

E.G.S. PILLAY ENGINEERING COLLEGE, (Autonomous)

Approved by AICTE, New Delhi

Affiliated to Anna University, Chennai | Accredited by NAAC with 'A++' Grade

Accredited by NBA (B.Tech-IT, B.E-CSE and ECE)(Tier-1)

NAGAPATTINAM – 611002



B.E - Civil Engineering

R-2023

CURRICULUM FOR FIRST YEAR

COURSE CODE	COURSE NAME	CATEGORY	L	T	P	C	MAX. MARKS		
							CA	ES	TOTAL
2301IP101	Induction Program	-	0	0	0	0	0	0	
2301MA103	Engineering Mathematics – I	BSC	3	2	0	4	40	60	100
2301PH102	Applied Physics for Mechanical and Civil Engineers	BSC	3	0	2	4	50	50	100
2301CH102	Water Technology and Green Chemistry	BSC	3	0	2	4	50	50	100
2301GEX03	Problem Solving using C	ESC	2	0	4	4	50	50	100
2301ENX01	Professional English	HSMC	2	0	2	3	50	50	100
2301TA101	Tamil and Technology	HSMC	1	0	0	1	100	0	100
2301GEX52	Engineering Practices Laboratory	ESC	0	0	4	2	60	40	100
2301LS101	Life Skill Activity – I	-	0	0	0	0	100	0	100
TOTAL			14	2	14	22	500	300	800

2301ENX01	PROFESSIONAL ENGLISH Common to B.E /B.Tech Programmes (AI&DS, CIVIL,BME,CSE,ECE,EEE,IT,MECH)				L	T	P	C				
					2	0	2	3				
PREREQUISITE: 1. Basic English Knowledge												
COURSE OBJECTIVES:												
1.	To improve the communicative competence of learners.											
2.	To learn to use basic grammatical structures in suitable contexts.											
3.	To acquire lexical competence and use them appropriately in a sentence and understand their meaning in a text.											
4.	To help learners use language effectively in professional contexts.											
5.	To develop learners’ ability to read and write complex texts, summaries, articles, blogs, definitions, essays and user manuals.											
6.	To use language efficiently in expressing their opinions											
7.	To develop various listening strategies to comprehend various types of audio materials like lectures, discussions, videos etc.											
8.	To develop talent, facilitate employability enabling the incumbent to excel and sustain in a highly competitive world of business.											
COURSE OUTCOMES:												
On the successful completion of the course, students will be able to												
CO1:	Use appropriate words in a professional context.											
CO2:	Understand the basic grammatical structures and use them in right context.											
CO3:	Read and infer the denotative and connotative meanings of technical texts											
CO4:	Read and interpret information presented in tables, charts and other graphic forms.											
CO5:	Write definitions, descriptions, narrations and essays on various topics.											
CO6:	Listen to and comprehend general as well as complex academic and non-academic information.											
CO7:	Speak fluently and accurately in formal and informal communicative contexts.											
CO8:	Understand, analyse develop and exhibit accurate sense of self.											
COs Vs POs MAPPING:												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										3		
CO2										3		
CO3										3		
CO4										3		
CO5										3		
COs Vs PSOs MAPPING												
COs	PSO1	PSO2	PSO3									
CO1	-	-	-									
CO2	-	-	-									
CO3	-	-	-									
CO4	-	-	-									
CO5	-	-	-									

MODULE I	FUNDAMENTALS OF COMMUNICATION	6 Hours
Reading - Reading brochures (technical context)/ user manuals/, telephone messages / social media messages relevant to technical contexts and emails. Writing - Professional emails etiquette, emails / letters (seeking permission for Industrial visit& Complain letter)Grammar - Present Tense (simple and progressive); Question types: Why/ Yes or No/ and Tags. Vocabulary - Word forms (prefixes& suffixes); Synonyms and Antonyms, Punctuation.		
MODULE II	NARRATION AND SUMMATION	6 Hours
Reading - Reading longer technical texts (Reading biographies/travelogues/newspaper reports/ travel & technical blogs). Writing - Paragraph writing Short Report on an event (field trip etc.), emails / letters (Writing responses to complaints). Grammar –Past tense (simple); Subject-Verb Agreement. Vocabulary –Preposition, Pre positional Phrases Phrasal verbs.		
MODULE III	DESCRIPTION OF A PROCESS / PRODUCT	6 Hours
Reading – Reading advertisements, gadget reviews. Writing – instructions, Checklists, Report Writing (Accident Report & Survey Report (IV)). Grammar –Present & Past Perfect Tenses, Voices (Active,Passive & Impersonal Passive Voice); Vocabulary –Collocations, Homonyms; and Homophones.		
MODULE IV	CLASSIFICATION AND RECOMMENDATIONS	6 Hours
Reading – Newspaper articles; Journal reports –and Non Verbal Communication (tables, pie charts etc.); Writing- Job / Internship application – Cover letter & Resume ,recommendations. Grammar – Articles, Adjectives of Comparison, If conditional sentences-Vocabulary – Conjunctions, discourse markers (connectives & sequence words).		
MODULE V	EXPRESSION	6 Hours
Reading – Company profiles, standard operating procedure (SOP)/ an excerpt of interview with professionals. Writing – Essay Writing (Descriptive or narrative), Grammar – Future Tenses, Numerical adjectives, Relative Clauses. Vocabulary - Cause & Effect Expressions – Content vs Function words.		
		TOTAL: 30 HOURS
Lab Exercises		
Listening :		
Listening for general information-specific details Audio / video (formal & informal). Listening IELTS/TOFEL/ TED Talks and educational videos. Listening to podcasts, anecdotes / stories / event narration; documentaries and interviews withcelebrities. Listening - Listen to product and process descriptions; and advertisements about products. Listening – Listening to debates/ discussions; different viewpoints on an issue; and panel discussions.		
Speaking:		
Self-Introduction - Role Play Exercises Based on Workplace Contexts- Group Discussion (Discussing advantages and disadvantages/ purposes and reasons)-discussing progress toward goals-discussing past events in life-discussing news stories- describing clothing Discussion (making plans, talking about tasks,, about progress analyze and present concepts and problems from various perspectives)-making telephone calls (politeness strategies- making polite requests, making polite offers, replying to polite requests and offers) Interpreting (Picture, locations in workplaces)- Presenting a product- describing shapes and sizes and weights- talking about quantities(large & small).		
Personality Development:		
Introduction to life skills -Multiple Intelligences Embracing diversity- emotional intelligence(visualizing and experiencing purpose)-Self-awareness - Time management-Stress management - body awareness-Leadership- teamwork & dealing with ambiguity--interview planning- Mock Interviews--paralinguistic features- spiritual quotient (ethics)- Self-Concept.		

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 Lakshminarayanan, 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, RS Salaria, Khanna Publishing House.
5. Learning to Communicate – Dr. V. Chellammal, Allied Publishing House, New Delhi, 2003.
6. Raman. Meenakshi, Sharma. Sangeeta (2019). Professional English. Oxford university press. New Delhi
7. Improve Your Writing ed. V.N. Arora and Laxmi Chandra, Oxford Univ. Press, 2001, New Delhi.
8. Developing Communication Skills by Krishna Mohan, Meera Bannerji- Macmillan India Ltd. 1990, Delhi.
9. Business Correspondence and Report Writing by Prof. R.C. Sharma & Krishna Mohan, Tata McGraw Hill & Co. Ltd., 2001, New Delhi.
10. <https://swayam.gov.in/explorer?searchText=english> (Link for NPTEL/SWAYAM/MOOC Courses)
11. <https://ieltonlinetests.com> (Link for modern tool usage)

2301MA103	ENGINEERING MATHEMATICS –I (MATRICES AND CALCULUS) (MECH&CIVIL)				L	T	P	C					
					3	1	0	4					
PREREQUISITE: 1. Matrices 2. Differentiation 3. Integration.													
COURSEOBJECTIVES: 1. To develop the use of matrix algebra techniques that is needed by engineers for practical applications. 2. To familiarize the students with differential calculus. 3. To familiarize the student with functions of several variables. This is needed in many branches of engineering. 4. To make the students understand various techniques of integration. 5. To acquaint the student with mathematical tools needed in evaluating multiple integrals and their applications.													
COURSEOUTCOMES: On the successful completion of the course, students will be able to CO1: Calculate the nature of the matrix using Orthogonal Transformation CO2: Develop the evolutes and envelopes of given curves by means of radius and centre of curvature CO3: Calculate the area and volume of a curve using double and triple integration. CO4: Determine the nature of series using comparison, Ratio, Leibnitz tests. CO5: Examine the maxima/minima for the given function with several variables by finding stationary points.													
COsVsPOsMAPPING:													
	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	CO1	3	2	1									
	CO2	3	2	1									
	CO3	3	2	1									
	CO4	3	2	1									
	CO5	3	2	1									
COsVsPSOsMAPPING													
	COs	PSO1	PSO2	PSO3									
	CO1	-											
	CO2	1											
	CO3	1											
	CO4	-											
	CO5	1											
COURSECONTENTS:													
MODULEI	MATRICES							9Hours					
Characteristic equation-Eigen Values and Eigenvectors of a real matrix –Properties of Eigen values-ProblemsolvingusingCayley-Hamilton-SimilarityTransformation-Orthogonal Transformation of a Symmetric matrix to diagonal form–Quadratic form-Orthogonal reduction to canonical form.													
MODULEII	DIFFERENTIALCALCULUS							9Hours					
Curvature in Cartesian co-ordinates–Centre and radius of curvature–Circle of curvature- Evolutes and involutes.													
MODULEIII	INTEGRALCALCULUS							9Hours					
Double integration – Cartesian and polar coordinates – Change the order of Integration – Applications: Area of a curved surface using double integral–Triple integration in Cartesian co-ordinates–Volume as triple integral.													

MODULEIV	SEQUENCESANDSERIES	9Hours
Convergence of sequence and series, tests for convergence; Power series, Taylor's series, Series for exponential, trigonometric and logarithm functions.		
MODULEV	PARTIAL DIFFERENTIATION:	9Hours
Partial derivatives, total derivative; Maxima, minima and saddle points; Method of Lagrange multipliers.		
TOTAL:45+15=60HOURS		
REFERENCES:		
1. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi,2018.		
2. G.B.ThomasandR.L. Finney,CalculusandAnalyticgeometry,9thEdition,Pearson,Reprint,2002.		
3. Erwinkreyszig, Advanced EngineeringMathematics,9th Edition,JohnWiley&Sons, 2006.		
4. RamanaB. V.,Higher EngineeringMathematics,TataMc GrawHillNewDelhi,11thReprint,2010.		
5. D.Poole, LinearAlgebra:AModernIntroduction,2ndEdition,Brooks/Cole,2005.		
6. N.P.BaliandManishGoyal, Atextbookof EngineeringMathematics,LaxmiPublications,Reprint, 2008		
7. B.S.Grewal,HigherEngineeringMathematics, KhannaPublishers,36thEdition,2010.		

2301PH102	APPLIED PHYSICS FOR MECHANICAL AND CIVIL ENGINEERS						L	T	P	C		
							3	0	2	4		
PREREQUISITE:												
1. Basic knowledge in physics												
COURSE OBJECTIVES:												
1. To make the students effectively to achieve an understanding of mechanics												
2. To introduce the basics of oscillations, optics and lasers												
3. Equipping the students to be successfully understand the importance of quantum physics												
4. To establish a sound grasp of knowledge on different optical properties of materials, optical displays and applications												
5. To give an introduction to the processing and applications of new engineering materials												
COURSE OUTCOMES:												
On the successful completion of the course, students will be able to												
CO1:	Understand the importance of mechanics											
CO2:	Outline the different types of lasers and compare the different types of optical fibers based on mode and refractive index profile for data communication system											
CO3:	Understand the importance of quantum physics											
CO4:	Demonstrate a strong foundational knowledge in oscillations, optics and lasers											
CO5:	Differentiate about the processing and applications of composites, metallic glasses, shape memory alloys and ceramics											
COs Vs POs MAPPING:												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	1	1						
CO2	3	3	2	2	2	1						1
CO3	3	3	1	1	2	1						
CO4	3	3	2	2	2	1						
CO5	3		2	2	2	1						
COs Vs PSOs MAPPING												
	COs	PSO1	PSO2	PSO3								
	CO1											
	CO2											
	CO3											
	CO4											
	CO5											
COURSE CONTENTS:												
MODULE I	ULTRASONICS								9 Hours			
Ultrasound: Properties-Production ultrasonics by Magnetostriction generator-Piezo electric generator-Deduction methods-Acoustic grating Non-destructive testing-pulse echo system through transmission and reflection modes-A, B and C scan display-Medical applications-Sonogram.												

MODULE II	LASERS AND FIBER OPTICS	9 Hours
Theory of laser - characteristics- Spontaneous and stimulated emission - Einstein's coefficients - population inversion - Nd-YAG laser, CO2 laser, semiconductor laser –Basic applications of lasers in engineering. Fibreoptics, types of optical fibers- and applications in engineering		
MODULE III	BASIC QUANTUM MECHANICS	9 Hours
Photons and light waves - Electrons and matter waves -Planck's radiation law-De-Broglie's wavelength- The Schrodinger equation (Time dependent and time independent forms) - meaning of wave function - Normalization - particle in a box,1D,2D and 3D Boxes- Normalization, probabilities and the correspondence principle- SEM, TEM and STEM		
MODULE IV	OPTICAL PROPERTIES OF MATERIALS	9 Hours
Classification of optical materials – Optical processes in semiconductors: optical absorption and emission, charge injection and recombination, optical absorption, loss and gain. Optical processes in quantum wells – Optoelectronic devices: light detectors and solar cells – light emitting diode – laser diode - optical processes in organic semiconductor devices –excitonic state – Electro-optics and nonlinear optics: Modulators and switching devices – plasmonics.		
MODULE V	NEW ENGINEERING MATERIALS	9 Hours
Composites - Definition and Classification - Fibre reinforced plastics (FRP) and fiber reinforced metals (FRM) - Metallic glasses - Shape memory alloys - Ceramics - Classification - Crystalline - Non Crystalline - Bonded ceramics, Manufacturing methods - Slip casting - Isostatic pressing - Gas pressure bonding - Properties - thermal, mechanical, electrical and chemical ceramic fibres - ferroelectric and ferromagnetic ceramics - High Aluminium ceramics.		
TOTAL: 45 HOURS		
REFERENCES:		
1. D.Kleppner and R.Kolenkow. An Introduction to Mechanics. McGraw Hill Education (Indian Edition), 2017.		
2. Arthur Beiser, Shobhit Mahajan, S. Rai Choudhury, Concepts of Modern Physics, McGrawHill (Indian Edition), 2017.		
3. Jasprit Singh, Semiconductor Optoelectronics: Physics and Technology, Mc-Graw Hill India (2019)		
4. K.Thyagarajan and A.Ghatak. Lasers: Fundamentals and Applications, Laxmi Publications, (Indian Edition), 2019.		
5. D.Halliday, R.Resnick and J.Walker. Principles of Physics, Wiley (Indian Edition), 2015.		
6. https://archive.nptel.ac.in/courses/112/103/112103108/		
7. https://archive.nptel.ac.in/courses/115/107/115107131/		

LIST OF EXPERIMENTS

- | |
|---|
| 1. Torsional pendulum - Determination of rigidity modulus of wire and moment of inertia of regular and irregular objects. |
| 2. Simple harmonic oscillations of cantilever. |
| 3. Non-uniform bending - Determination of Young's modulus |
| 4. Uniform bending – Determination of Young's modulus |
| 5. Laser- Determination of the wavelength of the laser using grating |
| 6. Air wedge - Determination of thickness of a thin sheet/wire |
| 7. a) Optical fibre -Determination of Numerical Aperture and acceptance angle b) Compact disc-
Determination of width of the groove using laser. |
| 8. Acoustic grating- Determination of velocity of ultrasonic waves in liquids. |
| 9. Ultrasonic interferometer – determination of the velocity of sound and compressibility of liquids |
| 10. Determination of Band gap of a semiconductor. |
| 11. Poiseuille's method for finding viscosity of a liquid |
| 12. Lee's Disc-Thermal conductivity of bad conductor |
| 13. Spectrometer-determination of wavelength using grating |

References

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| 1. Practical Physics', R.K. Shukla, AnchalSrivastava, New age international (2011 |
| 2. B.Sc. Practical Physics', C.L Arora, S. Chand &Co. (2012) |

2301CH102	WATER TECHNOLOGY AND GREEN CHEMISTRY									L	T	P	C
										3	0	2	4
PREREQUISITE:													
<ul style="list-style-type: none"> Basic knowledge of science up to higher secondary level 													
COURSE OBJECTIVES:													
<ol style="list-style-type: none"> To make the students conversant with boiler feed water requirements, related problems and water treatment techniques To impart technological aspects of applied chemistry 													
COURSE OUTCOMES:													
On the successful completion of the course, students will be able to													
CO1: Estimate the amount of ion present in the water sample.(K3)													
CO2: Measure the percentage of corrosion using electrochemical principle. (K3)													
CO3: Determine the molecular weight of the polymer. (K3)													
CO4: Estimate the amount of calcium present in cement (K3)													
CO5: Estimate the conduction ability of materials. (K3)													
COs Vs POs MAPPING:													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO1	S	M			L			L	L				
CO2	S	M			L			L	L				
CO3	S	M			L			L	L				
CO4	S	M			L			L	L				
CO5	S	M			L			L	L				
COs Vs PSOs MAPPING													
	COs	PSO1	PSO2	PSO3									
	CO1		L										
	CO2		L										
	CO3		L										
	CO4		L										
	CO5		L										
COURSE CONTENTS:													
MODULE I WATER TECHNOLOGY											9 Hours		
Hardness of water – types – expression of hardness – units – estimation of hardness of water by EDTA -Alkalinity- boiler troubles (scale and sludge) – treatment of boiler feed water – Internal treatment (phosphate, colloidal, sodium aluminate and calgon conditioning) external treatment – Ion exchange process, zeolite process – desalination of brackish water- Reverse Osmosis.													
MODULE II CORROSION											9 Hours		
Corrosion – principles of corrosion – Pilling – Bed worth rule – principles of electrochemical corrosion – difference between chemical and electrochemical corrosion – galvanic corrosion – differential aeration corrosion – factors influencing corrosion – corrosion control – cathodic protection – sacrificial anodic method.													
MODULE III POLYMER											9 Hours		
Polymer -Classification of polymers – Natural and synthetic; Thermoplastic and Thermosetting. Functionality – Degree of polymerization. Types and mechanism of polymerization: Addition (Free Radical, cationic and anionic); condensation and copolymerization, Properties of polymers:													

Molecular weight – weight average, number average, Preparation, properties and uses of PVC, PE, Nylon 6.6, and Epoxy resin.

MODULE IV CEMENT CHEMISTRY & CONSTRUCTIONAL MATERIALS 9 Hours

Constructional Materials- Refractories: definition, classification, properties –Manufacture of silicon carbide, Portland cement- manufacture and properties - setting and hardening of cement, special cement- waterproof and white cement– Nano tube concrete -properties and uses.

MODULE V NANOMATERIALS 9 Hours

Nanotechnology: Basics - distinction between molecules, nanoparticles and bulk materials; size-dependent properties. Nano particles: nano cluster, nano rod, nanotube(CNT) and nanowire. Synthetic methods: chemical vapour deposition, laser ablation; Synthesis of metal oxide nano particles- applications.

TOTAL: 45 HOURS

REFERENCES:

1. Sashi Chawla, A Text book of Engineering Chemistry, Dhanpat Rai Publishing Co., Pvt. Ltd., Educational and Technical Publishers, New Delhi, 3rd Edition, 2015.
2. S. S. Dara, *A Text book of Engineering Chemistry*, S. Chand & Co Ltd., New Delhi, 20th Edition, 2013.
3. P.C. Jain and Monica Jain, A Textbook of Engineering Chemistry, Dhanpat Rai publications, New Delhi, 16th edition, 2015.
4. Kumar Mehta P. and Paulo J. M. Monteiro, (2014), *Concrete: Microstructure, Properties and Materials*, 4th Edition, McGraw-Hill, New Delhi.
5. Alain Nouailhat, “An Introduction to Nanoscience and Nanotechnology”, John Wiley, ISBN:978-1848210073
6. https://onlinecourses.nptel.ac.in/noc23_mm01/preview
7. https://onlinecourses.nptel.ac.in/noc23_me46/preview

LIST OF EXPERIMENTS

1. Determination of total, temporary & permanent hardness of water by EDTA method
2. Comparison of alkalinities of the given water samples
3. Estimation of iron content of the given solution using potentiometer
4. Corrosion experiment – weight loss method
5. Conductometric titration of strong acid Vs strong Base
6. Determination of molecular weight of a polymer by viscometry method
7. Determination of percentage of copper in alloy
8. Determination of ferrous iron by Spectrophotometry method
9. Estimation of calcium present in cement.
10. Determination of strength of given hydrochloric acid using pH meter
11. Estimation of sodium ion present in water by flame photometer.
12. Estimation of dissolved oxygen in a water sample/sewage by Winklers method.
13. Synthesis of metal oxide nanoparticles by chemical method.

REFERENCES:

1. Experimental organic chemistry, Daniel R. Palleros, John Wiley & Sons, Inc., New York (2001)
2. *Engineering Chemistry*”, Jain & Jain, 15th edition, Dhanpat Rai Publishing company, New Delhi
3. Vogel’s Textbook of practical organic chemistry, Furniss B.S. Hannaford A.J, Smith P.W.G and Tatchel A.R LBS Singapore (1994)
4. LBS Singapore (1994). Kolthoff I.M., Sandell E.B. et al Mcmillan, Madras 1980
5. Vogel’s Textbook of practical organic chemistry, Furniss B.S. Hannaford A.J, Smith P.W.G

and Tatchel A.R LBS Singapore (1994)
6. LBS Singapore (1994). Kolthoff I.M., Sandell E.B. et al Mcmillan, Madras 1980
7. Vogel's Textbook of practical organic chemistry, Furniss B.S. Hannaford A.J, Smith P.W.G and Tatchel A.R LBS Singapore (1994)
8. LBS Singapore (1994). Kolthoff I.M., Sandell E.B. et al Mcmillan, Madras 1980
9. Vogel's Textbook of practical organic chemistry, Furniss B.S. Hannaford A.J, Smith P.W.G and Tatchel A.R LBS Singapore (1994)
10. LBS Singapore (1994). Kolthoff I.M., Sandell E.B. et al Mcmillan, Madras 1980

2301GEX03	PROBLEM SOLVING USING C (Theory cum Lab Course)	L	T	P	C
		2	0	4	4
PREREQUISITE:					
1. Need some Mathematical Knowledge					
COURSE OBJECTIVES:					
1. To understand the constructs of C Language.					
2. To develop C programmes using arrays and strings					
3. To develop modular applications in C using functions and pointers					
4. To develop applications in C using structures and union					
5. To do input/output and file handling in C					
COURSE OUTCOMES:					
On the successful completion of the course, students will be able to					
CO1:	Demonstrate the knowledge about the techniques used to solve problems in computing.				
CO2:	Build programmes using C constructs.				
CO3:	Design and implement applications using arrays and strings				
CO4:	Develop and implement modular applications in C using functions and pointers.				
CO5:	Develop programmes and applications in C using structures, union and files.				
COURSE CONTENTS:					
MODULE I	INTRODUCTION TO PROBLEM SOLVING TECHNIQUES	6 Hours			
Problem Solving Techniques – Algorithm – Flowchart – Pseudo code -Steps to convert Algorithm to Source code. Data Types – Constants–Keywords – Expressions – Type of Errors.					
MODULE II	BASICS OF C PROGRAMMING	6 Hours			
Structure of C programme– Pre-processor directives - Compilation process, Execution of source code. Operators and operator’s precedence – I/O statements – Sequence statements – Selection statements – Looping statements – Solve Numerical / Logical problems.					
MODULE III	ARRAYS AND STRINGS	6 Hours			
Introduction to Arrays: Declaration, Initialization – One dimensional array – Two dimensional array String operations: length, compare, concatenate, copy, upper case, lower case.					
MODULE IV	FUNCTIONS AND POINTERS	6 Hours			
Function prototypes - function definition, function call – Recursion: Binary search using recursive functions. Pointers – Pointer operators – Pointer arithmetic – Arrays and pointers – Parameter passing: Pass by value, Pass by reference.					
MODULE V	STRUCTURES, UNION AND FILE PROCESSING	6 Hours			
Structure - Nested structures – Pointer and Structures – Array of structures – Dynamic memory allocation – Union - Storage classes and Visibility. Files – Types of file processing: Sequential access, Random access – Sequential access file - Random access file - Command line arguments.					
TOTAL: 30 HOURS					
LIST OF EXPERIMENTS:					
1. Prepare programmes in C to implement basic concepts in C language.					6 Hours
2. Produce C programmes to implement decision making and branching statements.					6 Hours
3. Use the concept of looping to implement C programmes.					6 Hours
4. Employ the concept of arrays to develop C programmes.					6 Hours

5. Experiment the concepts of strings using C.	6 Hours
6. Develop C programmes to perform code reusability using function.	6 Hours
7. Model programmes in C to implement pointers.	6 Hours
8. Build C programme to implement structures.	6 Hours
9. Implement C programme by making use of the concept of files.	6 Hours
10. Mini Project: Using Files, Structures, Functions & Pointers.	6 Hours

Hardware/software requirement

1. Desktop Systems 60 Nos
2. C Compiler

TOTAL: 60 HOURS

COs Vs POs / PSOs MAPPING:

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

REFERENCES:

1. Yashwant Kanetkar, Let us C, 17th Edition, BPB Publications, 2020.
2. Reema Thareja, “Programming in C”, Oxford University Press, Second Edition, 2016.
3. Kernighan, B.W and Ritchie, D.M, “The C Programming language”, Second Edition, Pearson Education, 2015.
4. Byron S. Gottfried, “Schaum’s Outline of Theory and Problems of Programming with C”, McGraw-Hill Education, 1996.
5. https://onlinecourses.nptel.ac.in/noc23_cs53/course(Link for NPTEL/SWAYAM/MOOC Courses)
6. <https://cse02-iiith.vlabs.ac.in/exp>(Link for virtual Lab)
7. www.skillrack.com(Link for modern tool usage)

2301TA101	தமிழரும் தொழில்நுட்பமும்				L	T	P	C				
	Tamil and Technology				1	0	0	1				
PRE REQUISITE:												
<p>1. The Tamils living in different parts of the World need to keep in touch with the motherland and the mother tongue and be knowledgeable about their heritage in order to preserve their cultural identity and observe their traditional and cultural activities.</p> <p>2. Recognizing this fact and for meeting the felt and emerging needs of the Tamil Communities and others interested in Tamil studies</p>												
COURSE OBJECTIVES:												
<p>1. Tamil Literature is way of a life. It focuses on the historical significance of ethics, moral culture in the Tamil context.</p> <p>2. Tamil Modern literature emphasizes on the modern development of the behavioral, moral and ethical</p> <p>3. Technology is the important key for a language and a new sector for the students to voice out for a social cause</p>												
COURSE OUTCOMES:												
On the successful completion of the course, students will be able to												
CO1: Develop a spirit of patriotism.												
CO2: Understand the plight of the people living in the society and Biological Struggles.												
CO3: Remember the life style of the Sangam people and To recognize the heroic spirit of the ancient Tamil kings												
CO4: Evaluate the quality and morals of local life through Tamil literature												
CO5: Introducing the various Literary Genres and dramas and enable them to produce innovative ideas in modern literary theories												
Cos Vs Pos MAPPING:												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										3		
CO2										3		
CO3										3		
CO4										3		
CO5										3		
Cos Vs PSOs MAPPING												
	COs	PSO1	PSO2	PSO3								
	CO1											
	CO2											
	CO3											
	CO4											
	CO5											
COURSE CONTENTS:												
MODULE I WEAVING AND CERAMIC TECHNOLOGY									3 Hours			
Weaving Industry during Sangam Age–Ceramic technology–Black and Red Ware Potteries (BRW) Graffition Potteries.												

MODULE II	DESIGN AND CONSTRUCTION TECHNOLOGY	3 Hours
Designing and Structural construction House & Designs in house hold 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.		
MODULE III	MANUFACTURING TECHNOLOGY	3 Hours
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 – Terra-cotta beads – Shell beads/bone beats – Archeological evidences – Gems tone types described in Silappathikaram.		
MODULE IV	AGRICULTURE AND IRRIGATION TECHNOLOGY	3 Hours
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		
MODULE V	SCIENTIFIC TAMIL & TAMIL COMPUTING	3 Hours
Development of Scientific Tamil – Tamil computing – Digitalization of Tamil Books – Development of Tamil Software – Tamil Virtual Academy – Tamil Digital Library – Online Tamil Dictionaries –Sorkuvai Project.		
		TOTAL:15HOURS
REFERENCES:		
<ol style="list-style-type: none"> 1. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print) 2. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: 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. Studies in the History of India with Special Reference to Tamil Nadu (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. 		

2301GEX52	ENGINEERING PRACTICES LABORATORY (Common to all B.E. / B.Tech Degree Programmes)	L	T	P	C
		0	0	4	2

PREREQUISITE: NIL

COURSE OBJECTIVES:

1. To provide hands on training for fabrication of components using sheet metal and welding equipment / tools.
2. To develop skill for using carpentry and fitting tools to make simple components and metal joints.
3. To provide training for making simple house hold pipe line connections using suitable tools.
4. To develop the skill to make / operate/utilize the simple engineering components.

COURSE OUTCOMES:

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

CO1: Fabricate simple components using sheet metal using suitable tools.

CO2: Prepare simple components using suitable fitting tools.

CO3: Fabricate simple components using welding equipments.

CO4: Make simple components / joints using carpentry power tools.

CO5: Make simple house hold pipe line connections using suitable tools.

COs Vs POs MAPPING:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2								2			1
CO2	2	1							2			1
CO3	2	1			1				2			1
CO4	2	1			1				2			1
CO5	2								2			1

COs Vs PSOs MAPPING

COs	PSO1	PSO2	PSO3
CO1	-	2	-
CO2	-	2	-
CO3	-	2	-
CO4	-	2	-
CO5	-	1	-

LIST OF EXPERIMENTS	
1. Forming of simple object in sheet metal using suitable tools.(Example: Dust Pan, Rectangular tray and Cone making	6 Hours
2. Prepare V (or) Half round (or) Square (or) Dovetail joint from the given mild Steel flat.	5 Hours
3. Fabrication of a simple component using thin and thick plates using arc welding.(Example: Butt , Lap and T - Joints)	6 Hours
4. Making a simple component using carpentry power tools.(Example: Cross Lap, T-Lap, Dove tail joints and Electrical switch box / Tool box / Letter box)	6 Hours
5. Construct a household pipe line connections using pipes, Tee joint, four way joint, elbow, union, bend, Gate valve and Taps.	5 Hours
6. Study of gas welding equipment and its demonstration	2 Hours
Total : 30 Hours	
References:	
1. S. Gowri&T.Jeyapoovan, “Engineering Practices Lab Manual” 5th Edition, Vikas Publishing.	
2. Dr. V. Ramesh Babu, ”Engineering Practices Laboratory Manual” Revised Edition 2019-20, VRB Publishers Pvt. Ltd.	

2301LS101	ADVANCED ENGLISH COMMUNICATION	L	T	P	C
		2	0	2	3
COURSE OBJECTIVES:					
1. To understand the basics of communication skills.					
2. To speak well generally in English in public places.					
3. To read and write legibly in English.					
4. To understand the verbal and non-verbal communication.					
COURSE OUTCOMES:					
On the successful completion of the course, students will be able to					
CO1: Understand the importance of oral and written communication in day-to-day working of the organisation.					
CO2: Develop their inter-personal skills and problem-solving skills.					
CO3: Understand the role of body language in effective communication.					
CO4: Implement the soft skills in theoretical and practical ways.					
CO5: Adapt the techniques of personality development.					

COs Vs POs MAPPING:													
	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	CO1										3		
	CO2										3		
	CO3										3		
	CO4										3		
	CO5										3		

COs Vs PSOs MAPPING				
	COs	PSO1	PSO2	PSO3
	CO1			
	CO2			
	CO3			
	CO4			
	CO5			

COURSE CONTENTS:		
MODULE I	COMMUNICATION AND WRITING SKILLS	12 Hours
Communication skills- Process of communication, verbal and non verbal communication; listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures.		
MODULE II	READING AND SPEAKING SKILLS	12 Hours
Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations, impromptu presentation, public speaking; Group discussion.		

MODULEIII	ICT IN COMMUNICATION	12 Hours
Role of ICT in communication. Recent advances in communication- Print and electronic, internet, e-mail, fax, mobile, interactive video and teleconferencing, computer, e-governance.		
MODULEIV	PERSONALITY DEVELOPMENT	12 Hours
Meaning and definition of personality; Theoretical perspectives on personality- Behavioural trait and humanistic personality pattern; moulding the personality patterns.		
MODULEV	COMPONENTS OF PERSONALITY DEVELOPMENT	12 Hours
Personality development - Self perception, self concept, self esteem and gender stereotyping, persistence and changes in personality determinants (physical, intellectual, emotional, social, educational and family). Aspirations, achievements and fulfilment. Dressing for formal and informal occasions.		
PRACTICAL		
Listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures. Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations. Developing questionnaire to study impact of physique, educational institutions, aspirations on personality; developing questionnaire to study social prescriptions, gender and family on personality, aspirations and achievements. Collecting data through the questionnaires on small samples. Report writing and presentation. Case study of an individual suffering with personality disorders.		
TOTAL:60HOURS		
TEXT BOOKS:		
1. 1. Raman, Meenakshi and Sangeetha Sharma. 2011. Technical Communication: Principles and Practice, Oxford University Press, New Delhi.		
2. Rizvi and Ashraf M. 2005. Effective Technical Communication, Tata McGraw-Hill, New Delhi.		
REFERENCES:		
1. Regional Institute of English. 2006. English for Engineers, Cambridge University Press, New Delhi.		
2. Rutherford and Andrea. 2001. Basic Communication Skills for Technology, Pearson, New Delhi.		
3. Viswamohan A. 2008. English for Technical Communication, Tata McGraw-Hill, New Delhi.		