



NEHRU INSTITUTE OF TECHNOLOGY

AN AUTONOMOUS INSTITUTION
COIMBATORE | TAMILNADU

COMPUTER AND COMMUNICATION ENGINEERING

Curriculum & Syllabi
2025 - 2029 Batch



Regulation 2023

Department of Computer and Communication Engineering



NEHRU INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

Recognized by UGC Under Section 2(f), Accredited by NAAC with A+

JAWAHAR GARDENS, KALIYAPURAM, COIMBATORE-641105



Vision and Mission of the Institution

Vision

- To be leading Institution in Academic excellence, Multidisciplinary Research, Innovation, Entrepreneurship and Industry relation in order to mould true citizens of the country

Mission

- To create innovative and vibrant young leaders in Engineering and Technology field for building India as a knowledge power by improving the teaching-learning process
- To enhance employability, entrepreneurship and to improve the research competence to address Societal needs.
- To generate engineering graduates who use knowledge as a powerful tool to drive societal transformation and inculcate in them ethical and moral values.



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Department of Computer and Communication Engineering

Vision

- To empower future engineers through excellence in Computer and Communication Engineering, fostering a smart, connected, and sustainable world.

Mission

- Provide quality education through Outcome-Based Education (OBE), enabling students to build strong foundations in Computer and Communication Engineering and apply Modern Engineering tools to solve real- world problems.
- Foster innovation, research, industry collaboration, entrepreneurship, and lifelong learning to prepare graduates for emerging technologies and professional excellence.
- Promote ethical values, leadership, and sustainable engineering practices to develop socially responsible professionals who contribute to technological advancement and societal well-being.



Program Outcomes (POs)

PO1. Engineering Knowledge: Apply knowledge of mathematics, science, engineering fundamentals, and engineering specialization to solve complex engineering problems.

PO2. Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems using engineering principles to arrive at appropriate conclusions.

PO3. Design and Development of Solutions: Design innovative solutions for complex engineering problems by considering technical, societal, environmental, economic, and safety requirements.

PO4. Conduct Investigations of Complex Problems: Apply research methods, experimental techniques, modeling, and data analysis to investigate complex engineering problems and draw valid conclusions.

PO5. Engineering Tool Usage: Select and apply appropriate modern engineering and information technology tools for modeling, analysis, design, and problem-solving, recognizing their capabilities and limitations.

PO6. The Engineer and the World: Apply contextual knowledge to evaluate the societal, cultural, legal, environmental, economic, health, safety, and sustainability aspects of engineering practice and its global impact.

PO7. Ethics: Apply ethical principles, professional responsibilities, and engineering standards while respecting human values, diversity, and applicable legal frameworks.

PO8. Individual and Collaborative Team Work: Function effectively as an individual and as a member or leader of diverse and multidisciplinary teams.

PO9. Communication: Communicate effectively with engineering and non-engineering audiences through technical reports, presentations, documentation, and professional interactions.

PO10. Project Management and Finance: Apply engineering management principles and financial practices to plan, execute, and manage projects in multidisciplinary environments.

PO11. Life-long Learning: Recognize the need for continuous learning and engage in independent lifelong learning to adapt to technological advancements and professional challenges.



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Program Specific Outcomes (PSOs)

PSO1: Apply computing principles, programming skills, and modern software tools to design intelligent, secure, and scalable solutions for real-world applications.

PSO2: Develop and integrate communication, networking, and embedded technologies to build efficient, reliable, and next-generation connected systems.

PSO3: Acquire technical competence, an innovative mindset, ethical values, and a commitment to lifelong learning to excel in industry, research, entrepreneurship, and higher education.

Program Educational Objectives (PEOs)

PEO1: Develop competent professionals with strong foundations in Computer and Communication Engineering to design innovative solutions using modern technologies.

PEO2: Prepare graduates for successful careers, higher education, research, and entrepreneurship through technical excellence, leadership, teamwork, and ethical practices.

PEO3: Encourage lifelong learning and continuous professional growth to adapt to emerging technologies and contribute to society through innovation.



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Department of Computer and Communication Engineering

BATCH 2025 - 2029

Semester 1								
S.No.	Course Code	Course Title	Course Category	No. of Hours / Week			TCP	Credit
				L	T	P		
1	U23IP101	Induction Program	MC	-	-	-	-	0
Theory								
1	U23MA102	Calculus for Engineers	BSC	3	1	0	4	4
2	U23CY102	Chemistry for Computer Science	BSC	3	0	0	3	3
3	U23CS101	C-Programming	ESC	3	0	0	3	3
4	U23HS102	Heritage of Tamil	HSMC	1	0	0	1	1
Theory with Lab Component								
5	U23EN102	Effective English for Engineers	HSMC	2	0	2	4	3
6	U23CS102	Introduction to Web Application	ESC	2	0	2	4	3
Practical								
7	U23CS111	C-Programming Lab	ESC	0	0	2	4	2
8	U23GE111	Engineering Practices Lab	ESC	0	0	2	4	2
9	U23EE101	Career Enhancement Training-I	EEC	3	0	0	3	1
10	U23VE10X	Vocational Enhancement Training I	VEC	0	0	2	2	1*
TOTAL				17	1	14	32	23



U23MA102	CALCULUS FOR ENGINEERS (Common to all Branches)		Category : BSC			
			L	T	P	C
			3	1	0	4
COURSE OBJECTIVE: The Student should be made: - To develop the use of matrix algebra techniques that is needed by engineers for practical applications. - To familiarize the students with differential calculus. - To enlighten the students with functions of several variables. This is needed in many branches of engineering. - To acquaint the knowledge of various techniques and methods of solving ordinary differential equations. - To acquaint the student with mathematical tools needed in evaluating multiple integrals and their applications.						
UNIT 1	MATRICES					9+3
Characteristic equation – Eigen values and Eigen vectors of a real matrix– Cayley – Hamilton theorem (Statement and applications only) – Orthogonal matrices – Diagonalization using orthogonal transformation of a symmetric matrix. Applications: Stretching of an elastic membrane.						
UNIT 2	DIFFERENTIAL CALCULUS					9+3
Limit of a function - Continuity - Derivatives - Differentiation rules (sum, product, quotient, chain rules) – Implicit differentiation. Applications: Maxima and Minima of functions of one variable.						
UNIT 3	MULTIVARIABLE CALCULUS					9+3
Functions of two variables – Partial derivatives – Taylor’s series for functions of two variables – Jacobian’s. Application: maxima and minima – Lagrange’s multiplier and its applications.						
UNIT 4	ORDINARY DIFFERENTIAL EQUATIONS					9+3
Linear differential equations of second order with constant coefficients - Linear differential Equations of second order with variable coefficients – Euler - Cauchy’s linear differential equation - Method of variation of parameters for second order differential equations						
UNIT 5	MULTIPLE INTEGRALS					9+3
Double integration with constant and variable limits - Region of integration- Area as double integral in Cartesian coordinates. Triple integral in Cartesian coordinates. Application: Moments and centres of mass, moment of inertia.						
Total: 60 Hours						



COURSE OUTCOMES:

At the end of the course, students would

- **CO1:** Comprehend the concepts of Eigen values, Eigen vectors, limits, continuity, functions of several variables, Characteristics of ODE, double integration and region of integration for solving complex problems
- **CO2:** Use the Cayley-Hamilton theorem and properties of diagonalizable symmetric matrices and apply differentiation rules, to solve problems involving maxima and minima.
- **CO3:** Develop various techniques in solving ordinary differential equations for practical applications
- **CO4:** Make use of differential and integral calculus tools in modeling problems
- **CO5:** Utilize integrals to compute areas and volumes of solids and solve real-world problems involving multiple integration.

TEXT BOOKS:

1. Grewal B.S., "Higher Engineering Mathematics", 44th Edition, Khanna Publishers, New Delhi, 2018.
2. Kreyszig E., "Advanced Engineering Mathematics", 10th Edition, John Wiley, New Delhi, India, 2018.
3. James Stewart, "Calculus : Early Transcendentals", Cengage Learning, 8th Edition, New Delhi, 2015.

REFERENCES:

1. Ramana B.V., "Higher Engineering Mathematics", Tata McGraw Hill Co. Ltd., New Delhi, 11th Reprint, 2010.
2. James. G. "Advanced Modern Engineering Mathematics", 4th Edition, Pearson Education, New Delhi, 2016
3. Bali. N.P and Manish Goyal, "A Textbook of Engineering Mathematics" 10th Edition, Laxmi Publications Pvt. Ltd., 2021.
4. Anton. H, Bivens I and Davis. S, "Calculus" Wiley, 10th Edition, 2016
5. Jain. R.K. and Iyengar. S.R.K., "Advanced Engineering Mathematics", Narosa Publications, New Delhi, 5th Edition, 2016.

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	3	3	3	1	1	-	-	-	-	-	-	-	3	3
CO2	3	3	1	-	-	-	-	-	-	-	-	-	3	3
CO3	3	3	2	-	1	-	-	-	-	-	-	-	-	-
CO4	3	3	3	-	-	-	-	-	-	-	-	-	-	-
CO5	3	3	2	1	-	-	-	-	-	-	-	-	-	-

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23CY102	CHEMISTRY FOR COMPUTER SCIENCE (B.E CSE & Computer and Communication)	Category : BSC			
		L	T	P	C
		3	0	0	3
COURSE OBJECTIVE: The Student should be made: • To introduce students to the field of chemo informatics, its key concepts, and the role it plays in modern chemistry • To study the role of polymers in computational systems, including the use of polymers in memory devices, sensors, and other computing applications. • Understand the basic concepts of electrochemistry and its applications. • Learn corrosion control and protective techniques. • Acquire the knowledge about the fuels and properties of energy storage devices					
UNIT 1	INTRODUCTION TO CHEMOINFORMATICS				9
History and evolution of chemoinformatics - Use of chemoinformatics - Prospects of chemoinformatics - Molecular Modelling and Structure elucidation - Different types of notations - SMILES coding, Matrix representations - Structure of molfiles and Sdfiles - Libraries and toolkits - Various physical and chemical structure descriptors.					
UNIT 2	APPLICATION OF POLYMER IN COMPUTERS				9
Introduction: Classification of polymers –Thermoplastic and Thermosetting - Types: Addition, condensation and copolymerization - Preparation, properties and uses of Nylon (6,6) - Engineering application of plastics PVC and PTFE - Polymers applications in computer chip technology - including use in memory and protective coatings - Protective coatings to shield chips from environmental factors and damage.					
UNIT 3	ELECTRO CHEMISTRY				9
Electrochemistry: Introduction - Cells - Representation of a galvanic cell - Reversible and irreversible cells - Electrode potential - Nernst equation - Reference electrode (Calomel electrode) - Electrochemical series and its applications – Battery: Introduction, Types of batteries - lead storage battery – H ₂ -O ₂ fuel cell applications.					
UNIT 4	CORROSION AND ITS CONTROL				9
Introduction - Chemical corrosion and Wet corrosion - Galvanic and differential aeration (Pitting, Crevice and Pipeline) - Factors influencing rate of corrosion - Corrosion- causes-factors- corrosion control - material selection and design aspects - electrochemical protection – sacrificial anode method and impressed current cathodic method.					
UNIT 5	FUELS AND COMBUSTION				9
Introduction - Classification of fuels - Requirements of a good fuel – Combustion: Principle of combustion - Calorific value - Gross and net calorific values - Explosive range - Spontaneous ignition temperature. Fuels: Solid fuels – Coal - Proximate analysis - Significance - Metallurgical coke - Otto-Hoffman byproduct oven method - Liquid fuel: Manufacture of synthetic petrol - Bergius method - Knocking - Octane number - Cetane number - Gaseous fuel: Liquefied petroleum gas (LPG), Compressed natural gas (CNG).					
Total: 45 Hours					



COURSE OUTCOMES:

At the end of the course, students would

- **CO1:** Students will be able to understand and apply the principles of chemoinformatics, including molecular structure representation and similarity measures, in real-world chemical problems.
- **CO2:** Students will be able to explain the importance of polymers in the design and development of modern computing devices, especially in areas like organic semiconductors and memory storage.
- **CO3:** Apply the principle of electrochemistry to construct cells and measure the electrode potential.
- **CO4:** Outline different types of corrosion and its treatment methods.
- **CO5:** Categorize the effective utilization of various energy sources and storage devices

TEXT BOOKS:

1. Johann Gasteiger and Frank W. S. W. (Eds.) Chemoinformatics: A Textbook Wiley-VCH (2003).
2. Jain P C and Monica Jain, "Engineering Chemistry", 17th Edition, Dhanpat Rai Publishing Co., 2018.
3. Sivasankar B., "Engineering Chemistry", Tata McGraw-Hill Publishing Company Ltd, New Delhi, 2017

REFERENCES:

1. Johann Gasteiger and Frank W. S. W. (Eds.), Chemoinformatics: A Textbook, Wiley-VCH (2003).
2. B. S. Murty, P. Shankar, Baldev Raj, B. B. Rath and James Murday, "Textbook of nanoscience and nanotechnology", Universities Press-IIM Series in Metallurgy and Materials Science, 2018.
3. O.G. Palanna, "Engineering Chemistry" McGraw Hill Education (India) Private Limited, 2017.
4. Friedrich Emich, "Engineering Chemistry", Scientific International Pvt, Ltd, New Delhi, 2017.
5. Shikha Agarwal, "Engineering Chemistry-Fundamentals and Applications", Cambridge University Press, New Delhi, Second Edition, 2019.

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	3	-	-	2	-	-	2	-	-	-	-	-	-	-
CO2	3	-	-	2	2	-	2	-	-	-	-	-	-	-
CO3	3	-	-	2	2	-	2	-	-	-	-	-	-	-
CO4	3	-	-	2	3	-	2	-	-	-	-	-	-	-
CO5	3	-	-	2	3	-	2	-	-	-	-	-	-	-

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23CS101	C-PROGRAMMING (Common to CSE & IT, Computer and Communication Engineering)		Category : ESC			
			L	T	P	C
			3	0	0	3
COURSE OBJECTIVE: <i>The Student should be made:</i> • To learn basic knowledge on computer hardware and software. • To learn simple algorithms for arithmetic and logical problems. • To translate the algorithms into modular, readable C program & execution in C language. • To decompose a problem into functions and synthesize a complete program using divide and conquer approach. • To develop a C program using C tokens, arrays, function, structures and files.						
UNIT 1	BASICS OF COMPUTING AND C PROGRAMMING					9
Introduction to Computer Systems: Hardware and Software - Computer Languages – Concept of compiler, interpreter - Algorithm – Flowchart - Representation of Algorithm and Flowchart with examples - Introduction to C – Features of C, Structure of C Program, Applications of C, Character Set, C Tokens: Keywords, Identifiers, Constants, Variables, Data types, Operators – Expressions.						
UNIT 2	C STATEMENTS AND PREPROCESSOR					9
Statements: Input / Output Statements - Assignment Statements - Decision Making Statements - Switch Statement - Looping Statements: while, do-while, for statements with examples - Unconditional statements - break, continue, goto statements with examples - Preprocessor Directives: Header file, Macro - Compilation Process.						
UNIT 3	ARRAYS AND STRINGS					9
Introduction To Arrays: Declaration, Initialization – One Dimensional Array – Two Dimensional Arrays – Matrix operation: addition, subtraction, multiplication and transpose – String - String Operations: Length, Compare, Concatenate, Copy.						
UNIT 4	FUNCTIONS AND POINTERS					9
Function: Function Call, Function Definition, Function Prototype, Built-In Functions: Standard Function, Math Functions, String Functions – Recursion – Storage classes – Pointers: Definition and Initialization – Parameter Passing: Pass By Value, Pass By Reference.						
UNIT 5	STRUCTURE, UNION AND FILE PROCESSING					9
Structure - Nested Structures – Self Referential Structures – Union - Files – Types of File: Binary File, Text File – File Operations - Types of File Processing: Sequential Access File - Random Access File – Command line Arguments						
Total: 45 Hours						



COURSE OUTCOMES:

At the end of the course, students would

- **CO1:** Demonstrate the basic knowledge of computer hardware, software and c basics.
- **CO2:** Utilize the knowledge on simple algorithms and flowchart for arithmetic and logical problems.
- **CO3:** Execute the C programs with correct syntax and logical errors.
- **CO4:** Apply solving and logical skills in C language using array and function.
- **CO5:** Implement problem solving skills using concept of Structure, pointers and files in C language.

TEXT BOOKS:

1. ReemaThareja, “Programming in C”, Oxford University Press, Second Edition, 2016.
2. Kernighan, B.W and Ritchie,D.M, “The C Programming language”, Second Edition, Pearson Education, 2015.

REFERENCES:

1. Paul Deitel and Harvey Deitel, “C How to Program with an Introduction to C++”, Eighth edition, Pearson Education, 2018.
2. Yashwant Kanetkar, Let us C, 17th Edition, BPB Publications, 2020.
3. Byron S. Gottfried, “Schaum’s Outline of Theory and Problems of Programming with C”, McGraw-Hill Education, 1996.
4. Pradip Dey, Manas Ghosh, “Computer Fundamentals and Programming in C”, Second Edition, Oxford University Press, 2013.
5. Anita Goel and Ajay Mittal, “Computer Fundamentals and Programming in C”, 1st Edition, Pearson Education, 2013.

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	1	1	1	1	1	-	-	-	1	1	1	1	2	1
CO2	1	1	1	1	1	-	-	-	2	2	1	1	2	1
CO3	2	3	2	1	1	-	-	-	2	2	3	3	1	2
CO4	3	2	2	1	2	-	-	-	2	2	3	3	1	2
CO5	2	3	3	1	1	-	-	-	2	2	3	3	1	2

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23HS101	HERITAGE OF TAMIL	Category : HSMC			
		L	T	P	C
		1	0	0	1
COURSE OBJECTIVE: The Student should be made: • To learn the extensive literature of classical Tamil • To review the fine arts heritage of Tamil culture • To realize the contribution in Indian freedom struggle					
UNIT 1	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 2	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, 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 3	FOLK AND MARTIAL ARTS				3
Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leather puppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.					
UNIT 4	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 5	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.					
Total: 15 Hours					



COURSE OUTCOMES:

At the end of the course, students would

- **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 thinaï concepts, trade and victory of Chola dynasty (understand)
- **CO5:** Understand the contribution of Tamils in Indian freedom struggle, self-esteem movement and Siddha medicine (understand)

TEXT BOOKS:

1. தமிழர்களும் தொழில்நுட்பமும். வி.கே. பதிப்பகம் (அறிவியல் மற்றும் பொறியியல் புத்தகங்களின் வெளியீட்டாளர்கள்)
2. தமிழகவரலாறும் கலையும் பண்பாடும் – கே. கே. பிள்ளை (வெளியீடு): தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகளகழகம்
3. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
4. கீழடி – வைகை நதிக்கரையில் சங்ககால நகரநாகரிகம் (தொல்லியல் துறை வெளியீடு).

REFERENCES:

1. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
2. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
3. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies)
4. 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)
5. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
6. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL).

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

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

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23EN102	EFFECTIVE ENGLISH FOR ENGINEERS	Category : HSMC			
		L	T	P	C
		2	0	2	3
COURSE OBJECTIVE: The Student should be made: - To enable learners of engineering and technology to develop their basic communication skills in English. - To acquire, command in both the respective skills (listening and reading) and the productive skills (writing and speaking) of the English language - To understand the key concepts of values, life skills and business communication, motivate students to look within and create a better version of themselves. - To focus on developing basic fluency in English, using vocabulary in the technical field, and strengthening reading and official written communication skills. - To use language efficiently in expressing their opinions via various media.					
UNIT 1	INTRODUCTION TO FUNDAMENTALS OF COMMUNICATION				9
Listening -Gap-Fill listening, introducing a classmate (Activity) Speaking - Making telephone calls, Self-Introduction. Reading - Reading brochures (technical context)- Social media messages relevant to technical contexts. Writing - Writing oneself, Writing Definition; Jumbled sentences. Grammar - Simple present tense, Present continuous, Present perfect, Present perfect continuous; Question types: Wh / Yes or No/ and Tags; One-word substitution.					
UNIT 2	NARRATION AND SUMMATION				9
Listening - Listening to documentaries, Interviews with celebrities. Speaking - Narrating personal experiences, Public speaking (Activity). Reading -Biographies, Newspaper reports. Writing - Paragraph writing, Report Writing (Project Survey Report). Grammar - Simple past tense, Past continuous, Past perfect, Past perfect continuous, Subject-Verb Agreement, Word forms (prefixes& suffixes), Error Correction..					
UNIT 3	DESCRIPTION OF PROCESS/PRODUCT				9
Listening - Listen to product and process description - product advertisements. (Activity). Speaking – Picture description, Instructions to use the product: explaining uses and purposes. Reading – Reading gadget reviews: finding key information from a given text. Writing – Instructions, Process description. Grammar - Simple future tense, Future continuous, Future perfect, Future perfect continuous, Adjectives: Degrees of comparison, Compound Words					
UNIT 4	CLASSIFICATION AND RECOMMENDATIONS				9
Listening –Listening to lectures & educational videos. Speaking – Small Talk: Discussing & making plans- Talking about tasks-talking about travel preparations. Reading –Reading articles (Activity), Data interpretation (Tables, pie chart and Bar chart). Writing –Memos to colleagues or friends, Recommendations. Grammar – Articles, Pronouns: Possessive & Relative pronouns, Cause and Effect					



UNIT 5	EXPRESSION	9
Listening – Listening to different accent, Listening to speeches or presentation- Speaking – Debates and Expressing opinions through Simulations, exchanging personal information - (Activity)- Reading – Reading editorials; Poster making (Activity)- Writing – Creative Writing, Checklist- Grammar – Punctuation; Compound Nouns, Homonyms; and Homophones, Simple, Compound & Complex Sentences.		
Total: 45 Hours		
COURSE OUTCOMES: At the end of the course, students would • CO1: Remember the meanings of commonly used words and phrases in academic and professional contexts. • CO2: Understand the basics of listening and interpret key ideas and supporting details from academic and professional audio content. • CO3: Understand the fundamental grammatical structures and use them to interpret the meaning and function of sentences in technical and academic contexts. • CO4: Apply descriptive, narrative, and expository writing and speaking techniques to communicate effectively on various real-life and academic topics. • CO5: Analyse the structure and organization of academic and professional texts to interpret meaning effectively through reading skills		
TEXT BOOKS: 1. English for Engineers & Technologists Orient Blackswan Private Ltd. Department of English, Anna University, (2020 edition). 2. English for Science & Technology Cambridge University Press, 2021. Authored by Dr. Veena Selvam, Dr. Sujatha Priyadarshini, Dr. Deepa Mary Francis, Dr. KN. Shoba, and Dr. Lourdes Jeevani, Department of English, Anna University.		
REFERENCES: 1. Technical Communication – Principles And Practices By Meenakshi Raman & Sangeeta Sharma, Oxford Univ. Press, 2016, New Delhi. 2. A Course Book on Technical English By Lakshmi Narayanan, Scitech Publications (India) Pvt. Ltd. 3. English For Technical Communication (With CD) By Aysha Viswamohan, McGraw Hill Education, ISBN : 0070264244. 4. Effective Communication Skill, Kulbhusan Kumar, R S Salaria, Khanna Publishing House. 5. Learning to Communicate – Dr. V. Chellammal, Allied Publishing House, New Delhi, 2003.		

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	1	-	-	-	-	-	1	-	2	3	-	-	-	-
CO2	1	-	-	-	-	-	1	-	3	3	-	-	-	-
CO3	1	-	-	-	-	-	1	-	3	3	-	-	-	-
CO4	1	-	-	-	-	-	2	-	3	3	-	-	-	-
CO5	1	-	-	-	-	-	2	-	3	3	-	-	-	-

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23CS102	INTRODUCTION TO WEB APPLICATION	Category : ESC			
		L	T	P	C
		2	0	2	3
COURSE OBJECTIVE: <i>The Student should be made:</i> • To introduce the fundamentals of the internet, the web, and web technologies. • To enable students to create static web pages using HTML elements for content structure and presentation. • To familiarize students with HTML tables, forms, and semantic structuring of content. • To teach the basics of XML for structured data representation and storage. • To introduce validation techniques in XML using DTD and the conceptual integration of XML with HTML					
UNIT 1	INTRODUCTION TO THE WEB AND INTERNET				6
Overview of Internet, WWW, and Web Browsers - Web Servers and Web Clients - URLs, Domain Names, and Hosting - HTTP, HTTPS Protocols - Difference between Website and Web Application - Introduction to Web Technologies (HTML, XML).					
UNIT 2	HTML – BASIC STRUCTURE AND CONTENT TAGS				6
Introduction to HTML and HTML5 Syntax - HTML Document Structure: <!DOCTYPE>, <html>, <head>, <body> - Text Formatting Tags: <h1>–<h6>, <p>, , <i>, <u>, , <hr> - Links: <a href>, Image Embedding: - Lists: Ordered and Unordered Lists.					
UNIT 3	HTML – TABLES, FORMS, AND SEMANTIC ELEMENTS				6
HTML Tables: <table>, <tr>, <td>, <th>, Table Attributes - HTML Forms: <form>, <input>, <textarea>, <select>, Radio and Checkbox - Form Submission (conceptual) - Semantic Tags: <section>, <header>, <footer>, <article>, <nav>.					
UNIT 4	XML – BASICS OF STRUCTURED DATA REPRESENTATION				6
Introduction to XML: Need and Applications - XML vs HTML: Key Differences - XML Syntax Rules: Tags, Nesting, Case Sensitivity - Elements and Attributes - Well-formed XML Documents - XML Namespaces (basic overview).					
UNIT 5	XML – VALIDATION AND HTML INTEGRATION CONCEPTS				6
Introduction to DTD (Document Type Definition) - Valid XML vs Well-formed XML - Displaying XML Content in HTML (Conceptual) - Real-life Applications of XML (Data Transfer, Configuration Files, etc.) - Case Study: Representing Student/Book Data in XML Format.					
Total: 30 Hours					
PRACTICAL EXERCISES: 1. Create a simple webpage with a title, headings, and paragraph tags. 2. Create a webpage with an image, internal link, and external hyperlink. 3. Design a web page showing a nested menu using lists. 4. Create a table showing student marks or course schedule. 5. Create a student registration form with different input types. 6. Create a basic multi-section webpage using semantic elements. 7. Write an XML file for a student record or book catalog. 8. Design an XML file for a library with multiple books and categories. 9. Create a DTD and validate an XML file using internal or external DTD. 10. Represent structured XML data for a form-based HTML page (conceptual).					
Total: 30 Hours					



COURSE OUTCOMES:

At the end of the course, students would

- **CO1:** Learn the basic working of the web, including browsers, servers, and protocols.
- **CO2:** Develop static web pages using basic HTML tags for text, images, and links.
- **CO3:** Design HTML pages using tables, forms, and semantic layout structures.
- **CO4:** Create well-formed XML documents with correct nesting, attributes, and elements.
- **CO5:** Validate XML documents using DTD and describe the integration with HTML.

TEXT BOOKS:

1. Uttam K. Roy, "Web Technologies: HTML, XML, ASP.NET, Servlets, JSP", Oxford University Press, 2nd Edition, 2021
2. Ramesh Bangia, "Web Programming and Internet Technologies", Firewall Media / Laxmi Publications, 2022 Revised Edition.
3. Achyut Godbole and Atul Kahate, "Introduction to Web Technologies: HTML, XML, PHP", McGraw Hill Education, 2nd Edition, 2022

REFERENCES:

1. Rob Larsen, "Beginning HTML and CSS", Wiley India, 2nd Edition, 2021.
2. Deborah Nolan and Duncan Temple Lang, "XML and Web Technologies for Data Sciences with R", Springer, Updated Reprint, 2022.
3. Steven Bright, "HTML and XML for Beginners", Independently Published, Latest Reprint, 2023.
4. Jamie Chan, "Learn XML in One Day and Learn It Well", Learn Coding Fast, Updated Print, 2023.

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	3	2	-	-	-	-	-	-	-	-	-	3	2	-
CO2	2	3	2	-	-	-	-	-	-	-	-	2	3	-
CO3	2	3	3	-	-	-	-	-	-	-	-	2	3	-
CO4	3	2	-	-	-	-	-	-	-	-	-	2	-	3
CO5	3	2	2	2	-	-	-	-	-	-	-	2	2	3

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation



U23CS111	C -PROGRAMMING LABORATORY	Category : ESC			
		L	T	P	C
		0	0	2	2
COURSE OBJECTIVE: <i>The Student should be made:</i> • To familiarize with algorithm and flowchart. • To develop programs in C using basic constructs. • To develop programs in C using arrays. • To develop applications in C using strings, pointers, functions. • To develop applications in C using structures. • To develop applications in C using file processing.					
LIST OF EXPERIMENTS: 1. Writing algorithms, flowcharts for simple problems 2. Programs on expressions and conversions in C language 3. Programs using operators in C language 4. Programs using if, if-else, switch and nested if statements in C language 5. Programs using while, do-while in C language 6. Programs using for loops in C language 7. Programs on one dimensional arrays, array operations in C language 8. Programs using two dimensional arrays in C language 9. Programs using string functions in C language 10. Programs using function, function calls in C language 11. Programs using call by value and call by reference in C language 12. Programs using structures in C language 13. Programs using unions in C language 14. Programs using pointers in C language 15. Programs on file operations in C language					
COURSE OUTCOMES: At the end of the course, students would • CO1: Demonstrate knowledge on algorithm and flowchart. • CO2: Develop programs in C using basic constructs. • CO3: Implement programs in C using arrays. • CO4: Develop applications in C using strings, pointers, functions. • CO5: Design applications in C using structures and union. • CO6: Develop applications in C using file processing					
TOTAL: 30 PERIODS					

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

[illegible]



U23CS111	ENGINEERING PRACTICES LABORATORY (Common for all the branches)	Category : ESC			
		L	T	P	C
		0	0	2	2
COURSE OBJECTIVE: <i>The Student should be made:</i> • 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 household 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 equipment's; Making a tray out of metal sheet using sheet metal work. • Wiring various electrical joints in common household electrical wire work. • Soldering and testing simple electronic circuits; Assembling and testing simple electronic components					
GROUP A (CIVIL & MECHANICAL) PART I CIVIL ENGINEERING PRACTICES LIST OF EXPERIMENTS: PLUMBING WORK: 1. Connecting various basic pipe fittings like valves, taps, coupling, unions, reducers, elbows and other components which are commonly used in household. 2. Preparing plumbing line sketches. 3. Basic pipe connections – Mixed pipe material connection – Pipe connections with different joining components. WOOD WORK: 4. Sawing, 5. Planning and 6. Making joints like T-Joint, Mortise joint and Tenon joint and Dovetail joint. PART II MECHANICAL ENGINEERING PRACTICES LIST OF EXPERIMENTS: WELDING WORK: 7. Welding of Butt Joints, Lap Joints, and Tee Joints using arc welding. 8. Practicing gas welding. BASIC MACHINING WORK: 9. (simple)Turning 10. (simple)Drilling. 11. (simple)Tapping					



MACHINE ASSEMBLY PRACTICE:

12. Study of centrifugal pump
13. Study of air conditioner

SHEET METAL WORK:

14. Making of a square tray

GROUP B (ELECTRICAL & ELECTRONICS)

PART I - ELECTRICAL ENGINEERING PRACTICES

LIST OF EXPERIMENTS:

1. Introduction to switches, fuses, indicators and lamps - Basic switch board wiring with lamp, fan and three pin sockets.
2. Staircase wiring.
3. Fluorescent Lamp wiring with introduction LED types.
4. Energy meter wiring and related calculations / calibration.
5. Study of Iron Box wiring and assembly.

PART II - ELECTRONIC ENGINEERING PRACTICES

LIST OF EXPERIMENTS:

6. Study of Electronic components and equipment's – Resistor, colour coding measurement of AC signal parameter (peak-peak, rms period, frequency) using CR.
7. Study of logic gates AND, OR, EX-OR and NOT.
8. Generation of Clock Signal.
9. Soldering simple electronic circuits and checking continuity.
10. Assembly and dismantle of LED TV.

COURSE OUTCOMES:

At the end of the course, students would

- **CO1:** Fabricate carpentry components and pipe connections including plumbing works.
- **CO2:** Use welding equipment to join the structures.
- **CO3:** Carry out the basic assembling and machining operations; Make the models using sheet metal works.
- **CO4:** Carry out basic home electrical works and appliances and to measure the electrical quantities.
- **CO5:** Soldering the simple electronic circuits; Assemble the simple electronic devices.

TOTAL: 60 PERIODS

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

[illegible]



U23EE101	CAREER ENHANCEMENT TRAINING - I (Common to all Branches)	Category : EEC			
		L	T	P	C
		3	0	0	1
COURSE OBJECTIVE: <i>The Student should be made:</i> - To improve mathematical and analytical abilities of students, particularly in the context of comprehending engineering concepts and making data-driven decision. - To develop critical thinking skills including problem solving, logic, patterns, and reasoning. - To Comprehend and appreciate mathematical terminologies and concepts in order to understand, interpret, and represent science and technology.					
UNIT 1	FUNDAMENTALS				6
Divisibility Test - Square root and Cube roots – HCF & LCM - problems on Numbers					
UNIT 2	ALGEBRA				5
Simplification – Surds & Indices – Linear & Quadratic Equations					
UNIT 3	BANKING ESSENTIALS				8
Average – Percentage – Profit & Loss – Simple Interest – Compound Interest					
UNIT 4	TIME AND EFFICIENCY				8
Time Speed Distance – Problems on Trains – Boats & Streams – Time & Work – Pipes & Cisterns					
UNIT 5	LOGICAL REASONING				3
Number & letter series – Analogy– Pattern classification – Coding & Decoding.					
Total: 30 Hours					
COURSE OUTCOMES: At the end of the course, students would CO1: Exhibit a clear understanding of fundamental concepts of aptitude for engineering. CO2: Demonstrate problem-solving skills and critical thinking abilities in the context of recruitment aptitude tests. CO3: To use appropriate strategies and shortcuts to improve speed and accuracy in solving aptitude problems during recruitment processes. CO4: Evaluate and interpret aptitude test results to identify areas of improvement and develop a personalized study plan for further enhancement.					
TEXT BOOKS: - The Pearson Guide to Quantitative Aptitude for Competitive Examinations, Dinesh Khattar. Pearson. - Quantitative Aptitude Dr. R.S. Aggarwal S. Chand Publication. - A modern Approach to Verbal and Non-Verbal Reasoning R.s. Aggarwal.					
REFERENCES: - Quantitative Aptitude for CAT, Arun Sharma. - Fast Track Objective Arithmetic, Rajesh Verma, Arihant Publication. - Wiley's Exam Expert Quantitative Ability for CAT, 2nd Edition, Ashu Jain.					



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JAWAHAR GARDENS, KALIYAPURAM, COIMBATORE-641105



4. Quantitative Aptitude Quantum CAT Common Admission Tests for Admission into IIMs, Sarvesh K. Verma.
5. Effective Communication Skill, Kulbhusan Kumar, R S Salaria, Khanna Publishing House.

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

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	-	-	-	-	-	-	-	-	-	-
CO2	3	2	1	3	-	-	-	-	-	-	-	-	-	-
CO3	3	1	1	2	-	-	-	-	-	-	-	-	-	-
CO4	1	1	1	1	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation

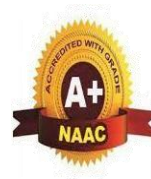


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PCB design and Assembly

Course Code: U23VE105

Credits:1

Objectives of the Program

- Introducing PCB fundamentals
- Provide hands-on design exposure
- Train in PCB assembly and soldering
- Develop testing and troubleshooting skills

Syllabus

UNIT 1 – Fundamentals

1.5 Hours

- Introduction to PCB and applications
- Types of PCB (Single, Double layer)
- Electronic components overview (R, C, Diode, IC)

UNIT 2 – Schematic Design

2 Hours

- Introduction to PCB software (KiCad)
- Creating simple circuit schematic (LED/Power supply)
- ERC check

UNIT 3 – PCB Layout

1.5 Hours

- Footprint assignment
- Component placement
- Basic routing
- Generating Gerber files

UNIT 4 – PCB Assembly**1.5 Hours**

- Introduction to soldering tools
- Demonstration of soldering
- Hands-on: Component placement and soldering

UNIT 5 – Testing & Demo**1 Hour**

- Continuity testing using multimeter
- Debugging common errors
- Final circuit testing

Course Outcomes (COs)

CO CODE	Course Outcomes		Bloom's Level	
C01	<i>Explain</i> PCB concepts, types, and components		Understand (L2)	
C02	<i>Develop</i> circuit schematics using PCB design tools		Apply (L3)	
C03	<i>Design</i> PCB layouts by applying routing and layout rules		Create (L6)	
C04	<i>Perform</i> PCB assembly using appropriate soldering techniques		Apply (L3)	
C05	<i>Test and troubleshoot</i> PCB circuits to identify and rectify faults		Analyze (L4)	

COs	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011
C01	3	2	-	-	-	-	-	-	1	-	-
C02	3	3	2	-	2	-	-	-	1	-	-
C03	3	3	3	2	2	-	-	-	1	-	-
C04	2	2	3	2	1	-	-	2	1	-	-
C05	3	3	2	3	2	-	-	1	1	-	2

U23PH206 SDG: 9	PHYSICS FOR INFORMATION SCIENCE (B.E CSE,CCE& B.Tech IT)	Category:BSC			
		L	T	P	C
		3	0	0	3
COURSE OBJECTIVES:					
<i>The course aims</i> 1. To make the students understand the importance in studying electrical properties of materials. 2. To enable the students to gain knowledge in semiconductor physics. 3. To make the students to learn the origin of magnetism in magnetic materials, classifications and its applications. 4. To make the students to learn the mechanisms of polarization in dielectric materials, and about classification and properties of dielectric materials; familiarize with the optical data storage techniques. 5. To inculcate an idea of significance of Nano structures, quantum confinement, ensuring Nano materials preparation and applications.					
UNIT 1	ELECTRICAL PROPERTIES OF MATERIALS				9
Introduction – Classical free electron theory – Band Theory: Conduction band and valence band –Expressions for Electrical and Thermal conductivity – Wiedemann-Franz law – Lorentz Number – Quantum free electron theory – Fermi distribution function – Effect of temperature on Fermi function - Density of energy states – Carrier concentration in metals.					
UNIT 2	SEMICONDUCTOR PHYSICS				9
Introduction to Semiconductors – Elemental and Compound semiconductors – Intrinsic semiconductor – Carrier concentration derivation – Fermi level – Variation of Fermi level with temperature – Extrinsic semiconductor – Variation of Fermi level with temperature and Impurity concentration – Hall effect: Determination of Hall coefficient – Experimental Verification – Applications.					
UNIT 3	MAGNETIC PROPERTIES OF MATERIALS				9
Origin of magnetic moment – Bohr Magneton – Comparison of Dia, Para and Ferro magnetism, Antiferro magnetic materials and Ferrites – Ferro magnetic Domains - Domain theory of Ferromagnetism – Hysteresis – Soft and Hard magnetic materials –Energy Production – Magnetic Principle in computer data storage - Magnetic Storage Devices – GMR effect – Magnetic Disks, MRAM, HDD's.					
UNIT 4	DIELECTRIC AND OPTICAL PROPERTIES OF MATERIALS				9
Introduction to Dielectric materials – Dielectric constant – Electronic, Ionic, Orientational and Space charge polarization – Frequency and temperature dependence of polarization – Internal field – Claussius-Mosotti relation (derivation) – Dielectric loss – Optical data storage techniques - Data storage in CD/DVD's-Holography.					
UNIT 5	NANO DEVICES				9
Introduction - Quantum confinement – Quantum structures: quantum wells, wires and dots - Band gap of nanomaterials - Classification of nanomaterials - Preparation of nanomaterials - Ball Milling, Sol-Gel - Properties and Applications – Carbon nanotubes: Types and Applications – Graphene – role in nanoelectronics, Displays and Memory devices.					



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Subject code & Title : U23HS202 - தமிழரும் தொழில்நுட்பமும்
Programme : B.E / B.Tech All Branches
Academic Year : 2025-2026 **Class**: First Year **Regulation**: R2023

Periods: L T P C
Credit : 1 0 0 1
Semester: II

COURSE OBJECTIVES: The course aims to

1. To learn the extensive Weaving Industry during Sangam Age Tamil
2. To review the fine MANUFACTURING TECHNOLOGY culture
3. To realize the SCIENTIFIC TAMIL TAMIL COMPUTING

அலகு	தமிழரும் தொழில் நுட்பமும்	பாடவேளைகள்
1	நெசவு மற்றும் பாணைத் தொழில்நுட்பம்	3
	சங்ககாலத்தில் நெசவுத்தொழில் பாணைத் தொழில்நுட்பம், கருப்பு சிவப்பு பாண்டங்கள் - பாண்டங்களில் கீறல்குறியீடுகள்	
2	வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம்	3
	சங்ககாலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் சங்ககாலத்தில் வீட்டுப்பொருட்களில் வடிவமைப்பு- சங்ககாலத்தில் கட்டுமான பொருட்களும் நடுகல்லும் - சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள். மாமல்ல புரட்சிற்பங்களும், கோவில்களும் - சோழர்காலத்துப் பெருங்கோவில்கள் மற்றும் பிற வழிப்பாட்டுத்தலங்கள் - நாயக்கர் காலக்கோயில்கள் மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலைநாயக்கர் மஹால் - செட்டி நாட்டு வீடுகள்- பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோ சாரோசெனிக்கட்டிடக்கலை.	
3	உற்பத்தித் தொழில் நுட்பம்	3
	கப்பல் கட்டும் கலை - உலோகவியல் - இரும்புத்தொழிற்சாலை - இரும்பை உருக்குதல், எஃகு - வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள் - நாணயங்கள் அச்சடித்தல் - மணி உருவாக்கும் தொழிற்சாலைகள் கல்மணிகள், கண்ணாடி மணிகள் - சருமம் மணிகள் -சங்குமணிகள் - எலும்புத்துண்டுகள் - தொல்லியல் சான்றுகள் - சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.	
4	வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்பம்	3



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TOTAL: 15 PERIODS

TEXTBOOKS:	
1	தமிழர்களும் தொழில்நுட்பமும். வி.கே. பதிப்பகம் (அறிவியல் மற்றும் பொறியியல் புத்தகங்களின் வெளியீட்டாளர்கள்)
2.	தமிழக வரலாறு மக்களும் பண்பாடும் – கே. கே. பிள்ளை (வெளியீடு): தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்
3.	கணிணித்தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
4.	கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு).
5	பொருதை ஆற்றங்கரை நாகரிகம் (தமிழ்நாடு தொல்லியல் துறை வெளியீடு)

REFERENCE BOOKS:	
1.	Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
2.	<i>Social Life of the Tamils – The Classical Period</i> – Dr. S. Singaravelu (International Institute of Tamil Studies)
3.	Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
4.	The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies)
5.	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)
6.	<i>Studies in the History of India with Special Reference to Tamil Nadu</i> – Dr. K. K. Pillay (Published by the Author)
7.	Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
8.	Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

COURSE OUTCOMES

At the end of the course student have ability to	
CO1	Remember the weaving industry during sangam age,
CO2	Remember the Designing and Structural construction House & Designs in household materials during Sangam Age, ,Building,ThirumalaiNayakar Mahal - Chetti Nadu Houses, Indo - Saracenic

U23CS201 SDG: 4	PYTHON PROGRAMMING AND PRACTICES (Common to CSE, IT, CCE)	Category: ESC			
		L	T	P	C
		3	0	0	3
COURSEOBJECTIVE: 1. To understand and develop programs using Python. 2. To use the concepts of strings, control flow, data types in python programs. 3. To create programs using list, tuples, dictionaries, and files concept in Python. 4. To analyze image processing, networking and object-oriented programming in Python. 5. To create new ideas for problems in real world application using python.					
UNIT 1	INTRODUCTION TO PYTHON PROGRAMMING				6
Introduction to Python Programming- Python Interpreter and Interactive Mode -Variables- Numerical types- Arithmetic operators and Expressions- PsuedoCode - Values and types: int, float, Boolean - Variables, Expressions, Statements -Illustrative Problems.					
UNIT 2	DATA TYPES, CONTROL FLOW, STRINGS				7
Control Flow -conditional (if), Alternative (if-else), Chained conditional (if-elif-else)- Iteration: state, while, for, break, continue, pass - Strings: string slices, immutability, string functions and methods, string module, Regular expression, Pattern matching . - Illustrative Problems.					
UNIT 3	LISTS, TUPLES DICTIONARIES AND FUNCTIONS				10
Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters- Tuples: tuple assignment, tuple as return value- Dictionaries: operations and methods, advanced list processing – list comprehension. Functions and User Defined Functions: Simple and Mathematical Built-in Functions, Recursion -Illustrative Problems					
UNIT 4	FILES AND OOPS CONCEPT IN PYTHON				11
Files, Text files, reading and writing files-format operator; Files and exception handling -Introduction to Object Oriented Programming – Basic principles of Object Oriented Programming in Python – Class definition-Object Creation - Inheritance, Composition, Operator Overloading.					
UNIT 5	IMAGE PROCESSING & NETWORKING WITH PYTHON AND APPLICATIONS				11
Basics of Image processing- Image File Formats – Introduction to Classic Image Processing Algorithm- Image Processing Tools-Fundamentals of Networking- Introduction to Python Sockets- Simple Client/Server Programming-Python Applications.					
TOTAL:45 PERIODS					
LIST OF EXPERIMENTS					
1. Simple programs to execute the concept of python for editing, saving and handling error message. 2. Python program using Statements and Expressions (exchange the values of two variables, circulate the values of n variables, distance between two points). 3. Scientific problems using Conditionals and Iterative loops (Number series, Number patterns, pyramid pattern). 4. Programs for functions using python (Factorial, larger number in a list). 5. Implementing programs using regular expressions. 6. Program for implementing strings (reverse, palindrome). 7. Implementing real time application using List, Tuples (Items present in library, operations of list and					

U23MA204 SDG:9	PROBABILITY THEORY AND STATISTICS	Category: BSC			
		L	T	P	C
		3	1	0	4
COURSE OBJECTIVE: - To develop a fundamental understanding of probability theory. - To acquire the basic concept of discrete and continuous random variables. - To equip students with the necessary skills to apply statistical tools in engineering problems. - To understand the theory of hypothesis testing for both small and large samples, which is essential for solving real-life problems. - To introduce the basic concepts and classifications of the design of experiments, which play a crucial role in statistical quality control.					
UNIT	BASICS OF PROBABILITY				9 +3
Probability –Axioms of probability – Conditional probability- Equally Likely - Mutually Exclusive events - Law of Total Probability – Baye’s theorem.					
UNIT	RANDOM VARIABLES				9 +3
Random Variables – Discrete and Continuous random variables – Probability Mass functions – Mean and Variance. Application of Random Variables in Data Handling in Engineering Filed					
UNIT	CORRELATION AND LINEAR REGRESSIONREGRESSION				9 +3
Correlation – Karl Pearson’s correlation coefficients – Spearman’s Rank Correlation – Regression – Estimation of Regression line – Application: Measuring the influences between factors- Estimation of association among the variables.					
UNIT	HYPOTHESIS TESTING				9 +3
Large and Small sample tests: Student t-test - Single mean and difference of two means – F Test for Variance - Chi square test for goodness of fit. Application: Performance analysis- Comparative analysis – Quality testing					
UNIT 5	DESIGN OF EXPERIMENTS				9 +3
Analysis of Variance: One way and two-way classifications - Completely randomized design – Randomized block design. Application: Response Surface Methodology.					

COURSE OBJECTIVES:

1.	To engage learners in meaningful language activities to improve their LSRW skills.
2.	To identify personality traits and evolve as a better team player
3.	To develop analytical thinking skills for problem-solving in communicative contexts
4.	To demonstrate an understanding of job applications and interviews for internships and placements
5.	To identify varied group discussion skills and apply them to take part in effective discussions in a professional context

**UNIT
1**

MAKING COMPARISONS

Listening – Listening to informal conversations (Activity)
 Speaking – Role Play - talking about experiences- talking about events in life- discussing past events
 Reading - Reading advertisements, Extensive Reading (Activity)
 Writing – Reading Comprehension, Writing a review/ summary of story/article.
 Grammar – Active voice & Passive voice, Prepositional phrases

6

**UNIT
2**

EXPRESSING CASUAL RELATIONS IN SPEAKING AND WRITING

Listening - Listening to longer technical speech, Listening to situation-based dialogues
 Speaking – discussing news stories -talking about travel problems and procedures
 Reading - Reading longer technical texts, Reading a short story
 Writing - Personal letter (Inviting your friend), Congratulating letter, Writing responses to complaints and adjustment letter
 Grammar - Infinitive and Gerunds, Modals

6

**UNIT
3**

PROBLEM-SOLVING

Listening – Listening to movie scenes/ documentaries depicting a technical problem and suggesting solutions (Activity).
 Speaking – Conversation skills with a sense of stress, intonation, pronunciation, Welcome address - vote of thanks
 Reading - Case Studies, news reports, reading passages with a time limit
 Writing – Letter to the Editor, Short report on an event (field trip)
 Grammar – If conditional sentence, Phrasal Verbs

6

**UNIT
4**

REPORTING OF EVENTS AND RESEARCH

Listening – Listening Comprehension based on news reports
 Speaking – Presenting an oral report, Talking about the past, present and future (Activity)
 Reading – Newspaper articles; Reading the job advertisements and the profile of the company
 Writing – Essay writing and its types (Compare & Contrast, Cause & Effect, Problem & Solution)
 Grammar – Reported Speech, Conjunctions

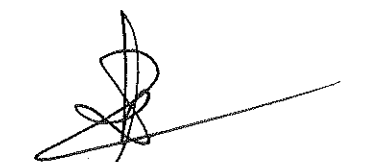
6

REFERENCE BOOKS:

1. Jack C. Richards, "Interchange, Student's Book", 4th Edition, Cambridge University Press, New York, 2017.
2. Business Correspondence and Report Writing by Prof. R.C. Sharma & Krishna Mohan, Tata McGraw Hill & Co. Ltd., 2001, New Delhi
3. Muralikrishna & Sunitha Mishra, Communication Skills for Engineers and Scientists, PH Learning, new Delhi, 2009.
4. Developing Communication Skills by Krishna Mohan, Meera Bannerji-Macmillan India Ltd. 1990, Delhi.
5. Shalini Varma, "Development of Life Skills and Professional Practice", 1st Edition, Vikas Publishing House Pvt. Ltd., 2014

CO's-PO's & PSO's MAPPING														
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PS O1	PS O2	PS O3
CO1	-	-	-	-	-		1	2	2		2	-	-	-
CO2	-	-	-	-	-		1	2	2		2	-	-	-
CO3	-	-	-	-	-		2	3	3		3	-	-	-
CO4	-	-	-	-	-		3	2	3		2	-	-	-
CO5	-	-	-	-	-		2	2	3		3	-	-	-
Correlation levels: 1 – low 2 – medium 3 – high “-“ - no correlation														


 HOD / CCE


 HEAD - ACADEMICS

U23CC201 SDG: 12	ELECTRONIC DEVICES	Category:PCC			
		L	T	P	C
		3	0	2	4
COURSE OBJECTIVES: 1. To provide fundamental knowledge of semiconductor devices and their operating principles. 2. To enable analysis of diode, BJT, and MOSFET characteristics through simulation and theory. 3. To familiarize students with device modeling techniques for small-signal and large-signal analysis. 4. To develop the ability to design and evaluate basic rectifier, amplifier, and regulator circuits. 5. To build LT spice-based simulation skills for understanding and verifying semiconductor device behavior.					
UNIT I	SEMICONDUCTOR DIODE				9
PN junction diode, Current equations, Energy Band diagram, Diffusion and drift current densities, forward and reverse bias characteristics, Transition and Diffusion Capacitances, Switching Characteristics, Breakdown in PN Junction Diodes.					
UNIT 2	BIPOLAR JUNCTION TRANSISTORS				9
NPN -PNP -Operations-Early effect-Current equations – Input and Output characteristics of CE, CB, CC - Hybrid - π model - h-parameter model, Ebers Moll Model- GummelPoon- model, Multi Emitter Transistor.					
UNIT 3	FIELD EFFECT TRANSISTORS				9
MOSFETs – Drain and Transfer characteristics,-Current equations-Pinch off voltage and its significance-Threshold voltage -Channel length modulation, small signal Characteristics, DMOSFET, E-MOSFET-Characteristics – Comparison of MOSFET with BJT.					
UNIT 4	SPECIAL SEMICONDUCTOR DEVICES				9
Metal-Semiconductor Junction - MESFET, FINFET, PINFET, CNTFET, DUAL GATE MOSFET, Point Contact Diode, p-i-n Diode, Avalanche Photodiode, Schottky barrier diode- Zener diode, Varactor diode – Tunnel diode- Gallium Arsenide device, LASER diode, LDR.					
UNIT 5	POWER DEVICES AND DISPLAY DEVICES				9
UJT, Thyristor - SCR, DIAC, TRIAC, Power BJT- Power MOSFET- DMOS-VMOS. LED, LCD, Opto Coupler, Solar cell, CCD.					
TOTAL:45 PERIODS					
LIST OF EXPERIMENTS 1. Characteristics of PN Junction Diode. 2. Half wave and Full wave rectifier with capacitor filter. 3. Input & Output Characteristics of BJT. 4. Small-Signal CE Amplifier Gain Using AC Analysis 5. MOSFET Drain current and Transfer Characteristics 6. Voltage regulation using Zener diode 7. Characteristics of BJT 8. Characteristics of UJT 9. Study of characteristics of SCR 10. Study of Characteristics of DIAC					
TOTAL:30 PERIODS					

U23BS111

BASIC SCIENCE LABORATORY

Category : BSC

SDG: 4 & 9

L	T	P	C
0	0	4	2

COURSE OBJECTIVE:

1. Learn the proper use of various kinds of physics laboratory equipment's
2. Understand how data can be collected, presented and interpreted in a clear and crisp manner.
3. Learn the problem solving skills related to physics principles and interpretation of experimental data.
4. Make the student to acquire practical skills in the determination of water quality parameters through volumetric analysis.
5. Develop the ability to explain the processes and to determine the amount of metal ion and strength of acids by instrumental analysis.

PHYSICS - LIST OF EXPERIMENTS (Any 5 Experiments)

1. Determination of rigidity modulus – Torsion pendulum
2. Determination of Young's modulus - Non uniform bending method.
3. Determination of Young's modulus - Uniform bending method.
4. Determination of thickness of a thin wire – Air wedge method.
5. Determination of the wavelength of the laser using grating .
6. Determination of Numerical Aperture and acceptance angle using Optical fibre.
7. Determination of velocity of sound and compressibility of liquid – Ultrasonic interferometer.
8. Determination of thermal conductivity of a bad conductor – Lee's Disc method.
9. Melde's string experiment.
10. Determination of Band gap of a semiconductor.

CHEMISTRY- LIST OF EXPERIMENTS (Any 5 Experiments)

1. Estimation of total, temporary and permanent hardness of water by EDTA method.
2. Estimation of alkalinity of the given water sample.
3. Determination of chloride content of water sample by Argentometric method.
4. Determination of strength of given hydrochloride acid using pH meter
5. Determination of DO content of water sample by Winkler's method.
6. Conduct metric titration strong acid Vs Strong Base.
7. Estimation of BOD of the given water sample.
8. Estimation of iron content of the given solution using potentiometer.
9. Estimation of Iron content by spectrophotometer.
10. Estimation of sodium present in water using flame photometer.

U23CS211	PYTHON PROGRAMMING LAB (Common to CSE & IT)	Category: ESC			
		L	T	P	C
		0	0	2	1
COURSEOBJECTIVE: 1. To understand and develop programs using Python. 2. To use the concepts of strings, control flow, data types in python programs. 3. To create programs using list, tuples, dictionaries, and files concept in Python. 4. To analyze image processing, networking and object-oriented programming in Python. 5. To create new ideas for problems in real world application using python.					
LIST OF EXPERIMENTS 1. Simple programs to execute the concept of python for editing, saving and handling error message. 2. Python program using Statements and Expressions (exchange the values of two variables, circulate the values of n variables, distance between two points). 3. Scientific problems using Conditionals and Iterative loops (Number series, Number patterns, pyramid pattern). 4. Programs for functions using python (Factorial, larger number in a list). 5. Implementing programs using regular expressions. 6. Program for implementing strings (reverse, palindrome). 7. Implementingreal time application using List, Tuples (Items present in library, operations of list and tuples). 8. Python programs for real time using file handling (Coping from one file to another, word count, longest word) 9. Python program using image processing, networking. 10. Python program using Oops concept. 11. Mini Project					
COURSE OUTCOMES: At the end of the course, students would CO1: Explain the concepts of Python. CO2: Use appropriate constructs to represent data. CO3: Write programs using different constructs in Python. CO4: Develop real world applications in image processing and networking. CO5: Develop various simple programs for real world application using python.					
TOTAL:30 PERIODS					

U23EE212

SDG:17

**CAREER ENHANCEMENT
TRAINING II**

Category:EEC

L	T	P	C
2	0	0	1

COURSE OBJECTIVE:

1. To help students demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions.
2. To enable students critically evaluate various real-life situations by resorting to an analysis of key issues and factors.
3. To help them improve their communicative English for Interview and corporate readiness.

UNIT 1	NUMERICAL REASONING	6
ProblemsonAges–ArithmeticReasoning–Ratio&Proportion–Alligation&Mixtures		
UNIT 2	GEOMETRY & SHAPES	6
Mensuration2D–Mensuration3D–Height–Distance–Perimeter–Area–Volume		
UNIT 3	COMBINATIONS & CALENDARS	6
PermutationandCombination–Probability–CircularPermutation–ClocksandCalendars		
UNIT 4	CLASSIC REASONING	6
Blood Relation–Direction Sense–Seating Arrangement–Syllogism–Statement & Conclusion		
UNIT 5	VERBAL APTITUDE	6
Synonyms Antonyms–Spotting Error–Sentence Correction–Change of Voice–Change of Speech– Spelling–Reading Comprehension–Select Words–Closet Test.		

COURSE OUTCOMES:

At the end of the course, students would

CO1: Demonstrate problem-solving skills and critical thinking abilities in the context of Engineering Aptitude.

CO2: To use appropriate strategies and short cuts to improve speed and accuracy in solving aptitude problems during recruitment processes.

CO3: Evaluate and interpret aptitude test results to identify areas of improvement and develop a personalized study plan for further enhancement.

CO4: Use the correct Grammar, Vocabulary, Spelling and Comprehension ensuring the enhancement their language skills and the ability to use the skills for effective Communication

TOTAL:30 PERIODS

TEXT BOOKS:

1. The Pearson Guide to Quantitative Aptitude For Competitive Examinations, Dinesh Khattar. Pearson
2. Quantitative Aptitude Dr.R.S.Aggarwal S.Chand Publication
3. A modern Approach to Verbal and Non-Verbal Reasoning R.s.Aggarwal



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U23VECx2
SDG:4

OPERATING SYSTEM AND MAINTENANCE

L T P C
0 0 2 1

UNIT 1 Basics of Computers and Operating Systems 3

Introduction to Computers, Role of Operating System, Types of Operating Systems (Windows, Linux, Mobile OS), Basic User Interface and Navigation

UNIT 2 Working with Operating Systems 3

File and Folder Management, Basic Commands and Settings, Installing and Uninstalling Software, Using Control Panel / System Settings

UNIT 3 Hardware and Device Management 3

Basic Computer Hardware Components, Device Drivers and Peripheral Devices, Disk Management and Storage Basics, Connecting External Devices

UNIT 4 System Maintenance and Troubleshooting 3

System Updates and Antivirus, Common System Problems and Fixes, Disk Cleanup and Optimization, Backup and Restore Basics

UNIT 5 Safety, Security and Good Practices 4

User Accounts and Password Management, Basic Cyber Safety, Safe Internet Practices, Preventive Maintenance and System Care

TOTAL: 16 PERIODS