Alphabet and Number Series, Odd Man Out Series, Puzzles, Blood Relations, Seating Arrangements and Ordering, Direction Sense Test.					
UNIT - V	SPEED MATHS	3			
Squaring and Multiplying numbers faster than Conventional Methods, Finding square roots of numbers, Finding cube roots faster, Solving simultaneous equations faster.					
TOTAL : 15 PERIODS					
Weightage: Continuous Assessment:100%.					
REFERENCES:					
1. Aggarwal R.S., Quantitative Aptitude for Competitive Examinations, S.Chand Publishing Company Ltd., 2022 . 2. Arun Sharma, How to Prepare for Quantitative Aptitude for the CAT, Tata McGraw-Hill Publishing Co., 2022. 3. Analytical and Logical reasoning for CAT and other management entrance test By Sijwali B S. 4. Quantitative Aptitude by Competitive Examinations by Abhijit Guha 4th edition.					

E-RESOURCES:

- <https://www.indiabix.com/online-test/aptitude-test/>
- <https://www.placementpreparation.io/quantitative-aptitude/>
- <https://www.geeksforgeeks.org/aptitude-for-placements/>

CO's - PO's & PSO's MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Avg	3	2	-	-	-	-	-	-	-	-	-	-	-	-

1-low, 2 - medium, 3 - high, '-' – no correlation

U26CSL208	OBJECT ORIENTED PROGRAMMING LABORATORY	L	T	P	C
		0	0	4	2
COURSE OBJECTIVES: • To understand and apply Object Oriented Programming Concepts. • To impart the principles of Object Oriented Programming and their advantages over procedural programming. • To develop programming skills by creating real-world applications using OOP features. • To enhance problem- solving abilities through different OOP concepts.					
LIST OF EXPERIMENTS: 1. Write a program that uses a class where the member functions are defined inside a class. 2. Write a program that uses a class where the member functions are defined outside a class. 3. Write a program to demonstrate the use of static data members and member function. 4. Write a program to demonstrate the use of const data members. 5. Write a program to implement virtual base class in a program. 6. Write a program to demonstrate the use of zero argument and parameterized constructors. 7. Write a program to demonstrate the use of dynamic constructor 8. Write a program to demonstrate the use of explicit constructor and destructor. 9. Write a program to implement friend function using different classes and external function. 10. Write a program to demonstrate the overloading of increment and decrement to operators. 11. Write a program to demonstrate the multilevel inheritance. 12. Write a program to implement pointer and ‘this’ pointer in a program. 13. Write a program to demonstrate the exception handling. 14. Write a program to demonstrate the use of function template. 15. Write a program to implement input/output operations on binary file.					
TOTAL: 45 PERIODS					
Weightage: Continuous Assessment: 60%, End Semester Examinations: 40%					

COURSE OUTCOMES:

CO1: Apply the basic concepts of object – oriented programming to solve problems in C++.

CO2: Implement classes, objects, constructors, destructors, and operator overloading.

CO3: Develop programs using inheritance, polymorphism, and function overloading.

CO4: Apply file handling and exception handling in C++ programs.

CO5: Design and implement real-world applications using OOP principles.

CO, PO & PSO Mapping:

PO,PSO (CQ)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 10	PO1 11	PSO 1	PSO 2
CO1	3	2	2	1	2	0	0	1	1	0	2	3	2
CO2	3	2	3	1	2	0	0	1	1	0	2	3	2
CO3	3	3	3	2	2	0	0	1	1	0	2	3	2
CO4	3	2	3	2	3	0	0	1	1	0	2	3	3
CO5	3	3	3	2	3	1	1	2	2	1	3	3	3
Average Mapping	3	2	2	1	2	0	0	1	1	0	2	3	2

Note : Correlation levels are 3(High), 2(Medium), 1(Low) and - (None).