



SASURIE
COLLEGE OF ENGINEERING
(Autonomous)
Vijayamangalam, Tiruppur - 638056



CURRICULUM AND SYLLABI

REGULATION 2026

DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING



SASURIE COLLEGE OF ENGINEERING

(Autonomous Institution, Affiliated to Anna University, Chennai)



CURRICULUM & SYLLABI – 2026

CHOICE BASED CREDIT SYSTEM AND OUTCOME BASED EDUCATION

(For the students admitted from the academic year 2026 - 2027)

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Vision and Mission of the Institute

Our Vision

To become a leading professional institution by offering high-quality education, fostering successful graduates with strong employability prospects, advancing sustainable research through ethical practices and empowering young minds to contribute to the nation's growth in Engineering, Technology and Management.

Our Mission

- To deliver high-quality education that empowers students with the knowledge, skills and ethical values necessary for success in Engineering, Technology and Management.
- To develop graduates with strong employability potential, fostering innovation, leadership and a commitment to continuous learning.
- To advance sustainable research and development that addresses real-world challenges and drives societal progress.
- To inspire and shape young minds into responsible professionals dedicated to contributing to the nation's growth and development.

Vision and Mission of the Department

Vision

To emerge as a leader in Computer Science and Engineering education by imparting high-quality education fostering innovation, producing technically proficient graduates with excellent employability skills, advancing cutting-edge research, promoting ethical practices, and empowering young minds to develop sustainable solutions that drive technological progress and contribute to the nation's growth.

Mission

- To provide quality education that equips students with strong technical knowledge, professional skills, ethical values, and a commitment to lifelong learning for successful careers in Engineering, Technology, and Management.
- To nurture innovation, leadership, and employability by fostering creativity, critical thinking, research, and entrepreneurship to address real-world challenges and promote sustainable development.
- To develop socially responsible professionals who contribute to the advancement of society and the nation's growth through integrity, excellence, and a strong sense of civic responsibility.

Program Outcomes (POs)

- **PO1: Engineering Knowledge** — Apply math, science, and engineering fundamentals to solve complex problems.
- **PO2: Problem Analysis** — Formulate and analyze complex engineering problems using first principles.
- **PO3: Design/Development of Solutions** — Design systems or components that meet specific needs with public health and safety in mind.
- **PO4: Conduct Investigations of Complex Problems** — Use research-based knowledge, experiments, and data analysis.
- **PO5: Engineering Tool Usage** — Select and apply modern IT and engineering tools and techniques.
- **PO6: The Engineer and the World** — Evaluate societal, environmental, and global impacts on sustainability.
- **PO7: Ethics** — Commit to professional ethics, human values, and legal compliance.
- **PO8: Individual and Collaborative Team Work** — Function effectively as a member or leader in diverse teams.
- **PO9: Communication** — Write effective reports and present clearly to the engineering community and society.
- **PO10: Project Management and Finance** — Apply engineering management and economic principles to multidisciplinary projects
- **PO11: Life-Long Learning** — Recognize and adapt to technological changes through independent learning

Program Educational Objectives (PEOs)

PEO 1: Excel in professional careers and higher studies by applying knowledge in Computer Science and Engineering.

PEO 2: Design, develop, and implement innovative computing solutions to address industrial and societal challenges.

PEO 3: Demonstrate effective communication, leadership, teamwork, and problem-solving skills in professional environments.

Program Specific Outcomes (PSOs)

PSO1: Graduates will be able to design, develop, and deploy efficient, secure, and scalable software solutions using computer science principles and modern programming practices.

PSO2: Graduates will be able to apply emerging technologies such as AI, ML, cloud computing, and big data analytics to develop innovative solutions for real-world problems.

B.E – COMPUTER SCIENCE AND ENGINEERING**REGULATIONS 2026****For the students admitted from 2026 onwards****CHOICE BASED CREDIT SYSTEM****CURRICULUM FOR 1 – VIII SEMESTERS****SEMESTER I**

SI NO	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1	U26EN121	English Proficiency - I	L	HSMC	0	0	2	0	1
2	U26MA101	Matrices and calculus	T	BSC	3	1	0	0	4
3	U26PH111	Physics for Computer Systems	TWL	BSC	2	0	2	0	3
4	U26CS111	Problem Solving using C Programming	TWL	PCC	2	0	2	0	3
5	U26CS101	Fundamentals of Computing	T	PCC	3	0	0	0	3
6	U26CS102	Digital Technologies - I	T	ESC	1	0	0	0	1
7	U26CS121	Computer Hardware Essentials	L	PCC	0	0	4	0	2
8	U26ME121	Engineering Practices Laboratory	L	ESC	0	0	4	0	2
9	U26CEC01	Design Thinking	TWL	PCC	1	0	2	0	2
Total					12	1	16	0	21
MANDATORY CREDIT COURSES (MCC – Non CGPA) / MANDATORY NON-CREDIT COURSES (MNC)									
10	U26MC101	Induction Program – Universal Human Values I	T	MCC	3	0	0	0	3
11	U26TA101	தமிழர்மரபு/ Heritage of Tamils	T	MCC	1	0	0	0	1

SEMESTER II

SL.NO.	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1	U26EN221	English Proficiency II	L	HSMC	0	0	2	0	1
2	U26MA201	Discrete Mathematics	T	BSC	3	1	0	0	4
3	U26CY211	Chemistry for Computer Systems	TWL	BSC	2	0	2	0	3
4	U26EEE201	Basics Electrical and Electronics Engineering	T	ESC	3	0	0	0	3
5	U26CS211	Digital Principles and Computer Organization	TWL	ESC	3	0	2	0	4
6	U26CS212	Problem Solving using Python Programming	TWL	BSC	2	0	2	0	3
7	U26CS201	Digital Technologies - II	T	PCC	1	0	0	0	1
Total					14	1	8	0	19
MANDATORY CREDIT COURSES (MCC - Non CGPA) / MANDATORY NON-CREDIT COURSES (MNC)									
8	U26MC201	Universal Human Values II	T	MCC	3	0	0	0	3
9	U26TA201	தமிழரும் தொழில்நுட்பமும்/ Tamils and Technology	T	MCC	1	0	0	0	1

SEMESTER III

SL.NO .	COURSE CODE	COURSE TITLE	COUSE TYPE	CATEGORY	L	T	P	J	C
1		English Proficiency III	L	HSMC	0	0	2	0	1
2		Probability And Statistics	T	BSC	3	1	0	0	4
3		Object Oriented Programming	L	PCC	3	0	0	0	3
4		Computer Networks	T	PCC	3	0	0	0	3
5		Data Structures	TWL	PCC	2	0	2	0	3
6		Algorithmic Techniques	TWL	PCC	2	0	2	0	3
7		Digital Technologies - III	T	PCC	1	0	0	0	1
8		Environmental Science and Sustainability	T	BSC	2	0	0	0	2
9		Computer Networks Lab	L	PCC	0	0	4	0	2
10		Object Oriented Programming Lab	L	PCC	0	0	4	0	2
11		Computer Problem Solving & Mini Project	L	EEC	0	0	0	2	1
Total					16	1	14	2	25
MANDATORY CREDIT COURSES (MCC - Non CGPA) / MANDATORY NON-CREDIT COURSES (MNC)									
12		Constitution of India	T	MNC	2	0	0	0	1
13		Heritage of Tamil - தமிழ்*	T	MCC	1	0	0	0	1

SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1		English Proficiency-IV	L	HSMC	0	0	2	0	1
2		Linear Algebra And Number Theory	T	BSC	3	1	0	0	4
3		Operating Systems	T	PCC	2	0	2	0	3
4		Database Management And Systems	T	PCC	3	0	0	0	3
5		Web Technologies	T	PCC	3	0	0	0	3
6		Database Management System Laboratory	L	PCC	0	0	4	0	2
7		Web Technologies Lab	L	PCC	0	0	4	0	2
8		Open Elective–I	T	OEC	3	0	0	0	3
9		Software Design & Rapid Prototyping – I	L	PCC	0	0	0	2	1
10		Professional Skill Training-I	L	EEC	0	0	4	0	2
Total					14	1	16	2	24
MANDATORY CREDIT COURSES (MCC - Non CGPA) / MANDATORY NON CREDIT COURSES (MNC)									
11		Essentials of Indian Traditional Knowledge	T	MCC	2	0	0	0	1

SEMESTER V

Sl.NO.	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1		Theory of Computation	T	PCC	3	1	0	0	4
2		Cryptography and Cyber Security	T	PCC	3	0	0	0	3
3		Artificial Intelligence and Machine Learning	TWL	PCC	2	0	2	0	3
4		Network Security	T	PCC	3	0	0	0	3
5		Professional Elective–I	T	PCC	3	0	0	0	3
6		Open Elective–II	T	OEC	3	0	0	0	3
7		Software Design &Rapid Prototyping – II	L	EEC	0	0	4	0	2
8		Professional Skill Training-II	L	EEC	0	0	4	0	2
Total					17	1	10	0	23

SEMESTER VI

Sl.NO	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1		Entrepreneurship and Startups	T	BSC	3	0	0	0	3
2		Compiler Design	TWL	PCC	2	0	2	0	3
3		Cloud Security	TWL	ESC	2	0	2	0	3
4		Object Oriented Software Engineering	TWL	PCC	2	0	2	0	3
5		Embedded Systems and IoT	TWL	PCC	2	0	2	0	3
6		Data Warehousing	T	PCC	3	0	0	0	3
7		Distributed Computing	T	PCC	3	0	0	0	3
8		Professional Elective–II	T	PCC	3	0	0	0	3
Total					20	0	8	0	24

SEMESTER VII

Sl. NO.	COURSE CODE	COURSE TITLE	COURSE TYPE	CATEGORY	L	T	P	J	C
1		Human Values and Ethics	T	HSMC	3	0	0	0	3
2		Cyber Attack Simulation and Security Testing	T	PCC	3	0	0	0	3
3		Agile Methodologies	T	PCC	3	0	0	0	3
4		Professional Elective–III	T	PCC	3	0	0	0	3
5		Professional Elective–IV	T	PCC	3	0	0	0	3
6		Project work Phase –I	P	EEC	0	0	0	4	2
Total					15	0	0	4	17

SEMESTER VIII

Sl.NO.	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	J	C
1		Internship / Industrial Training*	EEC	0	0	0	4	2
2		Project work Phase – II	EEC	0	0	0	20	10
Total				0	0	0	24	12

*4- Weeks duration any Semester vacation from II to VI Semester

TOTAL CREDITS: 165

SYLLABUS:**UNIT I READING AND INTERPRETATION 10**

Vocabulary in Context – Discourse Markers – Reading Techniques – Oral, Reading: Rhythm and Intonation – Analytical Interpretation - Comprehension and Story Analysis – Evaluative Reading of Summaries and Findings from Journals / Articles / Online Content

UNIT II PRINT MEDIA AND LITERATURE 10

Print Media Study: Editorials, Views and Feature Articles – Short Story: “The Last Leaf” – O. Henry – Science Fiction: “The Time Machine” – H.G. Wells

UNIT III CASE STUDIES AND INSPIRING INNOVATORS 10

Reading Technical Documents (Guidelines & Manuals) – Case Study Review (Field- Based Learning) - A Case Analysis – Life Stories of Renowned Scientists and Innovators – Inspiring Journeys of Entrepreneurs and Emerging Ventures.

Contact Periods:

Lecture: - Tutorial: - Practical: 30 Periods Total: 30 Periods

TEXT BOOKS:

1. O. Henry. The Complete Short Stories of O. Henry. Dover Publications, 2024.
Comprehensive collection of O. Henry’s stories, including The Last Leaf.
2. H. G. Wells. The Time Machine. Fingerprint Publishing, 2023.

REFERENCES

1. Wells, H. G. *The Time Machine*: Deluxe Hardbound Classic. Fingerprint Publishing, 2024.
2. Grabe, William and Fredrika L. Stoller. Teaching and Researching Reading. 3rd ed., Routledge, 2020.

EVALUATION PATTERN:

Continuous Internal Assessments		End Semester Examinations (practical)	
		Test/Report Evaluation	Presentation & Viva
Practical			
Evaluation of students work, Observation, Record, etc.	Lab test (model practical)		
45(100)	15(100)	30(80)	10(20)
60		40	
Total		100	

U26MA101	MATRICES AND CALCULUS (Common for all branches)	CATEGORY : BSC				
		L	T	P	J	C
		3	1	0	0	4

PRE–REQUISITES:

- Nil

COURSE OBJECTIVES:

- To develop the use of matrix algebra techniques that is needed by engineers for practical applications
- To familiarize the students with differential calculus
- Analyze vector fields using gradient, divergence, and curl; verify and apply Green's, Gauss divergence in practical problems
- To make the students understand various techniques of integration
- To acquaint the student with mathematical tools needed in evaluating multiple integrals and their applications.

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	Use the matrix algebra methods for solving practical problems	Apply
CO2	Apply differential calculus tools in solving various application problems.	Apply
CO3	Compute the total derivatives and extreme values of multivariable functions	Apply
CO4	Compute double and triple integrals in Cartesian coordinates to determine geometric areas and volumes.	Apply
CO5	Analyze vector fields using gradient, divergence, and curl; verify and apply Green's, Gauss divergence in engineering problems	Apply

CO PO MAPPING:

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

1. Engineering Mathematics – S. Narayanan, T. K. Manicavachagom Pillay & G. Ramanaiah, (Latest Reprint), S. Viswanathan Publishers.
2. Engineering Mathematics – B. K. Pal & K. Das, (Latest Edition), Oxford University Press India.
3. Advanced Engineering Mathematics, Erwin Kreyszig, 10th Edition (2018), Wiley India.
4. Grewal B.S., “Higher Engineering Mathematics” 45th Edition, Khanna Publishers, New Delhi, 2024.

EVALUATION PATTERN:

Continuous Assessments			End Semester Examinations
CIAT 1	CIAT 2	Activities	
40%			60%
16(60)	16(60)	8(40)	60(100)

- Nil

- Explain the fundamental concepts of photonics, semiconductor materials, and magnetic materials.
- Understand the working principles of fibre optics and quantum physics in modern engineering applications.
- Apply the principles of lasers, semiconductor devices, and optical systems in solving basic engineering problems.

CO PO MAPPING:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	–	–	2	–	–	–	–	1	–	1	1
CO2	3	3	2	2	3	1	–	–	1	1	–	1	1
CO3	3	3	2	2	3	–	–	–	1	1	–	1	1
CO4	3	2	2	–	2	1	–	–	1	1	–	1	1
CO5	3	3	–	2	2	–	–	–	1	1	–	1	1
Correlation Levels: 1.Slight (low)				2. Moderate (Medium)					3. Substantial (High)				

Lecture: 30 Periods Tutorial: - Practical: 30 Periods Total: 60 Periods

TEXT BOOKS:

1. M.N. Avadhanulu, P.G. Kshirsagar, and T.V.S. Arun Murthy, “A Textbook of Engineering Physics”, 11th edition, S. Chand Publishing, New Delhi, 2022.
2. Tamilarasan K and Prabu K, “Physics for Engineering I”, 1st Edition, McGraw Hill Education Pvt. Ltd., New Delhi, 2023.

REFERENCE BOOKS:

1. Arthur Beiser Concepts of Modern Physics, “Concepts of Modern Physics”, 7th edition, McGraw Hill, 2020.
2. Euth Ortiz Ortega, Hamed Hosseinian, Ingrid Berenice Aguilar Meza, Maria Jose Rosales Lopez, Andrea Rodriguez Vera, Samira Hosseini, “Material Characterization Techniques and Applications”, Springer, 2022.
3. NPTEL, “Engineering Physics”, Online Course, IIT, 2019.
4. SWAYAM, “Physics & Nanotechnology Courses”, Online Platform, Govt. of India, 2019.

EVALUATION PATTERN:

Continuous Assessments					End Semester Examinations
Theory			Practical / Project		Theory
CIAT 1	CIAT 2	Activities	Evaluation of Student’s work, Observation, Record, etc.	Lab Test	
35%			15%		50%
15(60)	15(60)	5(40)	10(75)	5(25)	50(100)

U26CS111	PROBLEM SOLVING USING C PROGRAMMING (For CSE,CSE(CS),IT&AI&DS)	CATEGORY:PCC				
		L	T	P	J	C
		2	0	2	0	3

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- To provide exposure to problem-solving through programming.
- To develop computational thinking perspective of one's own discipline.
- To write, compile and debug programs using C language.

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	Formulate the algorithmic solutions for a given computational problem	Understand
CO2	Describe modularization, structures and pointers in C language	Understand
CO3	Design and implement algorithms for a given problem using Control structures	Apply
CO4	Apply the C programming constructs for searching and sorting techniques	Apply
CO5	Solve real time problems using suitable non-primitive data structures in C	Apply

CO-PO MAPPING:

[illegible]

SYLLABUS:

UNIT I	COMPUTATIONAL THINKING	6
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Functions, graph of functions, Limit of a function, Continuity, Limits at infinity, Derivative as a function, Maxima and Minima of functions of single variable, Mean value theorem, Effect of derivatives on the Shape of a graph.

UNIT II	ALGORITHMIC APPROACH	6
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Logic - Boolean Logic - Applications of Propositional logic - Problem Definition - Logical Reasoning and Algorithmic thinking -Pseudo code and Flowchart –Constituents of algorithms-Sequence, Selection and Repetition-Problem understanding and analysis-Control structures in C-Algorithm design and Implementation using control structures.

UNIT III SEARCHING, SORTING, AND MODULARIZATION 6

Data Organization- Arrays- Introduction to Searching and Sorting - Linear Search, Binary Search - Basic sorting techniques - Two-dimensional arrays - Matrix manipulation - Modularization - Functions – Function prototype -Function definition - Function call - Built-in – functions (string functions and math functions)-Recursion.

UNIT IV STRUCTURES AND POINTERS 6

Pointers - Pointer operators - Pointer arithmetic –Arrays and pointers –Array of pointers -Example Program-Sorting of names –Parameter passing -Pass by value - Pass by reference-Structure-Nested structures- Pointer and Structures – Array of structures - Example Program using structures and pointers - Unions.

UNIT V	FILES	6
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Files- Types of file processing – Sequential access- Random access- Sequential access file - Example Program- Finding average of numbers stored in sequential access file – Random access file – Example Program- Transaction processing using random access files- Command line arguments.

LIST OF EXPERIMENTS / EXERCISES:

1. Using IO Statements, get higher secondary marks of a student. Calculate and display the medical and engineering cut-off marks. [Assume the calculation formula]
2. Develop a C program to emulate the operations of an ATM using control structures. Authentication, Deposit, Withdrawal, and Balance check and pin change operations are to be supported
3. Develop a calculator to perform the operations including addition, subtraction, multiplication, division and square of a number.
4. Given different prices of a vegetable which is varying through the day(from morning to evening),find out the best buy price and sell price for the maximum profit .Eg. For the prices [33, 35, 28, 36, 39, 25, 22, 31], best buy is at 28 and best sell is at 39.
5. Collect height and weight of 4 of your friends and calculate their body mass index. Use 2 Dimensional arrays to store the values.
6. Weights of 10 students of your class who are standing in a line is given in a random order. Find out if there is a heavy person whose weight is the sum of previous Mo persons.

7. Solve Towers of Hanoi using recursion
8. Develop an expense manager which reads date, product, price and product category. The program should display the total expense amount based on product category or date as per user's selection. Use structures.

Contact Periods:

Lecture: 30 Periods Tutorial: - Periods Practical: 30 Periods Total:60 Periods

TEXT BOOKS:

1. Reema Thareja, Programming in C, 3rd Edition, Oxford University Press, 2022.
2. Paul Deitel and Harvey Deitel, C How to Program, 9th Edition, Pearson Education, 2021.

REFERENCE BOOKS:

1. Paolo Ferragina and Fabrizio Luccio, “Computational Thinking First Algorithms”, Then Code”, 1st Edition, Springer International Publishing, 2018.
2. E. Balagurusamy, Programming in ANSI C, 9th Edition, McGraw Hill Education, 2023.
3. Yashavant Kanetkar, Let Us C, 17th Edition, BPB Publications, 2020.
4. Juneja, B. Land Anita Seth, “Programming inC”, 1st Edition, Cengage Learning India
5. K. N. King, C Programming: A Modern Approach, 2nd Edition (Updated Reprint), W. W. Norton & Company, 2020.

EVALUATION PATTERN:

Continuous Assessments					End Semester Examinations
Theory			Practical / Project		Theory
CIAT 1	CIAT 2	Activities	Evaluation of Student's work, Observation, Record, etc.	Lab Test	
35%			15%		50%
15(60)	15(60)	5(40)	10(75)	5(25)	50(100)

U26CS101	FUNDAMENTALS OF COMPUTING	CATEGORY:PCC				
		L	T	P	J	C
		3	0	0	0	3

Communication using Mores and Braille binary codes – Digitizing letters, numbers and objects using binary codes - Performing simple operations: addition through binary codes.

Communication to computing devices through various input sources - Computational operation - flow, functions and controls - communication to output devices - Basic communication protocol.

Little Man Computing(LMC) Model-Instruction Set-Labels-Calculation-Branching-Input- Output - Loops - Simple programs.

BIOS - Device Drivers – Resources – Scheduler - Applications Generation and Creation-Stages of Compilation - Linkers, Loaders and Libraries.

Phases of application life cycle management - Software Development Methodologies-Web Page development.

Lecture: 45 Periods Tutorial: - Practical: - Total: 45 Periods

1. David Riley and Kenny A. Hunt, Computational Thinking for the Modern Problem Solver, 2nd Edition, Chapman & Hall/CRC, 2022.
2. J. Glenn Brook shear and Dennis Brylow, Computer Science: An Overview, 13th Edition Pearson, 2021.

1. William Stallings, Computer Organization and Architecture: Designing for Performance, 11th Edition, Pearson, 2022.
2. Randal E. Bryant and David R. O'Hallaron, Computer Systems: A Programmer's Perspective, 3rd Edition (Reprint), Pearson, 2021.
3. Harvey M. Deitel and Paul Deitel, Internet and World Wide Web: How to Program, 6th Edition (Reprint), Pearson, 2020.

EVALUATION PATTERN:

Continuous Assessments			End Semester Examinations
CIAT 1	CIAT 2	Activities	
40%			60%
16(60)	16(60)	8(40)	60(100)

U26CS102	DIGITAL TECHNOLOGIES-I	CATEGORY:ESC				
		L	T	P	J	C
		1	0	0	0	1

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- To explain the foundational concepts of AI, IoT, cloud, cybersecurity and block chain technologies
- To apply practical knowledge of Open AI, RPA, and digital marketing strategies effectively
- To analyze inter connected smart systems, big data, and evolving digital landscapes

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	Understand the foundational concepts of AI, ML, DL, and key Open AI generative tools	Understand
CO2	Explain the inter play of AI, wearables, and big data in emerging technologies like the Meta verse and Edge Understand AI	Apply
CO3	Describe the key components and uses of IoT, cloud computing, and cyber security, including common Understand threats	Understand
CO4	Interpret the core principles and practical uses of block chain, RPA, and digital marketing strategies	Understand
CO5	Recognize the key concepts and applications of 3D printing, digital manufacturing, AR/VR, Meta verse, and Understand ethical considerations in AI	Remember

CO-PO MAPPING:

[illegible]

SYLLABUS:

UNIT I MODERN ARTIFICIAL INTELLIGENCE AND OPEN AI TOOLS 3

An Overview of Artificial Intelligence - Introduction to Machine Learning and Deep Learning – Chat GPT- GPT 4 – Open AI Tools: AI Text Classifier – Open AI Tools: Point-E - Text to Image Generator - DALL

UNIT II MART SYSTEMS AND ANALYTICS 3

Intelligent Wearables- AI and Meta verse- Edge AI/Tiny ML- Evolution of Big Data Analytics - Applications of Big Data Analytics

UNIT III IoT, CLOUD,CYBER SECURITY ESSENTIALS 3

Internet of Things - Applications of IoT – Industrial Internet of Things or IIoT -Digital Payments Overview of Cloud Computing - Applications of Cloud Computing - Service Models in Cloud Computing - Overview of Cyber security- Applications of Cyber security- Types of Cyber Attacks - Data Privacy and User Data Control – Deep fake

UNIT IV DIGITAL INNOVATION AND AUTOMATION 3

Evolution of Block chain - Applications of Block chain in Finance Industry - Impact of Block chain on Workforce & Workplace - Getting Started with Robotic Process Automation - Applications of Robotic Process Automation in Banking & Insurance Industry - Web, Mobile Development and Marketing - 5Ds of Digital Marketing - Digital Storytelling

UNIT V DIGITAL DESIGN AND RESPONSIBILITY 3

F3D Printing Modelling - Digital Manufacturing - Augmented Reality and Virtual Reality - Pre-requisites for Augmented Reality & Virtual Reality- Meta verse- Applications of Augmented Reality- Virtual Reality in AI Ethics - Ethical Considerations of Generative AI

Contact Periods:

Lecture: 15 Period Tutorial: - Practical: - Total: 15 Periods

TEXT BOOKS:

1. Faheem Syeed Masoodi, Zubair Sayeed Masoodi, Khalid Bashir Dar, "Digital and Technological Solutions: Exploring the FoundationsofDigitization",1st Edition, BPB Publications, 2024

REFERENCE BOOKS:

1. Stuart Russell,Peter Norvig,"Artificial Intelligence :A Modern Approach",4thEdition, Pearson, 2020
2. Arshdeep Bahga,Vijay Madiseti,"Internet of Things: A Hands-On Approach "Universities Press, 2014.

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

- Nil

- To introduce the fundamental components and architecture of personal computers
- To understand the role of BIOS, UEFI, and system software in hardware initialization and boot processes
- To explore device interfaces, drivers, and troubleshooting techniques for effective system maintenance.

CO-PO MAPPING:

[illegible]

LIST OF EXPERIMENTS / EXERCISES:

1. Identification and Study of Basic PC Hardware Components
2. Hard Disk Partitioning and Disk Defragmentation
3. BIOS Setup and Boot Configuration
4. Creating a Bootable USB and Installing Windows OS
5. Installing Ubuntu OS and Configuring Dual Boot System
6. Assembling and Upgrading a PC System
7. Installing and Configuring Printers and Scanners
8. Setting Up External Devices and Peripherals
9. BIOS Update and Troubleshooting BIOS Issues
10. Diagnostic and Troubleshooting of PC Hardware Systems

Contact Periods :**Lecture: -****Tutorial: -****Practical: 60 Periods****Total: 60 Periods****EVALUATION PATTERN:**

Continuous Internal Assessments		End Semester Examinations (practical)	
		Test/Report Evaluation	Presentation & Viva
Evaluation of students work, Observation, Record, etc.	Lab test (model practical)		
45(100)	15(100)	30(80)	10(20)
60		40	
Total		100	

U26ME121	ENGINEERING PRACTICES LABORATORY	Category: ESC				
		L	T	P	J	C
		0	0	4	0	2

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

The course aims to:

- Drawing pipe line plan; laying and connecting various pipe fittings used in common household plumbing work; Sawing; planning; making joints in wood materials used in common house hold wood work.
- Welding various joints in steel plates using arc welding work; Machining various simple processes like turning, drilling, tapping in parts; Assembling simple mechanical assembly of common household equipments; Making a tray out of metal sheet using sheet metal work.
- Soldering and testing simple electronic circuits; Assembling and testing simple electronic components on PCB Wiring various electrical joints in common household electrical wire work.

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	Draw pipe line plan; lay and connect various pipe fittings used in common house hold plumbing work; Saw; plan; make joints in wood materials used in common household woodwork.	Apply
CO2	Wire various electrical joints in common household electrical wire work.	Apply
CO3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.	Apply
CO4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.	Apply

CO PO MAPPING:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	-	-	1	1	1	-	–	–	–	2	–
CO2	3	2	-	3	1	1	1	–	–	–	–	2	–
CO3	3	2	-	2	1	1	1	-	–	–	–	2	–
CO4	3	2	-	2	1	1	1	-	–	–	–	2	–
Correlation levels:1:Slight(Low) 2:Moderate(Medium) 3:Substantial(High)													

SYLLABUS:**GROUP – A (CIVIL & ELECTRICAL)****PART I CIVIL ENGINEERING PRACTICES 15****PLUMBING WORK:**

- Connecting various basic pipe fittings like valves, taps, coupling, unions, reducers, elbows and other components which are commonly used in household.
- Preparing plumbing line sketches.
- Laying pipe connection to the suction side of a pump
- Laying pipe connection to the delivery side of a pump.
- Connecting pipes of different materials: Metal, plastic and flexible pipes used in household appliances.

WOOD WORK:

- Sawing.
- Planing.
- Making joints like T-Joint, Mortise joint, Tenon joint and Dovetail joint.

Wood Work Study:

- Studying joints in door panels and wooden furniture.
- Studying common industrial trusses using models.

PART II ELECTRICAL ENGINEERING PRACTICES 15

- Introduction to switches, fuses, indicators and lamps - Basic switch board wiring with lamp, fan and three pin socket
- Staircase wiring
- Fluorescent Lamp wiring with introduction to CFL and LED types.
- Energy meter wiring and related calculations/ calibration
- Study of Iron Box wiring and assembly
- Study of Fan Regulator (Resistor type and Electronic type using Diac/Triac/quadrac)
- Study of emergency lamp wiring/Water heater

WELDING WORK:

- a) Welding of Butt Joints, Lap Joints, and Tee Joints using arc welding.
- b) Practicing gas welding.

BASIC MACHINING WORK:

- a) (simple) Turning.
- b) (simple) Drilling.
- c) (simple) Tapping.

ASSEMBLY WORK:

- a) Assembling a centrifugal pump.
- b) Assembling a household mixer.
- c) Assembling an air conditioner.

SHEET METAL WORK:

- a) Making of a square tray

FOUNDRY WORK:

- a) Demonstrating basic foundry operations.

SOLDERING WORK:

- a) Soldering simple electronic circuits and checking continuity.

ELECTRONIC ASSEMBLY AND TESTING WORK:

- a) Assembling and testing electronic components on a small PCB.

ELECTRONIC EQUIPMENT STUDY:

- a) Study an elements of smart phone.
- b) Assembly and dismantle of LED TV.
- c) Assembly and dismantle of computer/ laptop

Contact Periods:

Lecture: -

Tutorial: -

Practical: 60 Periods

Total: 60 Periods

EVALUATION PATTERN:

Continuous Internal Assessments		End Semester Examinations (practical)	
Practical		Test/Report Evaluation	Presentation & Viva
Evaluation of students work, Observation, Record, etc.	Lab test (model practical)		
45(100)	15(100)	30(80)	10(20)
60		40	
Total		100	

PRE-REQUISITES:

- Nil

- Nil

- To introduce the fundamental principles, mindset, and phases of Design Thinking for problem

COURSE OUTCOMES: On completion of the course, the students will be able to	BT Mapped (Highest Level)
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[illegible]

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

Correlation Levels; 1.Slight (low) 2. Moderate (Medium) 3. Substantial (High)

SYLLABUS:

UNIT I	DESIGN THINKING	3
Key Principles and Mindset – Five Phases, Methods and Tools of Design Thinking – User Guide – Foundation Building for Design Thinking – Explore: Methods & Tools – STEEP Analysis – Strategic Priorities – Activity System – Stakeholder Mapping – Opportunity Framing.		
UNIT II	EMPATHIZE	3
Methods & Tools – Field Observation – Deep User Interview – Empathy Map – User Journey Map - Need Finding – User Insights - User Persona Development.		
UNIT III	EXPERIMENT	3
Methods & Tools – Ideation – SCAMPER – Analogous Inspiration – Deconstruct & Reconstruct – User Experience Journey – Prototyping– Idea Refinement.		
UNIT IV	ENGAGE	3
Methods & Tools – Story Telling – Art of Story Telling – Storyboarding – Co-Creation with Users – Collect Feedback from Users.		
UNIT V	EVOLVE	3
Methods & Tools – Concept Synthesis – Strategic Requirements – Evolved Activity Systems – Activity System Integration – Viability Analysis – Innovation Tools using User Needs, CAP, 4S – Change Management - Quick Wins.		

LIST OF EXPERIMENTS / PRACTICAL EXERCISES

1. Study and analysis of a real-world problem using STEEP Analysis.
2. Perform Stakeholder Mapping for a selected case study.
3. Develop an Activity System Map for an existing product/service.
4. Conduct Field Observation and document findings.
5. Perform a Deep User Interview and analyze responses.
6. Create an Empathy Map based on collected data.
7. Generate ideas using Brainstorming and SCAMPER techniques.
8. Apply Analogous Inspiration for innovative thinking.
9. Perform Deconstruct & Reconstruct exercise on an existing product.
10. Develop a Storytelling script for a design solution.
11. Create a Storyboard representing the user experience.
12. Conduct Co-creation sessions with users.
13. Perform Concept Synthesis for final solution design.
14. Define Strategic Requirements for implementation.
15. Develop an Evolved Activity System.

Contact Periods:**Lecture:15 Periods****Tutorial: -****Practical: 30 Periods****Total: 45 Periods****EVALUATION PATTERN:**

Continuous Assessments					End Semester Examinations	
Theory			Practical / Project		Practical	
CIAT 1	CIAT 2	Activities	Evaluation of Student's work, Observation, Record, etc.	Lab Test	Test / Report Evaluation	Presentation & Viva
25%			25 %		50%	
10(30)	10(30)	5(40)	15(75)	10(25)	40(80)	10(20)

U26MC101	INDUCTION PROGRAM- UNIVERSAL HUMAN VALUES I (Common to all programmes)		CATEGORY:MCC				
			L	T	P	J	C
			3	0	0	0	3

PRE–REQUISITES:

- Nil

COURSE OBJECTIVES:

- Understanding (or developing clarity) of the harmony in the human being, family, society, and nature/existence Strengthening of self-reflection
- Development of commitment and courage to act

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	Recognize the essentials of human values and skills	Understand
CO2	Analyze connection between profession and happiness.	Understand
CO3	Develop appropriate technologies and management patterns to create harmony in family and society	Understand
CO4	Develop appropriate technologies and management patterns to create harmony in family and society	Understand
CO5	Demonstrate professional and ethical responsibility	Understand

SYLLABUS:

UNIT I INTRODUCTION NEED,BASIC GUIDELINES,CONTENT,AND PROCESS 9
FOR VALUE EDUCATION

Purpose and motivation for the course - Self-Exploration: what is it - Its content and process; 'Natural Acceptance' and Experiential Validation as the mechanism for self-exploration - Continuous Happiness and Prosperity - A look at basic Human Aspirations - Right understanding, Relationship, and Physical Facilities - the basic requirements for the fulfillment of aspirations of every human being with their correct priority - Understanding Happiness and Prosperity correctly - A critical appraisal of the current scenario Method to fulfill the above human aspirations: understanding and living in harmony at various levels

UNIT II HARMONY IN THE HUMAN BEING - HARMONY IN MYSELF 9

Understanding human beings as a co-existence of the sentient 'I' and the material 'Body' – Understanding the needs of Self('I') and 'Body'-Happiness and Convenience-Understanding the Body as an instrument of 'I'(I being the doer, seer, and enjoyer) - Understanding the harmony of I with the Body: Self-control and Welfare; correct appraisal of Physical needs - Meaning of Prosperity in detail - Programs to ensure Self-control and Welfare

UNIT III HARMONY IN THE FAMILY AND SOCIETY 9

Understanding values in human - Human relationships; the meaning of Justice (nine universal values in relationships) and the program for its fulfillment to ensure satisfaction -Trust and Respect as the foundational values of relationship - Understanding the meaning of Trust - Difference between intention and competence - Understanding the meaning of Respect - The Difference between respect and differentiation; and the other salient values in relationship - Understanding the harmony in the society (society being an extension of the family): Peace, Prosperity, Courage, and Co existence as comprehensive Human Goals – Visualizing a universal harmonious order in society- Undivided Society - Universal Order from family to world family

UNIT IV HARMONY IN THE NATURE AND EXISTENCE 9

Understanding the harmony in Nature, Interconnectedness, and mutual fulfillment among the four orders of nature - Recyclability and self-regulation in nature - Understanding Existence as a Co-existence of mutually interacting units in an all pervasive space - Holistic perception of harmony at all levels of existence - Practice sessions to discuss human beings as the cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology, etc

UNIT V HARMONY ON PROFESSIONAL ETHICS 9

Natural acceptance of human values – Definitiveness of Ethical Human Conduct -Basic for Humanistic Education Humanistic Constitution, and Humanistic Universal Order Competence in professional ethics - Ability to utilize the professional competence for augmenting universal human order, Ability to identify the scope and characteristics of people, friendly and eco-friendly production systems, and Ability to identify and develop appropriate technologies and management patterns for the above production systems-Case studies of typical holistic technologies, management models, and production systems-Strategy for a transition from the present state to Universal Human Order – At the level of the individual: as socially and ecologically responsible engineers, technologists, and managers - At the level of society: as mutually enriching institutions and organizations

TEXT BOOKS:

1.RR Gaur,R.Asthana,GPBagaria,AFoundationcourseinHumanValuesandProfessional Ethics, 3rd Edition, Books, New Delhi, 2024

REFERENCE BOOKS:

1.IvanIllich,Energy&Equity,TheTrinityPress,Worcester,andHarperCollins, USA, 1997

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

U26TA101	தமிழர் மரபு/ HERITAGE OF TAMILS (Common to all programmes)	CATEGORY:MCC				
		L	T	P	J	C
		1	0	0	0	1

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- Learn the extensive literature of classical Tamil
- Review the fine arts heritage of Tamil culture
- Realize the contribution of Tamils in Indian freedom struggle.

COURSE OUTCOMES:		BT Mapped (Highest Level)
On completion of the course, the students will be able to		
CO1	Understand the extensive literature of Tamil and its classical nature	Understand
CO2	Understand the heritage of sculpture, painting and musical instruments of Ancient people	Understand
CO3	Review on folk and martial arts of Tamil people	Understand
CO4	Realization of Thinaiconcepts, trade and victory of Chozhadynasty	Understand
CO5	Understand the contribution of Tamils in Indian freedom struggle,Self-esteem movement and siddha	Understand

CO PO MAPPING:

[illegible]

SYLLABUS:

UNIT I	LANGUAGE AND LITERATURE	3
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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-ROCKART 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, Thiruvalluvar 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 MARTIAL ARTS 3

Tattooing, basketweaving, Therukoothu, Katagattam, Villupattu, Oyillattam, Leatherpuppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils

UNIT IV	THINAI CONCEPT OF TAMILS	3
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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
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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.

Contact Periods:

Lecture: 15 Periods Tutorial: - Practical: - Total: 15 Periods

TEXT BOOKS:

1. Ravi krishna K, Heritage of Tamils, Sri Krishna publications, First Edition, 2023
2. S. Priyadharshini, Heritage of Tamils, V.K. Publications.

REFERENCE BOOKS :

1. History, People and Culture of Tamil Nadu—K.K.Pillai,International Institute of Tamil Studies,C.P.T Campus,Chennai.
2. Computer Tamil—Dr.II.Sundaram,Vikatan Publications,Anna Salai,Chennai,December2016.

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

U26TA101	தமிழர்மரபு / Heritage of Tamils (Common to all programmes)	Category: MCC				
		L	T	P	J	C
		1	0	0	0	1

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- தமிழின் செம் மொழி தன்மையையும் அதன் விரிவான இலக்கிய பாரம்பரியத்தையும் கற்றறிதல்.
- தமிழர் கலாச்சாரத்தில் உள்ள நுண்கலை மரபுகளைப் பரிசீலித்தல்.
- இந்திய விடுதலைப் போராட்டத்தில் தமிழர்களின் பங்களிப்பை உணர்தல்.

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	தமிழ் மொழியின் விரிவான இலக்கியத்தையும் அதன் செம் மொழி தன்மையையும் புரிந்து கொள்ளுதல்.	Understand
CO2	பழங்கால மக்களின் சிற்பக்கலை, ஓவியக்கலை மற்றும் இசைக்கருவிகளின் பாரம்பரியத்தை புரிந்து கொள்ளுதல்.	Understand
CO3	தமிழர் நாட்டுப்புறக் கலைகள் மற்றும் போர்க்கலைகளை ஆய்வு செய்தல்.	Understand
CO4	திணை கருத்துக்கள், வர்த்தகம் மற்றும் சோழர் பேரரசின் வெற்றிகளை உணர்தல்.	Understand
CO5	இந்திய விடுதலைப் போராட்டத்தில் தமிழர்களின் பங்களிப்பு, சுயமரியாதை இயக்கம் மற்றும் சித்த மருத்துவத்தின் முக்கியத்துவத்தை புரிந்து கொள்ளுதல்	Understand

CO PO MAPPING

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	-	-	-	-	-	-	3	3	-	2	-	-	-
CO2	-	-	-	-	-	-	3	3	-	2	-	-	-
CO3	-	-	-	-	-	-	3	3	-	2	-	-	-

தமிழர்களின் பங்களிப்பு

இந்திய விடுதலைப் போரில் தமிழர்களின் பங்கு-இந்தியாவின் பிற பகுதிகளில் தமிழ் பண்பாட்டின் தாக்கம் சுயமரியாதை இயக்கம்-இந்திய மருத்துவத்தில், சித்த மருத்துவத்தின் பங்கு கல்வெட்டுக்கள் கையெழுத்துப்படிகள்-தமிழ் புத்தகங்கள் அச்சு வரலாறு.

Lecture: 15 Periods

Tutorial: - Periods

Total: 15 Periods

TEXT BOOKS:

1. ஜெயந்தி ரவிகிருஷ்ணா K, தமிழர்களின் பாரம்பரியம், ஸ்ரீ கிருஷ்ணா பதிப்பகம், முதல்பதிப்பு, 2023.
2. எஸ். பிரியதர்ஷினி, தமிழர்களின் பாரம்பரியம், வி. கே. பதிப்பகம்

REFERENCES:

1. தமிழக வரலாறு மக்களும் பண்பாடும் - கே.கே. பிள்ளை, International Institute of Tamil Studies, C.P.T Campus, Chennai.
2. கணினித்தமிழ் - முனைவர். இல. சுந்தரம், விகடன் பிரசுரம், அண்ணாசாலை, சென்னை, திசம்பர் 2016.

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

		DATE OF BIRTH
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• Nil

- COURSE OBJECTIVES:**

- To develop students' ability to comprehend, analyze, and articulate complex ideas effectively.
- To enable students to use English proficiently for research, presentations, technical documentation, and collaborative projects.

[illegible]

Continuous Internal Assessments		End Semester Examinations (practical)	
		Test/Report Evaluation	Presentation & Viva
Practical			
Evaluation of students work, Observation, Record, etc.	Lab test (model practical)		
45(100)	15(100)	30(80)	10(20)
60		40	
Total		100	

- Nil

- Understand fundamental concepts of discrete structures such as sets and relations.
- Develop logical reasoning and problem-solving skills using propositional and predicate logic.
- Apply combinatorial techniques and counting principles in real-world problems.
- Analyze graphs for modeling and solving computational problems.
- Use Algebraic structures and their applications in computer science.

CO PO MAPPING:

[illegible]

SYLLABUS:

UNIT -I

LOGIC AND PROOFS

12

Propositional Calculus: Propositions – Logical connectives – Compound propositions – Conditional and bi conditional propositions – Truth tables – Tautologies and contradictions – Theory of Inference – Rules of inference – Arguments – Validity of arguments. Predicate Calculus: Predicates – Statement function – Variables – Quantifiers – Universe of discourse – Theory of inference for Predicate calculus – Rules of universal specification and generalization – Rules of Existential specification and generalization – Validity of arguments.

UNIT-II

COMBINATORICS

12

Mathematical induction – Strong induction and well ordering – The basics of counting – The pigeonhole principle – Permutations and combinations – Recurrence relations – Solving linear recurrence relations – Generating functions.

UNIT III

GRAPHS

12

Graphs and graph models – Graph terminology and special types of graphs – Matrix representation of graphs and graph isomorphism – Connectivity – Euler and Hamilton paths-Dijkstra's shortest path algorithm – Warshall's algorithm

UNIT IV

RELATIONS

12

Cartesian product of sets – Relations on sets – Types of relations and their properties – Matrix representation of a relation - Graph of a relation – Equivalence relations – Partial ordering – Poset – Hasse diagram – Lattices – Properties of lattices.

UNIT V

ALGEBRAIC STRUCTURES

12

Algebraic systems – Semi groups and monoids – Groups – Subgroups –Homomorphism’s Normal subgroup and cosets–Lagrange’s theorem–Definitions and examples of Rings and Fields.

Contact Periods:

Lecture: 45 Periods

Tutorial: 15 Periods

Practical: -

Total: 60 Periods

TEXT BOOKS:

1. T. Veerarajan, Discrete Mathematics, McGraw Hill Education (India) Pvt. Ltd., Reprint 2026
2. Discrete Mathematics and Its Applications, Kenneth H. Rosen ,8th Edition (2019),McGraw-Hill Education.

REFERENCE BOOKS

1. Discrete Mathematics, S.Chandrasekaran, M.Umaparvathi, Latest edition (2018), PHI Learning.
2. Discrete Mathematics with Applications, Susanna S.Epp, 4th Edition (reprint 2018), Cengage learning.
3. Ralph P. Grimaldi, “Discrete and Combinatorial Mathematics”, 5th Edition, Pearson Education, USA, 2019.

EVALUATION PATTERN:

Continuous Assessments			End Semester Examinations
CIAT 1	CIAT 2	Activities	
40%			60%
16(60)	16(60)	8(40)	60(100)

- Nil

- To introduce materials chemistry relevant to computer hardware and electronics.
- To impart knowledge on electrochemical energy systems used in modern devices
- To understand nano materials, semiconductors and their applications in engineering field.
- To create awareness about e-waste, its environmental impact and management practices.
- To familiarize insulating materials and their applications in electrical and electronic systems.

CO PO MAPPING:

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

Correlation Levels; 1.Slight (low) 2. Moderate (Medium) 3. Substantial (High)

SYLLABUS:**UNIT -I MATERIALS FOR HARDWARE 6**

Types of materials – metals, plastics, ceramics – Conductors and insulators – Simple idea of semiconductors – Materials used in wires, chips and circuit boards – Thermal management materials in CPUs.

UNIT-II ELECTRO CHEMISTRY AND ENERGY STORAGE DEVICES 6

Batteries – Types: dry cell, lithium-ion battery – Working principal of mobile and laptop batteries Charging and safety – Introduction to super capacitors – Fuel cells – Energy storage in portable electronics and computers.

UNIT III SEMICONDUCTORS AND NANOMATERIALS 6

Intrinsic and extrinsic semiconductors – p-n junction – Introduction to semiconductor devices (diodes, transistors – concept only) – Types (0D, 1D, 2D) – Synthesis methods (top-down, bottom-up) – Properties and applications

UNIT IV E-WASTE AND ITS MANAGEMENT 6

Introduction, sources of e-waste, hazardous substances and their effects on environment and human health; e-waste handling rules, management, recycling and disposal treatment methods. Mechanism of extraction of precious metals from leaching solution; global and Indian e-waste scenario with case studies.

UNIT V INSULATING MATERIALS 6

Introduction - requirements - classification (Solid, Liquid & Gas) - solid inorganic insulators (glass, ceramics), organic insulator (epoxy resin), liquid insulator (transformer oil), and gas insulator (SF₆).- Electrical resistivity and factors affecting it- high-resistivity materials including molybdenum disilicide and nichrome—composition, characteristics, and uses- - molybdenum disilicide and nichrome - polymers an electrical insulators - non-polar polymers - polar polymers - polarization of polymers.

LIST OF EXPERIMENTS :

- 1 Estimation of total hardness of water by EDTA method.
- 2 Determination of rate of corrosion of mild steel by weight loss method.
- 3 Determination of chloride content in water sample by argentometric method.
- 4 Determination of pKa of a weak acid using glass electrode (pH sensor).
- 5 Determination of strength of Hcl acid by using pH meter.
- 6 Estimation of Ferrous iron by potentiometric Titration.
- 7 To find Viscosity of a Transparent Liquid (Virtual lab).
(<https://bop-iitk.vlabs.ac.in/exp/liquid-viscosity/index.html>)

Contact Periods:**Lecture: 30 Periods****Tutorial: -****Practical: 30 Periods****Total: 60 Periods**

TEXT BOOKS:

1. Engineering Chemistry, P. C. Jain & Trishla Jain, 2023, 17th Edition, Dhanpat Rai & Co. (P) Ltd., New Delhi. ISBN-13: 978-9352165728
2. Engineering Chemistry, **S. S. Dara & S. S. Umare**, 2022 Edition, S. Chand Publications, New Delhi. ISBN-13: 978-9352533241.

REFERENCE BOOKS:

1. Friedrich Emich, "Engineering Chemistry", 2nd Edition, Scientific International Pvt. Ltd, New Delhi, 2014.
2. PrasantaRath, "Engineering Chemistry", 1st Edition, Cengage Learning India, Pvt. Ltd, Delhi, 2015
3. V. Raghavan & J. R. Gopalakrishnan, Engineering Chemistry, McGraw-Hill Education.
4. Linden & Reddy, Handbook of Batteries, McGraw-Hill Education.
5. Energy storage and conversion devices, Anurag Gaur, A. L. Sharma, Anil Arya, 1st Edition, 2021, CRC Press, Taylor and Francis Group, ISBN: 9781003141761.
6. <https://nptel.ac.in/courses/113/104/113104008>
7. https://onlinecourses.nptel.ac.in/noc24_me34/preview%20%20
8. <https://www.vlab.co.in/broad-area-chemical-sciences>

EVALUATION PATTERN:

Continuous Assessments					End Semester Examinations
Theory			Practical / Project		Theory
CIAT 1	CIAT 2	Activities	Evaluation of Student's work, Observation, Record, etc.	Lab Test	
35%			15%		50%
15(60)	15(60)	5(40)	10(75)	5(25)	50(100)

PRE REQUISITES:

The course aims to

- To introduce the basics of electric circuits and analysis

- | | |
|-------------------------|------------------|
| COURSE OUTCOMES: | RT Mapped |
|-------------------------|------------------|

COURSE OUTCOMES:	BT Mapped
On completion of the course, the students will be able to	(Highest Level)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
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C01	2	2	1	-	-	-	-	1	-	-	2	1	
C02	2	2	1					1			2	1	

C02	2	2	1	-	-	-	-	1	-	-	2	1	
C03	2	1	1	-	-	-	-	1	-	-	2	2	

C04	2	2	1	-	-	-	-	1	-	-	2	2
-----	---	---	---	---	---	---	---	---	---	---	---	---

C05	2	2	1	-	-	-	-	1	-	-	2	2
Correlation Levels: 1 Slight (low) 2 Moderate (Medium) 3 Substantial (High)												

SYLLABUS:

UNIT I	ELECTRICAL CIRCUITS	9
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DC Circuits: Circuit components – conductor, resistor, inductor, capacitor – Ohm’s law – Kirchhoff’s laws – independent and dependent sources– nodal analysis – mesh analysis with independent sources only.

Introduction to AC circuits and parameters: waveforms – average value – RMS value – instantaneous value, real power, reactive power and apparent power, power factor – steady state analysis of RLC circuits.

UNIT II	ELECTRICAL MACHINES	9
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Construction and working principle of DC Generator– EMF equation, types and applications. Working principle of DC motor –Torque Equation,types and applications. Construction, working principle and applications of Transformer, Alternator,Synchronous motor and Three phase Induction motors.

UNIT III ANALOG ELECTRONICS 9

Semiconductor materials: silicon and germanium – PN junction diode, Zener diode – characteristics and applications – BJT, JFET, SCR, MOSFET, IGBT-types, characteristics and applications. Rectifier and Inverters.

UNIT IV DIGITAL ELECTRONICS 9

Review of number systems ,binary codes ,error detection and correction codes, combinational logic – representation of logic functions – SOP and POS forms ,K-map representations – minimization using K-maps.

UNIT V MEASUREMENTS AND INSTRUMENTATION 9

Functional elements of an instrument – operating principle, types – moving coil and moving iron meters – measurement of three phase power, energy meter — DSO- block diagram – data acquisition.

Contact Periods:

Lecture: 45 Periods Tutorial: - Practical: - Total: 45 Periods

TEXT BOOKS:

1. Kothari DP and I.J Nagrath, “Basic Electrical and Electronics Engineering”, Second Edition, McGraw Hill Education, 2020
2. S.K.Bhattacharya “Basic Electrical and Electronics Engineering”, Pearson Education, Second Edition, 2017.
3. A.K. Sawhney, PuneetSawhney ‘A Course in Electrical & Electronic Measurements & Instrumentation’, Dhanpat Rai and Co, 2015.

REFERENCES:

1. Kothari DP and I.J Nagrath, “Basic Electrical Engineering”, Fourth Edition, McGraw Hill Education, 2019.
2. Thomas L. Floyd, ‘Digital Fundamentals’, 11th Edition, Pearson Education, 2017.
3. Albert Malvino, David Bates, ‘Electronic Principles, McGraw Hill Education; 7th edition, 2017

EVALUATION PATTERN:

Continuous Assessments			End Semester Examinations
CIAT 1	CIAT 2	Activities	
40%			60%
16(60)	16(60)	8(40)	60(100)

U26CS211	DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION	CATEGORY:ESC				
		L	T	P	J	C
		3	0	2	0	4

PRE-REQUISITES:

- Nil

COURSEOBJECTIVES:

- To understand the fundamentals of digital logic, Boolean algebra, and the design of combinational and sequential circuits.
- To gain knowledge of computer organization, including instruction execution, arithmetic operations, and processor architecture.
- To analyze memory systems, pipelining, and input/output organization in modern computer systems.

COURSE OUTCOMES:		BT Mapped (Highest Level)
On completion of the course, the students will be able to		
CO1	Convert numbers between different number systems and simplify Boolean expressions using Boolean algebra and K-Map to realize logic functions using logic gates.	K3
CO2	Design and analyze combinational and sequential circuits such as adders, subtractors, multiplexers, decoders, flip-flops, registers and counters.	K4
CO3	Explain the functional units of a computer system and perform arithmetic operations using addition, subtraction, multiplication and division algorithms.	K3
CO4	Analyze processor organization, control unit design, pipelining hazards and memory hierarchy techniques including cache and virtual memory.	K4
CO5	Describe I/O organization, interrupt handling, DMA, bus arbitration and interconnection standards used for interfacing peripheral devices.	K2

CO PO MAPPING:

[illegible]

SYLLABUS:

UNIT-I DIGITAL LOGIC FOUNDATIONS 9

Number Systems – Binary, Octal, Hexadecimal –Signed Binary Numbers– Binary Codes–Boolean Algebra: Basic Laws and Theorems – Logic Gates – Universal Gates (NAND, NOR) – Realization of Boolean Functions using Logic Gates.

UNIT-II **DIGITAL CIRCUIT DESIGN** **9**

Canonical and Standard Forms–K-Map Simplification–Don’t Care Conditions–Combinational Circuits: Adders, Subtractors, Multiplexers, Demultiplexers, Encoders, Decoders –Sequential Circuits: Flip-Flops, Registers, Counters – Shift Registers.

UNIT III COMPUTER SYSTEM ORGANIZATION 9

Functional Units of Computer – Instruction Cycle – Data Representation – Memory Locations and Addresses – RISC vs CISC – Arithmetic Operations: Addition and Subtraction – Fast Adders – Multiplication (Signed & Unsigned) – Division Algorithms – Floating Point Representation.

UNIT IV PROCESSING AND MEMORY ARCHITECTURE 9

Processor Organization—Instruction Execution—Control Unit (Hardwired Control)—Pipelining: Concepts, Stages, Hazards – Memory System: RAM, ROM – Cache Memory – Memory Mapping Techniques – Performance Considerations – Virtual Memory.

UNIT V	I/O AND INTERFACING	9
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Input / Output Organization–Interrupts–DMA–Bus Structure–Bus Arbitration–Inter connection Standards(USB)–Handling Multiple Devices–DataTransferTechniques.

LIST OF EXPERIMENTS / EXERCISES:

- 1 Design and Simulation of Fundamental Gates using Universal Gates (NAND and NOR)
- 2 Design and Simulation of Half Adder, Full Adder, Half Subtractor, Full Subtractor
- 3 Design and Simulation of 4-bit Ripple Carry Adder
- 4 Design and Simulation of a 4-bit Arithmetic and Logic unit
- 5 Design and Simulation of D Flip Flop and JK Flip Flop
- 6 Design and Simulation of 8-bit Register
- 7 Design and Simulation of an 8bit SISO, SIPO, PISO, PIPO Shift Registers
- 8 Simulation of Data Read and Data Write froma RAM
- 9 Simulation of Control Unit Functionality

Contact Periods:

Lecture: 45 Periods Tutorial: -Periods Practical: 30 Periods Total: 75 Periods

TEXT BOOKS:

1. David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, RISC-V Edition, 2nd Edition, Morgan Kaufmann, 2020.
2. Sarah Harris and David Harris, Digital Design and Computer Architecture: RISC-V Edition, 1st Edition, Morgan Kaufmann, 2021.

REFERENCE BOOKS:

1. J. Clark Scott, But How Do It Know? – The Basic Principles of Computers for Everyone, 2nd Edition, No Starch Press, 2020.
2. Behrooz Parhami, Computer Architecture: From Microprocessors to Supercomputers, Oxford University Press, 2020.
3. Sarah Harris and David Harris, Digital Design and Computer Architecture: RISC-V Edition, Morgan Kaufmann, 2021.
4. David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, RISC-V Edition, 2nd Edition, Morgan Kaufmann, 2020.

EVALUATION PATTERN:

Continuous Assessments					End Semester Examinations
Theory			Practical / Project		Theory
CIAT 1	CIAT 2	Activities	Evaluation of Student's work, Observation, Record, etc.	Lab Test	
35 %			15 %		50%
15(60)	15(60)	5(40)	10(75)	5(25)	50(100)

U26CS212	PROBLEM SOLVING USING PYTHON PROGRAMMING (Applicable only for AI&DS, CSE, CSE(CS) and IT)	CATEGORY:BSC				
		L	T	P	J	C
		2	0	2	0	3

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- To understand basic programming concepts using Python
- To apply Python for solving Mechatronics problems involving sensors, actuators, and automobiles.
- To build logical thinking and problem-solving skills applicable to real-world engineering systems.

COURSE OUTCOMES:		BTMapped (Highest Level)
On completion of the course, the students will be able to		
CO1	Apply basic Python programming constructs using IDEs to develop simple applications	Understand
CO2	Apply control structures and user-defined functions to solve Computational problems using Python	Understand
CO3	Apply Python data structures and file handling techniques to manage and process data effectively	Apply
CO4	Apply concepts of object-oriented and modular programming in Python	Analyze
CO5	Analyze sensor data and system responses using Python libraries Such as NumPy and Matplotlib	Understand

CO-POMAPPING:

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

SYLLABUS:**UNIT I INTRODUCTION TO PYTHON PROGRAMMING & DEVELOPMENT TOOLS 6**

History and features of Python-PythonIDEs: Thonny, PyCharm, Jupyter - Datatypes:Numbers, Strings, Lists, Tuples, Sets, Dictionaries - Variables, Constants, Operators, Expressions - Input and Output functions - Type casting and basic programs

UNIT II CONTROL STRUCTURES AND FUNCTIONS 6

Decision Making : (if, if - else, elif - Loops: while, for, range) -Loop control : break, continue, pass- Functions : definition, arguments, return values – Scope and recursion

UNIT III PYTHON DATA STRUCTURES AND FILE HANDLING 6

Lists: operations, slicing, methods - Dictionaries: creation, methods – Sets and Tuples - File handling: opening, reading,

UNIT IV OBJECT-ORIENTED PROGRAMMING AND MODULES 6

Classes and Objects – Constructor and Destructor – Inheritance and Polymorphism-Creating and Importing modules Exception handling

UNIT V INTRODUCTION TO MECHATRONICS APPLICATIONS USING PYTHON 6

Introduction to interfacing with hardware (simulation or via PySerial) - Basics of numpy and matplotlib for data visualization - Plotting sensor data Simple control system simulation - Basic AI models - Mini project: line follower algorithm logic/ temperature control system

Contact Periods:**Lecture: 30 Periods****Tutorial: -****Practical: 30Periods****Total: 60 Periods****LIST OF EXPERIMENTS / EXERCISES:**

1. Simple I/O and arithmetic operations
2. Displaying sensor names and ranges
3. Writing simple math programs for basic mechanical formulas
4. Logic-based mechanical system emulation
5. Writing control logic for robot movement
6. Simulating conditional operations of an automated gate
7. File handling for sensor data logs
8. Storing sensor data in lists / dictionaries
9. Logging data from a virtual sensor to a CSV file
10. OOP-based actuator control mock-ups

TEXT BOOKS:

- 1.Reema Thareja, Python Programming: Using Problem Solving Approach, 3rd edition, Oxford University Press, New Delhi, 2023
- 2.John V. Guttag, 2.John V. Guttag, Introduction to Computation and Programming Using Python, 3rd edition, MIT Press, Cambridge, Massachusetts, 2021

REFERENCE BOOKS:

1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", Updated for Python 3, 2nd edition, Shroff/O'Reilly Publishers, Mumbai, 2016
2. Robert Sedgewick, Kevin Wayne, Robert Dondero, "Introduction to Programming in Python: An Inter-disciplinary Approach", 1st edition, Pearson India Education Services Pvt. Ltd., Bengaluru, 2016

EVALUATION PATTERN:

Continuous Assessments					End Semester Examinations
Theory			Practical / Project		Theory
CIAT 1	CIAT 2	Activities	Evaluation of Student's work, Observation, Record, etc.	Lab Test	
35%			15%		50%
15(60)	15(60)	5(40)	10(75)	5(25)	50(100)

SYLLABUS:**UNIT I Generative AI and Intelligent Systems 3**

Focus on practical understanding of modern AI and Generative AI rather than only introducing specific OpenAI products. This makes the syllabus more technology-neutral and future-ready.

UNIT II Smart Technologies and Data Analytics 3

Connect IoT - Edge AI - Big Data - Analytics

UNIT III Connected Technologies and Digital Security 3

Combine IoT, Cloud, Digital Payments and Cybersecurity into a connected digital ecosystem. Include deepfakes and digital identity as contemporary digital-security topics.

UNIT IV Digital Innovation and Automation 3

Cover Blockchain- RPA- Digital Marketing -Digital Storytelling, with emphasis on real-world business applications.

UNIT V – Digital Design, Immersive Technologies and AI Responsibility 3

Combine 3D Printing - AR/VR/MR - Metaverse - AI Ethics

Contact Periods

Lecture: 15 Periods Tutorial: - Practical: - Total: 15 Periods

TEXTBOOKS:

1. Faheem Syeed Masoodi, Zubair Sayeed Masoodi, Khalid Bashir Dar, "Digital and Technological Solutions: Exploring the Foundations of Digitization", 1st Edition, BPB Publications, 2024

REFERENCE BOOKS

1. Stuart Russell, Peter Norvig, "Artificial Intelligence: A Modern Approach", 4th Edition, Pearson, 2020
2. Arshdeep Bahga, Vijay Madisetti, "Internet of Things: A Hands-On Approach" Universities Press, 2014

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

SYLLABUS:**UNIT I INTRODUCTION – BASIC HUMAN ASPIRATION, ITS FULFILLMENT 9
THROUGH ALL ENCOMPASSING RESOLUTION**

The basic human aspirations and their fulfillment through Right Understanding and Resolution Right understanding and Resolution as the activities of the Self (self being central to Human Existence) – All encompassing Resolution for a Human Being – Its details and solution of problems in the light of Resolution.

UNIT II RIGHT UNDERSTANDING – KNOWER, KNOWN & THE PROCESS 9

The domain of right understanding starting from understanding the human being and extending up to understanding nature/existence – its interconnectedness and co-existence – and finally understanding the role of human being in existence (human conduct).

UNIT III UNDERSTANDING HUMAN BEING 9

Understanding the human being comprehensively as the first step and the core theme of this course – Human being as co-existence of the self and the body – The activities and potentialities of the self – basis for harmony/contradiction in the self.

UNIT IV UNDERSTANDING NATURE AND EXISTENCE 9

A comprehensive understanding about the existence – Nature being included – The need and process of inner evolution – Particularly awakening to activities of the Self: Realization – Understanding and Contemplation in the Self.

**UNIT V UNDERSTANDING HUMAN CONDUCT, ALL-ENCOMPASSING 9
RESOLUTION & HOLISTIC WAY OF LIVING**

Understanding Human Conduct – Different aspects of all encompassing Resolution – Holistic way of living for Human Being with all encompassing resolution covering all four dimensions of human endeavor viz., realization, thought, behavior and work leading to harmony at all levels from Self to Nature and entire Existence.

Contact Periods:**Lecture: 45 Periods****Tutorial: -****Practical:-****Total: 45 Periods****TEXTBOOKS:**

1. R R Gaur, R Asthana, G P Bagaria, A Foundation Course in Human Values and Professional Ethics, 2nd Revised Edition, Excel Books, New Delhi, 2019.

REFERENCES:

1. E G Seebauer & Robert L. Berry, Fundamentals of Ethics for Scientists & Engineers, Oxford University Press, 2000.
2. M Govindarajan, S Natrajan & V.S. Senthil Kumar, Engineering Ethics (Including Human Values), Eastern Economy Edition, Prentice Hall of India Ltd.
3. B P Banerjee, Foundations of Ethics and Management, Excel Books, 2005.
4. B L Bajpai, Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted 2008.

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

[illegible]

SYLLABUS:

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 Stone beads - Glass beads - Terracotta beads - Shell beads/ bone beads - 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 Husbandry - Wells designed for cattle use - Agriculture 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 - The role of journals in the development of scientific Tamil - Scientific Tamil vocabulary - Tamil computing - Digitalization of Tamil Books - Development of Tamil Software - Tamil Virtual Academy - Tamil Digital Library - Online Tamil Dictionaries - Sorkuvai Project.

Contact Periods:

Lecture: 15 Periods Tutorial: - Practical: - Total: 15 Periods

TEXT BOOKS:

- 1.Tamils and Technology, K. JayanthiRavikrishna, Sri Krishna publications, Mahalakshmi Nagar, Velappanchavadi, Chennai - 600 007, First Edition 2023
- 2.Tamils and Technology, S. Priyadharshini, V. K. Publications, 55, Gopuram Colony, Sivakasi – 626 124

REFERENCE BOOKS:

1. History of Tamil Nadu – People and Culture – K.K. Pillai, International Institute of Tamil Studies, C.P.T Campus, Chennai.
2. Computer Tamil – Dr. Il. Sundaram, Vikatan Publications, Anna Salai, Chennai, December 2016.

EVALUATION PATTERN:

Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100

U26TA201	தமிழரும் தொழில் நுட்பமும் Tamils and Technology (Common to all programmes)	Category: MCC				
		L	T	P	J	C
		1	0	0	0	1

PRE-REQUISITES:

- Nil

COURSE OBJECTIVES:

- தமிழர்களின் நெய்தல்,மண் பாண்டம் மற்றும் கட்டிடத் தொழில் நுட்பங்களை அறிதல்.
- தமிழர்களின் வேளாண்மை, பாசன மற்றும் உற்பத்தித் தொழில் நுட்பங்களை புரிதல்.
- அறிவியல் தமிழ் மற்றும் தமிழ் கணினி வளர்ச்சியை உணர்தல்.

COURSE OUTCOMES: On completion of the course, the students will be able to		BT Mapped (Highest Level)
CO1	பண்டைய தமிழர்களின் நெய்தல் மற்றும் மண்பாண்டத் தொழில் நுட்பத்தை புரிதல்	Understand
CO2	சங்ககால கட்டிடத் தொழில்நுட்பம், கட்டிடப் பொருட்கள் மற்றும் சம்பவ ஆய்வுகளை புரிதல்	Understand
CO3	உலோக செயல்முறை, நாணயம் மற்றும் மணிகள் தயாரிப்பை தொல்பொருள் ஆதாரங்களுடன் விளக்கமாக அறிதல்	Understand
CO4	வேளாண்மை முறைகள், பாசனத் தொழில்நுட்பம் மற்றும் முத்துப் பிடித்தலை உணர்தல்	Understand
CO5	அறிவியல் தமிழ் மற்றும் தமிழ் கணினி அறிவை பயன்படுத்துதல்	Understand

CO PO MAPPING

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

Correlation Levels; 1.Slight (low) 2. Moderate (Medium) 3. Substantial (High)

SYLLABUS:

UNIT I நெசவுமற்றும்பாணைதொழில்நுட்பம் 3

சங்க காலத்தில் நெசவுத் தொழில் பாணை தொழில் நுட்பம்- கருப்பு சிவப்பு பாண்டங்கள் பாண்டங்களில் கீறல் குறியீடுகள்.

UNIT II மரபு-பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை- 3
சிற்பக்கலை

சங்க காலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் சங்க காலத்தில் வீட்டு பொருட்களில் வடிவமைப்பு சங்க காலத்தில் கட்டுமான பொருட்களும் நடுக்கல்லும் சிலப்பதிகாரத்தில் மேடைவடிவமைப்பு பற்றிய விவரங்கள் மாமல்லபுரம் கோவில்கள் சிற்பங்களும் கோவில்களும் சோழர் காலத்தில் சோழர் காலத்துப் பெருங் கோவில்கள் மற்றும் பிற வழிபாட்டுத் தலங்கள் நாயக்கர் கால கோவில்கள் மாதிரி கட்டமைப்புகள் பற்றி அறிதல் மீனாட்சியம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால் செட்டி நாட்டு வீடுகள் பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோசாராசெனிக் கட்டிடக்கலை.

UNIT III உற்பத்தித்தொழில்நுட்பம் 3

கப்பல் கட்டும் கலை -உலோகவியல் இரும்புதொழிற்சாலை - இரும்பு உருக்குதல் -எஃகு -வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள்- நாணயங்கள் அச்சடித்தல் -மணிஉருவாக்குதல் -தொழிற் சாலைகள்- கல்மணிகள் கண்ணாடி மணிகள் சுடுமண் மணிகள் சங்குமணிகள் - எலும்புதுண்டுகள் -தொல்லியல் சான்றுகள்-சிலப்பதிகாரத்தில் மணிகளின் வகைகள்

UNIT IV வேளாண்மை மற்றும்நீர் பாசன தொழில்நுட்பம் 3

அனை,ஏரி, குளங்கள், மதகு – சோழர் கால குமிழித்தூம்பின் முக்கியத்துவம்- கால்நடை பராமரிப்பு -கால் நடைகளுக்காக வடிவமைக்கப்பட்ட கிணறுகள்- வேளாண்மை மற்றும் வேளாண்மை சார்ந்த செயல்பாடுகள் – கடல் சார்ந்த அறிவு மீன்வளம் -முத்து மற்றும் முத்துகுளித்தல் -பெருங்கடல் குறித்து பண்ணைய - அறிவுசார் சமூகம்.

UNIT V அறிவியல் தமிழ் மற்றும் கணித தமிழ் 3

அறிவியல் தமிழின் வளர்ச்சி -கணித தமிழ் வளர்ச்சி - தமிழ் நூல்களை மின்பதிப்பு செய்தல்- தமிழ் மென் பொருட்கள் உருவாக்கம் – தமிழ் இணைய கல்விக் கழகம்- தமிழ் மின் நூலகம் – இணையத்தில் தமிழ் அகராதிகள்- சொற்குவைத் திட்டம்.

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Continuous Internal Assessments
Assessment 1 (100 Marks)
Total 100