

CURRICULUM

SEMESTER I – Common to all

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23MA1T1	Calculus and Differential Equations	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
2	23EN1LT2	Communicative English	HS	50	50	3	0	2	4
3	23PH1LT3	Engineering Physics	BS	50	50	3	1	2	5
4	23CY1LT4	Engineering Chemistry	BS	50	50	3	1	2	5
5	23CS1LT5	Problem Solving and C Programming	ES	50	50	3	0	4	5
MANDATORY COURSE									
6		Universal Human Values 1 - Induction Programme	HS	-	-	-	-	-	-
7	23HS1T6	Heritage of Tamils	HS	100	-	1	0	0	1
Total						16	3	10	24

SEMESTER II - CSE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - EEE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23CM2T4	Basic Civil and Mechanical Engineering	ES	40	60	3	0	0	3
5	23MA2T6	Transforms, Complex Variables and Fourier Analysis	BS	40	60	3	1	0	4
THEORY COURSES WITH LABORATORY COMPONENTS									
6	23EE2LT1	Electrical Circuits Analysis	ES	50	50	3	0	4	5
Total						16	1	4	16

SEMESTER II - ECE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T5	Laplace Transforms and Complex Analysis	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23EE2LT1	Electrical Circuits Analysis	ES	50	50	3	0	4	5
6	23EC2LT2	Electronic Devices and Circuits	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - MECH

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23ME2T4	Engineering Mechanics	ES	40	60	3	0	0	3
5	23MA2T5	Laplace Transforms and Complex Analysis	BS	40	60	3	1	0	4
THEORY COURSES WITH LABORATORY COMPONENTS									
6	23ME2LT1	Engineering Graphics	ES	50	50	3	0	2	4
LABORATORY COURSES									
7	23EM2L1	Engineering Practices Laboratory	ES	60	40	0	0	4	2
Total						16	1	6	17

SEMESTER II - IT

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - AIDS

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

MATHEMATICS

SEMESTER III

Sl. No.	Department	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	MECH	Fourier Analysis and Statistics	BS	40	60	3	1	0	4
2	ECE	Transforms and Random Processes	BS	40	60	3	1	0	4
3	EEE	Boundary Value Problems and Numerical Methods	BS	40	60	3	1	0	4
4	CSE	Probability and Queuing Theory	BS	40	60	3	1	0	4
5	AIDS	Statistical Analysis	BS	40	60	3	1	0	4
6	IT	Probability and Queuing Theory	BS	40	60	3	1	0	4

ENGLISH

Sl. No.	Common to all Department	Course Title	Category	CIA	ESE	L	T	P	C
LABORATORY COURSES									
1	III SEM	Interpersonal Communication Skills Laboratory - I	HS	60	40	0	0	3	1.5
2	IV SEM	Interpersonal Communication Skills Laboratory - II	HS	60	40	0	0	3	1.5

Semester	Programme	Course Code	Course Name	L	T	P	C
I	B.E. / B.Tech., Common to all	23CY1LT4	ENGINEERING CHEMISTRY	3	1	2	5

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply the suitable water softening methods to avoid boiler troubles.		K3	1
CO2	Analyze the calorific value of different types of fuels.		K2	2
CO3	Choose suitable forms of energy sources for applying them in energy sectors.		K2	3
CO4	Understand the working process of spectroscopy to analyse the wavelength of electromagnetic radiations.		K2	4
CO5	Classify the types of polymers for fabrication.		K2	5

PRE-REQUISITE	NIL
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	2	-	-	2	1	2	2	2	2	-	-
CO2	3	2	1	1	-	-	2	1	2	2	2	2	-	-
CO3	3	2	2	1	-	-	3	1	2	2	2	2	-	-
CO4	3	2	2	1	1	-	1	1	2	2	2	2	-	-
CO5	3	2	1	2	-	-	1	1	2	2	2	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Laboratory Record and Model Practical Examinations
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	WATER CHEMISTRY									9+3
Hardness of water – Types – Units – Boiler troubles (Scale and Sludge, Priming and Foaming and Caustic Embrittlement) – Treatment of boiler feed water – Internal treatment (Phosphate, Colloidal and Calgon conditioning) and External treatment (Ion exchange process and Zeolite process) – Desalination of brackish water – Reverse Osmosis.										
Topic - 2	FUELS									9+3
Fuels: Introduction - Classification of fuels – Coal – Analysis of coal (Proximate and Ultimate Analysis) - Carbonization - Manufacture of metallurgical coke (Otto Hoffmann method) - Petroleum – Bergius Process - Knocking - Octane number - Diesel oil - Cetane number - Natural gas - Compressed natural gas (CNG) - Liquefied petroleum gases (LPG) - Power alcohol.										
Topic - 3	BATTERIES AND FUEL CELLS									9+3
Batteries - Types of batteries – primary battery - dry cell. Secondary battery - lead acid battery, Nickel-Cadmium battery - Lithium Batteries - Fuel cells – Hydrogen -Oxygen fuel cell. - Solar energy conversion - solar cells – Application.										
Topic - 4	SPECTROSCOPY									9+3
Introduction – Laws of spectroscopy - Block diagram, Instrumentation, Working and application of Visible spectroscopy and Ultra Violet spectroscopy – Infrared spectroscopy – Flame photometry – Atomic adsorption spectroscopy.										
Topic - 5	ENGINEERING MATERIALS									9+3
Polymer – Types of polymerization – Preparation, properties, uses of Nylon(6,6), Poly Vinyl Chloride (PVC). Plastics – Types - Rubbers – SBR – Nanomaterials – Synthesis and its applications of Nanomaterials. Abrasives – Classification, Properties - Manufacture of SiC.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60
LIST OF EXPERIMENTS										
<ol style="list-style-type: none"> 1. Estimation of total hardness in water by EDTA method. 2. Determination of viscosity coefficient of a given oil / fuel / polymer using Ostwald's viscometer. 3. Estimation of Ferrous Ammonium Sulfate (FAS) using standard potassium Dichromate solution potentiometrically. 4. Estimation of sodium / potassium present in water using photometer. 5. Synthesis of Polymers (Phenol Formaldehyde or Urea Formaldehyde Resins). 6. Conductometric estimation of Strong Acid and Weak acid from a given mixture. 7. Determination of chloride content of water sample by Argentometric method. 8. Determination of strength of given hydrochloric acid using pH meter. 										
THEORY	0		TUTORIAL	0		PRACTICAL	30		TOTAL	30

BOOK REFERENCES	
1	S.S Dara and S.S. Umare ‘ A Textbook of Engineering Chemistry for Anna University’, S.Chand Publication, 2020
2	Shikha Agarwal, “Engineering Chemistry-Fundamentals and Applications”, Cambridge University Press, Delhi, Second Edition, 2019
3	“Engineering Chemistry” by Dr.A.Ravikrishna, Sri Krishna Hi Tech Publishing Company, 2021
4	“Experiments In Engineering Chemistry” – Payal B Joshi, I.K. International Publishing House. 2016
5	Group Theory and Spectroscopy by Pragati Prakashan Alka L Gupta and Mukesh Kumar Alka L Gupta and Mukeshkumar ,2021
6	Anil Kumar P.V Polymer Chemistry, First Edition -2021

OTHER REFERENCES	
1	https://sctevtodisha.nic.in/wp-content/uploads/2021/03/Engineering-Chemistry-1ST-YEAR-LM.pdf
2	https://www.youtube.com/watch?v=Fyq4Q5yWDDU&list=PLyqSpQzTE6M927gXIZdVbbsyj9cmxamb
3	https://www.youtube.com/watch?v=nh2xbyOaERw
4	https://archive.nptel.ac.in/courses/104/106/104106122/
5	https://nptel.ac.in/courses/118104008
6	https://www.britannica.com/science/water

Semester	Programme	Course Code	Course Name	L	T	P	C
I	B.E. / B.Tech., Common to all	23EN1LT2	COMMUNICATIVE ENGLISH	3	0	2	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Improve communication skills and language comprehension with error-free strategies.		K2	1
CO2	Analyze the effectiveness of soft skills in different scenarios.		K3	2
CO3	Choose appropriate word-stress, sentence stress and intonation for efficient public speaking.		K4	3
CO4	Enhance reading and writing skills to excel in career.		K3	4
CO5	Develop strong public speaking abilities.		K2	5

PRE-REQUISITE	NIL
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO2	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO3	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO4	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO5	-	-	-	-	-	-	-	1	3	3	-	3	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Laboratory Record and Model Practical Examinations
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1		LANGUAGE INTROSPECTION						9		
<p>GRAMMAR COMPONENTS: Vocabulary Building - Word Formation–Prefixes and Suffixes– ‘Wh’ questions and Yes or No questions.</p> <p>LINGUISTIC FUNCTIONS: Short comprehension Passages –Skimming and Scanning-Developing hints</p>										
Topic - 2		SOFT SKILLS						9		
<p>GRAMMAR COMPONENTS: Sentence structures- Punctuation – Kinds of sentences - Subject-verb Agreement.</p> <p>LINGUISTIC FUNCTIONS: Introducing and Sharing Information from Newspaper including Dialogues and Conversations– Short Narrative Descriptions – Paragraph Writing – Greeting- Jumbled Sentences-</p>										
Topic - 3		CAREER GUIDANCE						9		
<p>GRAMMAR COMPONENTS: Single-word substitutes –Pronouns – Degrees of Comparison</p> <p>LINGUISTIC FUNCTIONS: Reading Comprehension – Verbal and Non-verbal Communication –Public Speaking - Describing and Classification of Different Kinds of Innovation – Narration Act. (Language through Literature)- Negotiation Skills.</p>										
Topic - 4		TECHNICAL WRITING						9		
<p>GRAMMAR COMPONENTS: Articles- Modal Verbs – Uses of Prepositions (of Time, Place, Direction and Spatial Relations)</p> <p>LINGUISTIC FUNCTIONS: Preparing Instructions and Manuals - Reporting Events and Research – Writing Recommendations – Interpreting Diagrammatic Representations, esp. Bar Graphs and Pie Charts.</p>										
Topic - 5		BUSINESS CORRESPONDENCE						9		
<p>GRAMMAR COMPONENTS: Numerical Adjectives –Phrases and Clauses- Synonyms and Antonyms-Different Tense Forms of Verbs.</p> <p>LINGUISTIC FUNCTIONS: Writing short Essays- Dialogue Writing- Technical and Business Proposals – Role play – Narrating Incidents – Extempore and persuasive speech- Conversations - Telephonic Conversations.</p>										
THEORY	45		TUTORIAL	0		PRACTICAL	0		TOTAL	45

LIST OF EXPERIMENTS

1	Self-introduction and introducing others						
2	Negotiation Skills						
3	Public Speaking						
4	Body Language						
5	Narrating incidents						
6	Telephonic Conversation						
7	Representations						
8	Technical Proposals						
THEORY	0	TUTORIAL	0	PRACTICAL	30	TOTAL	30

BOOK REFERENCES

1	Communicative English I Paperback – 1 January 2020 by <u>Dr.A.Ganesan</u> (Author), <u>P.Lovely Vinoliya Paul</u> (Author)
2	Teaching Communicative English By <u>Dr.N.Badhri Ph.D(Eng.),Ph.D(Edn.)</u> , 2021.
3	Communicative English By S. Kannan Padmasani , 2019.
4	Technical English 1 Paperback – 15 December 2019 by Prof. Ravindra Nath Tiwari (Author)
5	Developing English Language Skills-I: (NEP 2020 for the University of Delhi) by Pooja Khanna
6	Technical English – I by Prof. Ravindra Nath Tiwari, 2020.

OTHER REFERENCES

1	https://youtu.be/x60GHpQ8gJk?list=PLWPirh4EWFpFIElSxpIDIEhRDZHkBD-0n
2	https://youtu.be/BO7j-X87rM8
3	https://youtu.be/cyXADWE7KPo

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E. / B.Tech., Common to all	23EN2T1	TECHNICAL ENGLISH	3	0	0	3

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Learn about personality development to enhance interactions.		K2	1
CO2	Improve skills by cultivating self-confidence.		K4	2
CO3	Increase social abilities by mastering communication.		K2	3
CO4	Reveal true personality for stronger interactions.		K6	4
CO5	Develop the ability to speak confidently in any situation		K6	5

PRE-REQUISITE	COMMUNICATIVE ENGLISH
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO2	-	-	-	-	-	-	-	1	2	3	-	3	-	-
CO3	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO4	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO5	-	-	-	-	-	-	-	1	-	3	-	3	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Grammar Quizzes
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1								9		
<p>GRAMMAR COMPONENTS:Mixed Tenses • Homophones • Homonyms • Words often Confused • Pairs of Words• Texting and SMS language</p> <p>LINGUISTIC FUNCTIONS: - – Professional emails, Email etiquette •Paragraph Construction • Introduction to Presentation • Communication •Note Making • Reading advertisements</p>										
Topic - 2								9		
<p>GRAMMAR COMPONENTS:Abbreviations and Acronyms •Concord • Collocations – Fixed and Semi Fixed Expressions.</p> <p>LINGUISTIC FUNCTIONS:Letters / emails of complaint •Telephoning Skills• Leadership and Team Management • Qualities of a Good Leader • Leadership Styles • Decision Making • Problem Solving • Technical Report Writing</p>										
Topic - 3								9		
<p>GRAMMAR COMPONENTS: Direct Indirect Speech • Active Passive Voice • Conditional Sentences</p> <p>LINGUISTIC FUNCTIONS: Group Discussions • Letter to the Editor • Checklists • Reading Comprehension Memo • Notices/Circulars Agenda and Minutes of a Meeting.</p>										
Topic - 4								9		
<p>GRAMMAR COMPONENTS: Misspelled words • Spot the errors • Vocabulary Development • Guessing Meanings of Words.</p> <p>LINGUISTIC FUNCTIONS: •Recommendations•Interviews: Types of Interviews • Preparing Resumes & CV • Covering Letter • Brainstorming.</p>										
Topic - 5								9		
<p>LINGUISTIC FUNCTIONS: Mock Presentation • Job / Internship application – Cover letter & Resume • Casual Conversation • Participating in a Group Discussion • Speeches for special Occasions.</p>										
THEORY	45		TUTORIAL	0		PRACTICAL	0		TOTAL	45

BOOK REFERENCES	
1	Teaching Communicative English By <u>Dr.N.Badhri</u> Ph.D(Eng.),Ph.D(Edn.), 2021.
2	Communicative English By S. Kannan Padmasani , 2019.
3	Technical English – II by Prof. Ravindra Nath Tiwari,2020.
4	Communication Skills (Sem-2) Edition/Reprint: 2022Author(s): Neelkamal JhalniPublisher: JHUNJHUNUWALAProduct ID: 526288
5	English Communication ISBN: 9789385879036Edition/Reprint: 2023Author(s): Pooja Khanna Publisher: VIKASH PUB HOUSE PVT LTDPProduct ID: 625971

OTHER REFERENCES	
1	https://youtu.be/RkOb-IjkBbw
2	https://youtu.be/8SyZWgzLQSo
3	https://youtu.be/0E9deF06NUU
4	https://youtu.be/CAU2zx2Ri_M?si=jWlm7ZGegmKwO8Ii
5	https://youtube.com/playlist?list=PLyViUDdoFYKypuYyhNF2ZC9xEUE8zDmzx&si=uYKTb1eZGCWwDVon

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E. / B.Tech., Common to all	23HS2T2	ENVIRONMENTAL SCIENCES	3	0	0	0

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Understand the scientific inquiry in the field of ecosystems for future life.		K2	1
CO2	Identify the different methods of conservation of biodiversity by analysing the factors that contribute the threat to extinction.		K2	2
CO3	Enumerate the control plan for environmental pollution problems by identifying and quantifying it's magnitude and intensity		K2	3
CO4	Understand systematically the natural resources and identify the resource management.		K2	4
CO5	Solve current environmental problems by practising the adoption of sustainability in society and industry		K2	5

PRE-REQUISITE	NIL
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	-	-	2	1	2	3	2	3	2	-	2	-	-
CO2	1	-	-	2	-	2	3	2	3	2	-	2	-	-
CO3	1	-	-	2	-	2	3	2	3	2	-	2	-	-
CO4	1	-	-	2	-	2	3	2	3	2	-	2	-	-
CO5	1	2	2	3	-	2	3	2	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
INDIRECT	1	Course End Survey

COURSE CONTENT										
Topic - 1	ENVIRONMENT AND ECOSYSTEMS								9	
Definition, scope and importance of environment – need for public awareness - concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers – energy flow in the ecosystem – ecological succession – food chains, food webs – Introduction, types, characteristic features, structure and function of the forest ecosystem and aquatic ecosystems (ponds, river and marine). Activity: Study of the ecosystem structure in Cauvery River.										
Topic - 2	BIODIVERSITY								9	
Introduction to biodiversity - definition: genetic, species and ecosystem diversity – values of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity – endangered and endemic species of India – In-situ and ex- situ conservation of biodiversity. Activity: Study of common plants, insects, birds.										
Topic - 3	ENVIRONMENTAL POLLUTION								9	
Definition – causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Thermal pollution (d) Noise pollution – solid waste management: causes, effects and control measures of municipal solid wastes – Hazardous and biomedical waste management -pollution case studies. Activity: Study of air and water pollution in industry										
Topic - 4	NATURAL RESOURCES								9	
Forest resources: over-exploitation, deforestation, – Water resources: Rain water harvesting - watershed management - utilization of surface and ground water, conflicts over water, dams-benefits and problems Food resources: effects of modern agriculture, fertilizer - pesticide problems - Principles of Green Chemistry- Case studies Activity: Tree plantation and maintenance within the campus										
Topic - 5	SUSTAINABILITY AND POPULATION								9	
From unsustainable to sustainable development – Environmental Impact Assessment (EIA) – environmental ethics: Issues and possible solutions – climate change, acid rain, ozone layer depletion, and case studies – Environment Protection Act 1986 – Air (Prevention and Control of Pollution) Act – Water (Prevention and control of Pollution) Act - Environment and Human Health – Value Education – HIV / AIDS – Women and Child Welfare. Activity: Small group meetings about environment and human health in local area peoples and making poster and short films about HIV / AIDS – women and child welfare.										
THEORY	45		TUTORIAL	0		PRACTICAL	0		TOTAL	45

BOOK REFERENCES	
1	Erach Bharucha, “Environmental Studies for Undergraduate Courses”, Third Edition, Orient Blackswan Pvt Ltd (8 March 2021).
2	Rajagopalan, R, ‘Environmental Studies-From Crisis to Cure’, Oxford University Press, 2015.
3	Benny Joseph, “Environmental Science and Engineering”, Tata McGraw-Hill Education, New Delhi, 2017.
4	E-book: The Sustainable Use of Natural Resources: The Governance Challenge Jennifer Bansard Mika Schröder April 2021.
5	E-book: The Climate Solution: India's Climate-Change Crisis and What We Can Do about it, Mridula Ramesh May 2018.
6	E-book : Biodiversity with Practical Paperback August 2022by Dr. Kalyan Das

OTHER REFERENCES	
1	https://www.youtube.com/watch?v=LjFt7rICU84&t=6s
2	https://archive.nptel.ac.in/courses/120/108/120108004/
3	https://archive.nptel.ac.in/courses/120/108/120108002/
4	https://archive.nptel.ac.in/courses/103/107/103107215/
5	https://archive.nptel.ac.in/courses/127/106/127106004/
6	https://archive.nptel.ac.in/courses/123/105/123105001/

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E. / B.Tech., Common to all	23HS2T3	TAMILS AND TECHNOLOGY	1	0	0	1

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Understand the weaving ceramic technology of ancient Tamil people nature.		K2	1
CO2	Understand the construction technology, building materials in Sangam period and case studies.		K2	2
CO3	Infer the metal process, coin and beads manufacturing with relevant archaeological evidence.		K2	3
CO4	Realize the agriculture methods, irrigation technology and pearl driving.		K2	4
CO5	Understand the knowledge of scientific tamil and tamil computing.		K2	5

PRE-REQUISITE	Heritage of Tamils
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CO / PO MAPPING (1 - Weak, 2 - Medium, 3 - Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
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	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	WEAVING AND CERAMIC TECHNOLOGY							3		
Weaving Industry during Sangam Age-Ceramic technology-Black and Red Ware Potteries(BRW)-Graffiti on Potteries										
Topic - 2	DESIGN AND CONSTRUCTION TECHNOLOGY							3		
Designing and Structural construction House & Designs in household materials during Sangam Age-Building materials and Hero stones of Sangam Age-Details of Stage Constructions in Silappathikaram-Sculptures and Temples of Mamallapuram-Great Temples of Cholas and other worship places-Temples of Nayaka Period-Type study (Madurai Meenakshi Temple)-Thirumalai Nayakar Mahal-Chetti Nadu Houses,Indo-Saracenic architecture at Madras during British Period										
Topic - 3	MANUFACTURING TECHNOLOGY							3		
Art of Ship Building-Metallurgical studies-Iron industry- Iron smelting steel- Copper and gold-Coins are source of history- Minting of Coins-Beads making- industries Stone beads- Glass beads- Terracotta beads- Shell beats/bone beats- Archeological evidences-Gem stone types described in Silapathigaram										
Topic - 4	AGRICULTURE AND IRRIGATION TECHNOLOGY							3		
Dam ,Tank, ponds, sluice, Significance of KumizhiThoompu 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										
Topic - 5	SCIENTIFIC TAMIL & TAMIL COMPUTING							3		
Development of Scientific Tamil- Tamil computing- Digitalization of Tamil Books- Development of Tamil Software- Tamil Virtual Academy- Tamil Digital Library- Online Tamil Dictionaries- Sorkuvai Project										
THEORY	15		TUTORIAL	0		PRACTICAL	0		TOTAL	15

BOOK REFERENCES	
1	தமிழகவரலாறு –மக்களும்பண்பாடும்கேகேபிள்ளை (வெளியீடு : தமிழ்நாடுபாடநூல்மற்றும்கல்வியியல்பணிகள்கழகம்)
2	கணினித்தமிழ் – முனைவர்.இல.சுந்தரம் (விகடன்பிரசுரம்)
3	கீழடிவைகைநதிகரையில்சங்ககாலநகரநாகரிகம்தொல்லியல்துறைவெளியீடு
4	Social Life of Tamils(Dr.K.K.Pillai) A joint publication of TNTB and ESC and RMRL – (in print)
5	Social Life of the Tamils – The Classical Period (Dr.S.Singaravelu) Published by International Institute of Tamil Studies.
6	The Contribution of the Tamils to Indian Culture (Dr.M.Valarmathi) Published by International Institute of Tamil Studies.

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E. / B.Tech., Common to all	23HS2T6	தமிழரும் தொழில்நுட்பமும்	1	0	0	1

பாடம்கற்றதின்விளைவுகள்				
After Successful completion of the course, the students should be able to			RB T Le ve l	Top ics Cov ered
C O 1	சங்ககாலத்தமிழர்களின்நெசவுமற்றும்பானைவனைதல்தொழில் நுட்பம்குறித்தகற்றுணர்தல்.	K2	1	
C O 2	சங்ககாலத்தமிழர்களின்கட்டடதொழில்நுட்பம்,கட்டுமானபொருட் கள்மற்றும்அவற்றைவிளக்கும்தளங்கள்குறித்துபுரிதல்.	K2	2	
C O 3	சங்ககாலத்தமிழர்களின்உலோகத்தொழில் ,நாணயங்கள்மற்றும்மணிகள்சார்ந்ததொல்லியல்சான்றுகள்பற்றி அறிதல்.	K2	3	
C O 4	சங்ககாலத்தமிழர்களின்வேளாண்மை, நீர்ப்பாசனமுறைகள்மற்றும்முத்துகுளித்தல்பற்றிபுரிதல்.	K2	4	
C O 5	நவீனஅறிவியல்தமிழ்மற்றும்கணித்தமிழ்குறித்துபுரிந்துகொள்ள லும்மற்றும்பயன்படுத்துதலும்.	K2	5	

PRE-REQUISITE	தமிழர்மரபு
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CO / PO MAPPING (1 - Weak, 2 - Medium, 3 - Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
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	-	-

பாடத்திட்டங்கள்							
அலகு 1	நெசவுமற்றும்பானைத்தொழில்நுட்பம்						3
சங்க காலத்தில் நெசவுத்தொழில் - பானைத் தொழில்நுட்பம் - கருப்பு சிவப்பு பாண்டங்கள்- பாண்டங்களில் கீறல் குறியீடுகள்.							
அலகு 2	வடிவமைப்புமற்றும்கட்டிடத்தொழில்நுட்பம்						3
சங்க காலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் மற்றும் சங்க காலத்தில் வீட்டு பொருட்களின் வடிவமைப்பு -சங்க காலத்தில் கட்டுமான பொருட்களும் நடுக்கல்லும் சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள் -மாமல்லபுர சிற்பங்களும் கோவில்களும் -சோழர்காலத்து பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத்தலங்கள் -நாயக்கர்கால கோயில்கள்-மாதிரி கட்டமைப்புகள் பற்றி அறிதல் - மதுரை மீனாட்சிஅம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால் -செட்டிநாடு வீடுகள்-பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோசாரோசெமி கட்டிடக்கலை.							
அலகு 3	உற்பத்தித்தொழில்நுட்பம்						3
கப்பல் கட்டும் கலை - உலோகவியல் - இரும்புத் தொழிற்சாலை - இரும்பை உருகுதல், எக்கு - வரலாற்றுச்சான்றுகளாக செம்பு மற்றும் தங்கநாணயங்கள் - நாணயங்கள் அச்சடித்தல் - மணி உருவாக்கும் தொழிற்சாலைகள் - கல்மணிகள் - கண்ணாடிமணிகள் - சுடுமண்மணிகள் - சங்குமணிகள்- எலும்புத்துண்டுகள்- தொல்லியல் சான்றுகள் -சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.							
அலகு 4	வேளாண்மைமற்றும்நீர்ப்பாசனத்தொழில்நுட்பம்						3
அணை, ஏரி, குளங்கள் ,மதகு - சோழர்காலக் குமிழித்தூம்பின் முக்கியத்துவம் - கால்நடை பராமரிப்பு - கால்நடைகளுக்காக வடிவமைக்கப்பட்ட கிணறுகள் - வேளாண்மை மற்றும் வேளாண்மை சார்ந்த செயல்பாடுகள் - கடல்சார் அறிவு - மீன்வளம் - முத்து மற்றும் முத்துக்குளித்தல் - பெருங்கடல் குறித்த பண்டைய அறிவு - அறிவுசார் சமூகம்.							
அலகு 5	அறிவியல்தமிழ்மற்றும்கணினித்தமிழ்						3
அறிவியல் தமிழின் வளர்ச்சி-கணினித்தமிழ் வளர்ச்சி - தமிழ் நூல்களை மின்பதிப்பு செய்தல் - தமிழ்மென் பொருட்கள் உருவாக்கம் - தமிழ் இணையகல்விக்கழகம் - தமிழ் மின்நூலகம் - இணையத்தில் தமிழ் அகராதிகள் - சொற்குவைத்திட்டம்.							
THEORY	15	TUTORIAL	0	PRACTICAL	0	TOTAL	15

BOOK REFERENCES

1	தமிழகவரலாறு -மக்களும்பண்பாடும்கேகேபிள்ளை (வெளியீடு : தமிழ்நாடுபாடநூல்மற்றும்கல்வியியல்பணிகள்கழகம்)
2	கணினித்தமிழ் - முனைவர்.இல.சுந்தரம் (விகடன்பிரசுரம்)

3	கீழடிவைகைநதிகரையில்சங்ககாலநகரநாகரிகம்தொல்லியல்துறைவெளியீடு
4	Social Life of Tamils(Dr.K.K.Pillai) A joint publication of TNTB and ESC and RMRL – (in print)
5	Social Life of the Tamils – The Classical Period (Dr.S.Singaravelu) Published by International Institute of Tamil Studies.
6	The Contribution of the Tamils to Indian Culture (Dr.M.Valarmathi) Published by International Institute of Tamil Studies.

Semester	Programme	Course Code	Course Name	L	T	P	C
I	B.E. / B.Tech., Common to all	23MA1T1	CALCULUS AND DIFFERENTIAL EQUATIONS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply eigen values and eigenvectors to convert quadratic form to canonical form through orthogonal diagonalization.		K3	1
CO2	Understand the basic concepts of derivatives to estimate maxima and minima of multivariable functions.		K2	2
CO3	Identify appropriate integral techniques to find area and volume of the given region		K3	3
CO4	Apply various integral theorems for solving engineering problems involving cubes and parallelepipeds.		K3	4
CO5	Solve first order Ordinary Differential Equations and apply them to certain physical situations.		K3	5
PRE-REQUISITE		NIL		

CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	MATRICES								9 + 3	
Eigen values and Eigen vectors – properties (without proof) – Cayley Hamilton theorem (Without proof) – Diagonalization using orthogonal transformation.										
Topic - 2	FUNCTIONS OF SEVERAL VARIABLES								9 + 3	
Partial derivatives – Total derivative – Jacobians - Taylor’s series expansion – Extreme values of functions of two variables – Lagrange’s multipliers method.										
Topic - 3	MULTIPLE INTEGRALS								9 + 3	
Double integrals– Change of order of integration – Triple integrals – Applications in area and volumes.										
Topic - 4	LINE AND SURFACE INTEGRALS								9 + 3	
Gradient, Divergence and curl– Directional Derivative – Irrotational and solenoidal vector fields – Green’s theorem – Green’s theorem in a plane – Gauss divergence theorem – Stokes theorem (excluding proof).										
Topic - 5	ORDINARY DIFFERENTIAL EQUATION								9 + 3	
Second and higher order linear differential equations with Constant coefficients – Variable coefficients – Euler Cauchy equation – Legendre’s equation – Method of variation of Parameters – Simple Applications.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
2	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
3	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2012.(E-BOOK)
4	Glyn James., “Advanced Modern Engineering Mathematics”, Pearson Education Limited, 2018.
5	N P Bali, Manish Goyal, “A Text Book of Engineering Mathematics”, 9 rd Edition, Laxmi Publication Private Limited, 2010.
6	GrewalB.S., “Higher Engineering Mathematics”, 43 nd Edition, Khanna Publications New Delhi, 2015

OTHER REFERENCES	
1	https://www.slideshare.net/mailrenuka/matrices-and-application-of-matrices
2	https://testbook.com/maths/application-of-vector#:~:text=Application%20of%20Vector%20Calculus,gravitational%20fields%2C%20and%20fluid%20flow.&text=To%20find%20the%20rate%20of,mass%20of%20a%20fluid%20flows.
3	https://youtu.be/wtuq1oSButE
4	https://www.slideshare.net/abhinavsomani3/applications-of-maths-in-our-daily-life-41607055

Semester	Programme	Course Code	Course Name	L	T	P	C
I	M.E.CSE	23MC1T2	ENGINEERING MATHEMATICS AND APPLICATIONS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply various methods in matrix theory to solve system of linear equations.		K3	1
CO2	Understand and apply the concepts of estimation theory in image processing and communication theory.		K2	2
CO3	Understand and predict the probabilities of events in models following different distributions.		K2	3
CO4	Understand the basic concepts of distribution of functions of random variables to solve related problems.		K2	4
CO5	Apply the concept of testing of hypothesis for small and large samples in real life problems.		K3	5

PRE-REQUISITE	-
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	2	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	2	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	2	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	2	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	2	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course End Survey

COURSE CONTENT										
Topic - 1	MATRIX THEORY								9 + 3	
Cholesky decomposition method- QR factorization method-Least Square Method-Singular value decompositions method- Pseudo-inverse method.										
Topic - 2	ESTIMATION THEORY								9 + 3	
Unbiased estimators – Method of moments – Maximum likelihood estimation - Curve fitting by principle of least squares – Regression lines.										
Topic - 3	PROBABILITY								9 + 3	
Probability – Axioms of probability – Conditional probability – Baye’s theorem - Random variables - Probability function – Moments – Moment generating functions and their properties – Binomial, Poisson, Geometric, Uniform.										
Topic - 4	TWO DIMENSIONAL RANDOM VARIABLES								9 + 3	
Joint distributions – Marginal and conditional distributions – Functions of two dimensional random variables – Regression curve – Correlation.										
Topic - 5	TESTING OF HYPOTHESIS								9 + 3	
Sampling distributions – Estimation of parameters - Statistical hypothesis - Tests based on Normal, t, Chi Square and F distributions for mean, variance and proportion.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	45

BOOK REFERENCES	
1	Bronson, R., "Matrix Operations", Schaum's Outline Series, McGraw Hill, 2011
2	Veerarajan T, "Probability and Random Processes (with Queuing Theory and Queuing Networks)", Fourth Edition ,McGraw Hill Education(India) Pvt Ltd., New Delhi, 2016
3	Gross, D., Shortle J. F., Thompson, J.M., and Harris, C. M., "Fundamentals of Queueing Theory", 4 th Edition, John Wiley, 2014
4	Johnson, R.A., Miller, I and Freund J., "Miller and Freund"s Probability and Statistics for Engineers", Pearson Education, Asia, 8 th Edition, 2015
5	Probability & Statistics by Schaum outline series, Lipschutz Seymour,TMH,New Delhi 3 rd Edition 2009.
6	"Probability, Statistics", and "Queueing Theory Computer Science Applications". Second Edition, ARNOLD O. ALLEN

OTHER REFERENCES	
1	https://www.cuemath.com/learn/mathematics/probability-in-real-life/
2	https://sciencing.com/examples-of-real-life-probability-12746354.html
3	http://www.iraj.in/journal/journal_file/journal_pdf/14-358-149822091462-64.pdf

Semester	Programme	Course Code	Course Name	L	T	P	C
I	B.E. / B.Tech., Common to all	23PH1LT3	ENGINEERING PHYSICS	3	1	2	5

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Utilize the conceived concepts and techniques for synthesizing novel crystals.		K2	1
CO2	Classify the extensive properties of solid materials to use it in material fabrication field.		K2	2
CO3	Understand the principles of thermodynamics and apply it in real systems.		K2	3
CO4	Analyze the properties of the Laser beam and apply it in industrial and medical field.		K3	4
CO5	Apply advanced technical methods by assessing the fibre optics.		K3	5

PRE-REQUISITE	NIL
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	1	2	-	-	1	3	2	1	2	-	-
CO2	3	2	2	2	2	-	-	1	3	2	1	2	-	-
CO3	3	2	2	1	2	-	-	1	3	2	1	2	-	-
CO4	3	2	2	2	2	-	-	1	3	2	1	2	-	-
CO5	3	2	2	1	2	-	-	1	3	2	1	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Laboratory Record and Model Practical Examinations
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1		CRYSTAL PHYSICS							9+3	
Unit cell-Bravais lattices, directions and planes in a crystal, Miller indices – inter-planar distances - coordination number and packing factor for SC, BCC, FCC, HCP and diamond structures - growth of single crystals: solution and melt growth techniques.										
Topic - 2		PROPERTIES OF MATTER							9+3	
Hooke's Law - Stress-Strain Diagram - Elastic moduli - Poisson's Ratio - Expression for bending moment of beam and depression of Cantilever - Expression for Young's modulus by Non-uniform bending and its experimental determination.										
Topic - 3		THERMAL PHYSICS							9+3	
Transfer of heat energy - thermal conduction, convection and radiation – heat conduction in solids – thermal conductivity - Lee's disc method - theory and experiment - conduction through compound media (series and parallel) – thermal insulation – applications: heat exchangers, refrigerators, ovens and solar water heaters.										
Topic - 4		LASER TECHNOLOGY							9+3	
Laser characteristics -Spontaneous emission and stimulated emission-Einstein's coefficients-Pumping methods- Components of a laser -CO ₂ laser-Solid state laser(Nd:YAG)-Semiconductor diode lasers – Application of laser in science and technology.										
Topic - 5		FIBER OPTICS							9+3	
Fiber optical communication system – Structure of an optical fiber- Numerical aperture and acceptance angle-Classification of optical fibers (Materials, modes and refractive index profile)- Displacement and temperature sensor- Medical Endoscopy.										
THEORY	45		TUTORIAL	15		PRACTICAL	00		TOTAL	60
LIST OF EXPERIMENTS										
<ol style="list-style-type: none"> 1. Determination of young's modulus by non- uniform bending. 2. Determination of young's modulus by uniform bending. 3. Torsional pendulum - determination of moment of inertia and rigidity modulus. 4. Determination of velocity of sound and compressibility of liquid – Ultrasonic Interferometer. 5. Determination of Wavelength, and particle size using Laser. 6. Determination of thermal conductivity of a bad conductor using Lee's disc method. 7. Air wedge – determination of thickness of a thin wire. 8. Determination of acceptance angle and numerical aperture of an optical fiber. 										
THEORY	00		TUTORIAL	00		PRACTICAL	30		TOTAL	30

BOOK REFERENCES	
1	Avadhanulu M N, Kshirsagar P G and Arun Murthy TVS, “A Text book of Engineering Physics”, 2 nd Edition, S Chand Publishing, New Delhi, 2022
2	Dr.G.Senthilkumar “ Engineering Physics-1” Revised & Animated Version, VRB Publishers Pvt.Ltd.,2017
3	Dr.R.Suresh “ A Text book of Engineering Physics”, 2 nd Edition, Sri Krishna Hi-tech Publishing Pvt, Ltd., Chennai,2019.
4.	Dr.P.Mani “ A Text book of Engineering Physics”,Dhanam Publications.,Chennai.,2022.
5.	Dr.M.Arumugam “ A Text book of Engineering Physics”, Anuradha Publications.,Chennai.,2020.
6.	Serway and Jewett, “Physics for Scientists and Engineers with Modern Physics”, 6th Edition, Thomson Brooks Cole, 2008

OTHER REFERENCES	
1	https://nptel.ac.in/courses/115/105/115105099/
2	https://nptel.ac.in/courses/115/106/115106061/
3	https://www.youtube.com/watch?v=_JOchLyNO_w
4	https://www.journals.elsevier.com › Journals
5	https://nptel.ac.in/courses/118/104/118104008/
6	https://www.digimat.in/nptel/courses/video/122107035/L37.html

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E -EEE	23MA2T6	TRANSFORMS, COMPLEX VARIABLES AND FOURIER ANALYSIS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply the concepts of Laplace transformation in core engineering applications.		K3	1
CO2	Solve linear differential equations using Laplace transform techniques.		K3	2
CO3	Apply the concepts of analytic functions and conformal mapping to transform the functions from z- plane into w- plane.		K3	3
CO4	Understand the concept of Z transforms to solve difference equations.		K2	4
CO5	Demonstrate Fourier series to study the behaviour of periodic functions and their applications in system communications.		K2	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1		LAPLACE TRANSFORMS						9 + 3		
Laplace transform–Condition for existence– Transform of elementary function– Standard properties (Statement only)–Transform of unit step function– Impulse function –periodic function– Initial and final value theorem.										
Topic - 2		INVERSE LAPLACE TRANSFORMS						9 + 3		
Inverse Laplace transform – Convolution theorem (without proof) – Standard properties (Statement only) – Second order linear differential equations with constant coefficients.										
Topic - 3		ANALYTIC FUNCTIONS						9 + 3		
Analytic functions : Cauchy –Riemann equations (Cartesian form) and sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Construction of analytic functions – Bilinear transformations-Conformal mapping $w = z + a, w = az, w = \frac{1}{z}$										
Topic - 4		Z TRANSFORMS						9 + 3		
Z-transforms- Elementary properties (statement only)- Inverse Z-transform (using partial fractions and residues)- Initial and final value theorems- Convolution theorem (without proof)- Formation of difference equations-Solution of difference equations using Z-transform.										
Topic - 5		FOURIER SERIES						9 + 3		
Dirichlet's conditions- General Fourier series- Odd and even functions- Half range series- Parseval's identity- Harmonic analysis.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Grewal B.S., “Higher Engineering Mathematics”, 43 rd Edition, Khanna Publications New Delhi, 2015
2	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
3	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
4	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2010.
5	“Advanced Modern Engineering Mathematics”, Third Edition, Glyn James, David Burley, Dick Clements, Phil Dyke John Sear, Nigel Steele Jerry Wright. University of Brisb University of Plymouth University of Edinburgh Coventry University.
6	N P Bali, Manish Goyal, “A Text Book of Engineering Mathematics”, 9 rd Edition, Laxmi Publication Private Limited, 2010.

OTHER REFERENCES	
1	https://www.youtube.com/watch?v=GSpbh94-Cjo
2	https://www.studocu.com/row/document/university-of-engineering-and-technology-lahore/principle-of-marketing/applications-of-complex-numbers-ppt/8436504

3	https://www.slideshare.net/sujathavvv/complex-analysis-208085345
4	https://slideplayer.com/slide/15496011/

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E. ECE	23MA2T5	LAPLACE TRANSFORMS AND COMPLEX ANALYSIS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply the concepts of Laplace transformation in core engineering applications.		K3	1
CO2	Solve linear differential equations using Laplace transform techniques.		K3	2
CO3	Apply the concepts of analytic functions to transform the functions from z-plane into w-plane.		K3	3
CO4	Apply the techniques of integration to evaluate real and complex integrals.		K3	4
CO5	Evaluate contour integrals of a given function at given points using residue theorem.		K2	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1		LAPLACE TRANSFORMS							9 + 3	
Laplace transform–Condition for existence– Transform of elementary function– Standard properties (Statement only)–Transform of unit step function– Impulse function –periodic function– Initial and final value theorem.										
Topic - 2		INVERSE LAPLACE TRANSFORMS							9 + 3	
Inverse Laplace transform – Convolution theorem (without proof) – Standard properties (Statement only) – Second order linear differential equations with constant coefficients.										
Topic - 3		ANALYTIC FUNCTIONS							9 + 3	
Analytic functions : Cauchy –Riemann equations (Cartesian form) and sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Construction of analytic functions – Bilinear transformations										
Topic - 4		COMPLEX INTEGRATION							9 + 3	
Complex integration – Statement and applications of Cauchy’s integral theorem and Cauchy’s integral formula- Taylor’s and Laurent’s series expansions.										
Topic - 5		SINGULARITIES AND RESIDUES							9 + 3	
Singular points–Classification of singularities-Residues–Cauchy’s residue theorem–Application of residue theorem for evaluation of real integrals–Use of circular contour and semi circular contour.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Grewal B.S., “Higher Engineering Mathematics”, 43 rd Edition, Khanna Publications New Delhi, 2015
2	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
3	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
4	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2010.
5	“Advanced Modern Engineering Mathematics”, Third Edition, Glyn James, David Burley, Dick Clements, Phil Dyke John Sear, Nigel Steele Jerry Wright. University of Brisb University of Plymouth University of Edinburgh Coventry University.
6	N P Bali, Manish Goyal, “A Text Book of Engineering Mathematics”, 9 rd Edition, Laxmi Publication Private Limited, 2010.

OTHER REFERENCES	
1	https://www.youtube.com/watch?v=GSpbh94-Cjo
2	https://www.studocu.com/row/document/university-of-engineering-and-technology-lahore/principle-of-marketing/applications-of-complex-numbers-ppt/8436504
3	https://www.slideshare.net/sujathavvv/complex-analysis-208085345
4	https://slideplayer.com/slide/15496011/

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E.Mech	23MA2T5	LAPLACE TRANSFORMS AND COMPLEX ANALYSIS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply the concepts of Laplace transformation in core engineering applications.		K3	1
CO2	Solve linear differential equations using Laplace transform techniques.		K3	2
CO3	Apply the concepts of analytic functions . to transform the functions from z- plane into w- plane.		K3	3
CO4	Apply the techniques of integration to evaluate real and complex integrals.		K3	4
CO5	Evaluate contour integrals of a given function at given points using residue theorem		K3	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1		LAPLACE TRANSFORMS							9 + 3	
Laplace transform–Condition for existence– Transform of elementary function– Standard properties (Statement only)–Transform of unit step function– Impulse function –periodic function– Initial and final value theorem.										
Topic - 2		INVERSE LAPLACE TRANSFORMS							9 + 3	
Inverse Laplace transform – Convolution theorem (without proof) – Standard properties (Statement only) – Second order linear differential equations with constant coefficients.										
Topic - 3		ANALYTIC FUNCTIONS							9 + 3	
Analytic functions : Cauchy –Riemann equations (Cartesian form) and sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Construction of analytic functions – Bilinear transformations.										
Topic - 4		COMPLEX INTEGRATION							9 + 3	
Complex integration – Statement and applications of Cauchy’s integral theorem and Cauchy’s integral formula- Taylor’s and Laurent’s series expansions.										
Topic - 5		SINGULARITIES AND RESIDUES							9 + 3	
Singular points–Classification of singularities–Residues–Cauchy’s residue theorem– Application of residue theorem for evaluation of real integrals–Use of circular contour and semi circular contour.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Grewal B.S., “Higher Engineering Mathematics”, 43 rd Edition, Khanna Publications New Delhi, 2015
2	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
3	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
4	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2010.
5	“Advanced Modern Engineering Mathematics”, Third Edition, Glyn James, David Burley, Dick Clements, Phil Dyke John Sear, Nigel Steele Jerry Wright. University of Brisb University of Plymouth University of Edinburgh Coventry University.
6	N P Bali, Manish Goyal, “A Text Book of Engineering Mathematics”, 9 th Edition, Laxmi Publication Private Limited, 2010.

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1	https://www.youtube.com/watch?v=GSpbh94-Cjo
2	https://www.studocu.com/row/document/university-of-engineering-and-technology-lahore/principle-of-marketing/applications-of-complex-numbers-ppt/8436504
3	https://www.slideshare.net/sujathavvv/complex-analysis-208085345
4	https://slideplayer.com/slide/15496011/

Semester	Programme	Course Code	Course Name	L	T	P	C
II	B.E.,CSE & B.TECH IT & AIDS	23MA2T4	ALGEBRA AND NUMBER THEORY	3	1	0	4

COURSE LEARNING OUTCOMES (COs)

After Successful completion of the course, the students should be able to		RBT Level	Topics Covered
CO1	Understand the fundamental concepts of vector algebra and their role in modern mathematics.	K2	1
CO2	Apply orthogonalization method to solve the problems on linear transformation.	K3	2
CO3	Determine the accurate and efficient use of advanced algebraic techniques.	K2	3
CO4	Use Chinese remainder theorem to solve two or more simultaneous linear congruences.	K3	4
CO5	Apply classical theorems to solve multiplicative functions.	K3	5

PRE-REQUISITE CALCULUS AND DIFFERENTIAL EQUATIONS

CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)

COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS

DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	VECTOR SPACES								9 + 3	
Vector spaces-Subspaces-Linear combinations and linear system of equations-Linear dependence and independence-Bases and dimensions										
Topic - 2	LINEAR TRANSFORMATION AND INNER PRODUCT SPACES								9 + 3	
Linear transformation-Null spaces and ranges-Dimension theorem-Matrix representation of a linear transformation-Inner product-Norms-Gram Schimdt orthogonalization process										
Topic - 3	DIVISIBILITY THEORY AND CANONICAL DECOMPOSITIONS								9 + 3	
Division algorithm – Base - b representations – Number patterns – Prime and composite numbers – GCD– Euclidean algorithm – Fundamental theorem of arithmetic – LCM										
Topic - 4	DIOPHANTINE EQUATIONS AND CONGRUENCES								9 + 3	
Linear Diophantine equations – Congruence’s – Linear Congruence’s - Applications: divisibility tests - Modular exponentiation-Chinese remainder theorem – 2 x 2 linear systems.										
Topic - 5	CLASSICAL THEOREMS AND MULTIPLICATIVE FUNCTIONS								9 + 3	
Wilson’s theorem – Fermat’s little theorem – Euler’s theorem – Euler’s Phi functions – Tau and Sigma functions.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
2	“Algebraic Number Theory”, Second Edition, Richard A.Mollin, 2011.(E-Book)
3	J.H.van Lint, “Introduction to Coding Theory”, Third Edition, Springer.
4	David M,Burton, “Elementary Number Theory”, Seventh Edition, Tata Mcgraw Hill, 2023.
5	Martin Erickson & Anthony Vazzana, “Introduction to Number Theory”, Chapman & Hall/CRC, 2011.
6	“Algebraic Number Theory”, J.S. Milne, Version 3.08 July 19, 2020.(E-Book)
7	“Linear Algebra and Partial Differential Equations”, G.Balaji Publishers, First edition, 2018.

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1	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
2	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
3	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2012.(E-BOOK)
4	Glyn James., “Advanced Modern Engineering Mathematics”, Pearson Education Limited, 2018.
5	N P Bali, Manish Goyal, “A Text Book of Engineering Mathematics”, 9 rd Edition, Laxmi Publication Private Limited, 2010.
6	Grewal B.S., “Higher Engineering Mathematics”, 43 rd Edition, Khanna Publications New Delhi, 2015

OTHER REFERENCES

1	https://youtu.be/Qm_OS-8COwU
2	https://youtu.be/KOkuTXrv5Gg
3	https://youtu.be/ru7mWZJIRQg

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.E. / B.Tech., Common to all	23EN3L1	INTERPERSONAL COMMUNICATION SKILLS LAB I	0	0	3	1.5

After Successful completion of the course, the students should be able to		RBT Level
CO1	Use accurate and appropriate language in decisions to avoid errors.	K3
CO2	Learn to interact efficiently with individuals at all levels.	K3
CO3	Expose their personality effectively.	K4
CO4	Learn communication skills for socializing, telephone conversations and negotiations.	K4
CO5	Assess the culture and professional principles.	K2

PRE-REQUISITE	COMMUNICATIVE ENGLISH & TECHNICAL ENGLISH
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO2	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO3	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO4	-	-	-	-	-	-	-	1	3	3	-	3	-	-
CO5	-	-	-	-	-	-	-	1	3	3	-	3	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Laboratory Record
	2	Model Practical Examinations
	3	End Semester Examinations
INDIRECT	1	Course End Survey

LIST OF EXPERIMENTS										
1	Conversation Practice Sessions (To be done as real-life interactions)									
2	Talking to friends									
3	Listening skills									
4	Email Etiquette									
5	Business English									
6	Discussion on the clips									
7	Decision Making									
8	Developing Conversation									
THEORY	0		TUTORIAL	0		PRACTICAL	45		TOTAL	45

BOOK REFERENCES	
1	Communication skills in English by Anjana Tiwari, 2021
2	How to improve your communication skills by Dawood Khan,2021.
3	Comprehension & Communication Skills In English, ISBN: 9789327278873, Edition/Reprint: 2021, Author(s): Varinder Kumar, Publisher: KALYANI PUBLISHERS, Product ID: 577073, Country of Origin: India
4	Language Lab - Mentorship in Developing Communication Skills: Crafting Connections, Influencing Change: Your Roadmap to Effective Communication Kindle Edition by SIROHI WRITING (Author) Format: Kindle Edition Publication date - 26 January 2024
5	Comprehension & Communication Skills In English, ISBN: 9789327278873, Edition/Reprint: 2021, Author(s): Varinder Kumar, Publisher: KALYANI PUBLISHERS, Product ID: 577073, Country of Origin: India by Sumreen Mahmood (Author) Publication date 1 February 2024

OTHER REFERENCES	
1	https://youtu.be/cC2vxmBDAG8
2	https://youtu.be/l3RSiSUwIT0
3	https://youtu.be/cyXADWE7KPo
4	https://youtu.be/SByFAGGTDoQ
5	https://youtu.be/q8tIgb_BtiI
6	https://youtu.be/X3Fz_Gu5WUE

Semester	Programme	Course Code	Course Name	L	T	P	C
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IV	B.E. / B.Tech., Common to all	23EN4L1	INTERPERSONAL COMMUNICATION SKILLS LAB - II	0	0	3	1.5
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After Successful completion of the course, the students should be able to		RBT Level
CO1	Enhance academic potential with the essential English language abilities.	K3
CO2	Learn comprehend English texts with the assistance.	K2
CO3	Improve communication skills to use it in any situation.	K4
CO4	Enhance speaking and academic conversation skills.	K4
CO5	Develop ability to make interesting presentations.	K2

PRE-REQUISITE	COMMUNICATIVE ENGLISH, TECHNICAL ENGLISH & INTERPERSONAL COMMUNICATION SKILLS LAB - I
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	3	-	3	-	-
CO2	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO3	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO4	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO5	-	-	-	-	-	-	-	-	-	3	-	3	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Laboratory Record
	2	Model Practical Examinations
	3	End Semester Examinations
INDIRECT	1	Course End Survey

LIST OF EXPERIMENTS

1	Role Play						
2	Empathy						
3	Time Management						
4	Body Language						
5	Mock Interview						
6	Group Discussion						
7	Presentation						
8	Team Building Skills						
THEORY	0	TUTORIAL	0	PRACTICAL	45	TOTAL	45

BOOK REFERENCES	
1	Communication Skill by Dale Carnegie,2022.
2	Communication: Core Interpersonal Skills by Gjyn O'Toolee,2020.
3	Effective Communication in the workplace by David L.Lewis,2019.
4	25 Business Skills In English, ISBN: 9788122416572, Edition/Reprint: 1 st , Author(s): McCracken, Mark Publisher: NEW AGE INTERNATIONAL (P) LTD PUBLISHERS, Product ID: 563189, Country of Origin: India
5	English Communication: Theory And Practice Author(s): Manoj Kumar Garg (ISBN: 9789382209898) Publisher: SCHOLAR TECH PRESS, Edition/Reprint: 2022, Country of Origin: India
OTHER REFERENCES	
1	https://youtu.be/cC2vxmBDAG8
2	https://youtu.be/l3RSiSUwlT0
3	https://youtu.be/cyXADWE7KPo
4	https://youtu.be/aZYHsnIAQqo
5	https://youtu.be/7LP-cXkaRIo?list=PLvbKJaHKFw3ZYTp2Fc9cj2LwZtlbOd5ux
6	https://youtu.be/PcDut8zfAsk

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.E -EEE	23MA3T4	BOUNDARY VALUE PROBLEMS AND NUMERICAL METHODS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply Fourier series to solve an initial–boundary value problem for one dimensional wave and heat equations.		K3	1
CO2	Solve an initial–boundary value for twodimensional heat equations using Fourier Series.		K3	2
CO3	Identify and apply various numerical techniques for solving non-linear equations and systems of linear equations.		K3	3
CO4	Choose appropriate method to determine the integration and differentiation of the functions by using the numerical data.		K4	4
CO5	Solve ordinary differential equations by using numerical methods.		K3	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS, TRANSFORMS, COMPLEX VARIABLES AND FOURIER ANALYSIS
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	ONE DIMENSIONAL BOUNDARY VALUE PROBLEMS								9 + 3	
Fourier series solution – Vibration of strings – One dimensional wave equation – One dimensional heat flow equation (unsteady state).										
Topic - 2	TWO DIMENSIONAL BOUNDARY VALUE PROBLEMS								9 + 3	
Fourier series solution –Two dimensional (steady state) heat flow equations (Cartesian form only) -- Separation of variables.										
Topic - 3	SYSTEM OF EQUATIONS								9 + 3	
Newton Raphson method - Solution of linear system of equations - Gauss elimination method –Gauss Jordan method –Gauss Seidel method.										
Topic - 4	INTERPOLATION								9 + 3	
Interpolation with equal intervals - Newton’s forward and backward difference formulae - Interpolation with Unequal intervals- Lagrange's interpolation.										
Topic - 5	NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS								9 + 3	
Taylor’s series method-Euler method-Modified Euler method-Fourth order Runge kutta method for solving first order differential equations.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Jain R.K and Iyengar S.R.K, “Advanced Engineering Mathematics”, 5 rd Edition, Narosa Publishing House, New Delhi, Reprint 2019.
2	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
3	“Advanced Modern Engineering Mathematics”, Third Edition, Glyn James, David Burley, Dick Clements, Phil Dyke John Sear, Nigel Steele Jerry Wright. University of Brisb University of Plymouth University of Edinburgh Coventry University.
4	Dr.B.S.Grewal., ‘Numerical Methods’ in Engineering & Science Khanna Publishers, New Delhi, 11 th Edition2013.
5	“Numerical Methods for Engineers”, With Software and Programming Applications, Fourth Edition. Steven C. Chapra Raymond P. Canale
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OTHER REFERENCES	
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2	https://www.scienceabc.com/eyeopeners/why-do-we-need-numerical-analysis-in-everyday-life.html
3	https://testbook.com/maths/applications-of-differential-equations

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.E. ECE	23MA3T6	Transforms and Random Processes	3	1	0	4

COURSE LEARNING OUTCOMES (COs)

After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Analyse the situation and select an appropriate techniques for solving problems based on Fourier transforms.		K3	1
CO2	Understand Z-transform and estimate inverse Z-transform of certain functions and use it to solve difference equations.		K2	2
CO3	Relate and apply the concept of probability and random variables and predict probabilities of events in models.		K3	3
CO4	Interpret discrete and continuous probability distributions including requirements, mean and variance for making decisions.		K2	4
CO5	Classify different types of random processes and use it to find whether it is SSS or WSS.		K2	5

PRE-REQUISITE

CALCULUS AND DIFFRENETIAL EQUATIONS, LAPLACE TRANSFORMS AND COMPLEX ANALYSIS

CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)

COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS

DIRECT	1	Continuous Assessment Tests
	2	Assignments

	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	FOURIER TRANSFORMS								9 + 3	
Fourier transform pair - Fourier sine and cosine transforms - Properties (without proof) - Transforms of simple functions - Convolution theorem - Parseval's identity.										
Topic - 2	Z TRANSFORM								9 + 3	
Z-transforms- Elementary properties (statement only)- Inverse Z-transform (using partial fractions and residues)- Initial and final value theorems- Convolution theorem (without proof)- Formation of difference equations-Solution of difference equations using Z-transform.										
Topic - 3	RANDOM VARIABLES								9 + 3	
Random Variables - Discrete and Continuous random variables – Probability mass and density functions – Mean and Variance.										
Topic - 4	PROBABILITY DISTRIBUTIONS								9 + 3	
Discrete Distributions: Binomial distribution – Poisson distribution – Continuous Distributions: Exponential distribution – Normal distribution – Two Dimensional Random Variables: Joint probability distributions – Marginal and conditional distributions										
Topic - 5	RANDOM PROCESS								9 + 3	
Introduction – Classification – Stationary process – Markov chains – Transition probabilities – Limiting distributions – Poisson process.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Grewal B.S., “Higher Engineering Mathematics”, 43 rd Edition, Khanna Publications New Delhi, 2015
2	Jain R.K and Iyengar S.R.K., “Advanced Engineering Mathematics”, 5 th Edition, Narosa Publishing House, New Delhi, Reprint 2019.
3	Ramana B.V., “Higher Engineering Mathematics”, Tata Mcgraw Hill Publishing Company, New Delhi, 2017.
4	Kreyszig E., “Advanced Engineering Mathematics”, 10 th Edition, John Wiley Sons, 2010.
5	Oliver . C. Lbe., “Fundamentals of applied probability and random processes” Academic Press, 2007.
6	Miller. S.L. and Childers. D.G., —“Probability and Random Processes with Applications to Signal Processing and Communications ”, Academic Press, 2013.

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1	https://youtu.be/tp_MdKz3fC8
2	https://youtu.be/5Z3KAKs-EZs
3	https://youtu.be/lnVTILPF2e8

4	https://youtu.be/8963i2DnFiQ
5	https://youtu.be/HfAXKnibhKw

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.E. MECH	23MA3T5	FOURIER ANALYSIS AND STATISTICS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Use the appropriate methods related to Fourier series to solve the problems based on periodic and non periodic functions.		K3	1
CO2	Understand the situation and select appropriate techniques for solving problems based on Fourier transforms.		K2	2
CO3	Apply probability axioms and the moments of discrete and continuous random variables to core engineering problems.		K3	3
CO4	Analyse large and small sample tasks and interpret the results using Chi-square distribution and F distribution.		K4	4
CO5	Classify the experiment with proper observations and measurement to get a valid result using various design methods.		K2	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS, LAPLACE TRANSFORMS AND COMPLEX VARIABLES
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations

INDIRECT	1	Course Exit Survey
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COURSE CONTENT										
Topic - 1	FOURIER SERIES							9 + 3		
Dirichlet's conditions- General Fourier series- Odd and even functions- Half range series- Parseval's identity- Harmonic analysis.										
Topic - 2	FOURIER TRANSFORMS							9 + 3		
Fourier transform pair - Fourier sine and cosine transforms - Properties (without proof) - Transforms of simple functions - Convolution theorem - Parseval's identity.										
Topic - 3	PROBABILITY							9 + 3		
Probability – Axioms of probability – Conditional probability – Total probability – Baye's Theorem – Discrete and continuous random variable.										
Topic - 4	TESTING OF HYPOTHESIS							9 + 3		
Large sample tests for single mean and difference of means – Small sample test: t distribution - Chi-square distribution - F distribution.										
Topic - 5	DESIGN OF EXPERIMENTS							9 + 3		
One way and two way classifications – Completely randomized design – Randomized block design – Latin square design.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Jain.R.Kand Iyengar S.R.K,"Advanced Engineering Mathematics",5th Edition, Narosa Publishing House, New Delhi , Reprint 2019
2	Ramana B.V., "Higher Engineering Mathematics",TataMcgraw Hill Publishing Company, New Delhi, 2017
3	McGraw –Hill "Statistical Methods", Combined Edition (Volumes I & II), N G DAS
4	Introduction to "Probability and Statistics for Engineers and Scientists", Third Edition SHELDON M. ROSS
5	Oliver . C. Lbe., "Fundamentals of applied probability and random processes" 2 nd Edition, 2014.
6	N P Bali, Manish Goyal, "A Text Book of Engineering Mathematics", 9th Edition, Laxmi Publication Private Limited, 2010.

OTHER REFERENCES	
1	https://slideplayer.com/slide/15496011/
2	https://youtu.be/tp_MdKz3fC8
3	https://youtu.be/lnVTILPF2e8

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.E.CSE & B.Tech.IT	23MA3T2	PROBABILITY AND QUEUEING THEORY	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Relate and apply the concept of probability and random variables to predict probabilities of events		K2	1
CO2	Interpret discrete and continuous probability distributions including requirements, mean and variance for making decisions.		K2	2
CO3	Compute correlation between variables, and predict unknown values using regression.		K3	3
CO4	Classify different types of random processes and use it to find whether it is SSS or WSS.		K2	4
CO5	Analyse the situation and select an appropriate queuing model techniques for solving problems based on Little's formula.		K4	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS, ALGEBRA AND NUMBER THEORY
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations

INDIRECT	1	Course Exit Survey
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COURSE CONTENT										
Topic - 1	PROBABILITY								9 + 3	
Probability-Axioms of probability –Conditional probability-Total probability-Bayes theorem- Discrete and continuous random variables – Moments – Moment generating functions										
Topic - 2	DISTRIBUTION FUNCTIONS								9 + 3	
Binomial distribution-Poisson distribution-Exponential distribution-Uniform distribution-Normal distribution-Applications.										
Topic - 3	TWO-DIMENSIONAL RANDOM VARIABLES								9 + 3	
Joint distributions – Marginal and conditional distributions – Covariance – Correlation and linear regression.										
Topic - 4	RANDOM PROCESSES								9 + 3	
Classification – Stationary process – Markov chain – Bernoulli and Poisson process.										
Topic - 5	QUEUEING MODELS								9 + 3	
Markovian queues – Birth and death processes – Single and multiple server queueing models – Little's formula with finite waiting rooms.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Miller. S.L. and Childers. D.G., —“Probability and Random Processes with Applications to Signal Processing and Communications ”, Academic Press, 2013.
2	Peebles, P.Z., "Probability, Random Variables and Random Signal Principles ", Tata McGraw Hill, 6 th Edition, New Delhi, 2018.
3	Oliver . C. Lbe., “Fundamentals of applied probability and random processes” Academic Press, 2018.
4	Taha, H.A., “Operations Research”, 8 th Edition, Pearson India Education Services, Delhi, 2015.
5	Donald Gross, John F. Shortle, James M .Thomson, Carl M. Haris.,”Fundamentals of Queueing theory”,4 th Edition, Wiley India Pvt Ltd,2017.
6	“Probability, Statistics”, and “Queueing Theory Computer Science Applications”, Second Edition, ARNOLD O. ALLEN.

OTHER REFERENCES	
1	https://youtu.be/InVTILPF2e8
2	https://youtu.be/8963i2DnFiQ
3	https://youtu.be/HfAXKnibhKw

Semester	Programme	Course Code	Course Name	L	T	P	C
III	B.Tech.AIDS	23MA3T3	STATISTICAL ANALYSIS	3	1	0	4

COURSE LEARNING OUTCOMES (COs)				
After Successful completion of the course, the students should be able to			RBT Level	Topics Covered
CO1	Apply various sampling methods to solve core engineering problems.		K3	1
CO2	Justify the concept of testing of hypothesis for small and large samples and interpret the results.		K5	2
CO3	Analyse the correlation and regression techniques and explore variable relationships		K4	3
CO4	Classify the principles of design of experiments and perform analysis of variance.		K2	4
CO5	Sketch control charts and criticize on the process control.		K5	5

PRE-REQUISITE	CALCULUS AND DIFFERENTIAL EQUATIONS, ALGEBRA AND NUMBER THEORY
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CO / PO MAPPING (1 – Weak, 2 – Medium, 3 – Strong)														
COs	Programme Learning Outcomes (POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO2	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO3	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO4	3	3	3	3	-	-	-	1	3	2	-	2	-	-
CO5	3	3	3	3	-	-	-	1	3	2	-	2	-	-

COURSE ASSESSMENT METHODS		
DIRECT	1	Continuous Assessment Tests
	2	Assignments
	3	End Semester Examinations
INDIRECT	1	Course Exit Survey

COURSE CONTENT										
Topic - 1	SAMPLING								9 + 3	
Sampling distributions – Estimation of parameters – Statistical hypothesis – Large sample tests for single mean – small sample test –t, F distributions – Tests for goodness of fit										
Topic - 2	TESTING OF HYPOTHESIS								9 + 3	
Large sample tests based on Normal distribution for difference of means -Tests based on t, Chi-square and F distributions for mean, variance and proportion – Contingency table (test for independent) – Goodness of fit.										
Topic - 3	CORRELATION AND REGRESSION								9 + 3	
Estimation using the regression line – Correlation analysis – Limitations, errors, and caveats of using regression and correlation analysis										
Topic - 4	DESIGN OF EXPERIMENTS								9 + 3	
One way and two way classifications – Completely randomized design – Randomized block design – Latin square design.										
Topic - 5	STATISTICAL QUALITY CONTROL								9 + 3	
Control charts for measurements (X and R charts) – Control charts for attributes (p, c and np charts) – Tolerance limits – Acceptance sampling.										
THEORY	45		TUTORIAL	15		PRACTICAL	0		TOTAL	60

BOOK REFERENCES	
1	Jain .R.K and Iyengar S.R.K, "Advanced Engineering Mathematics", 3rd Edition, Narosa Publishing House, New Delhi , Reprint 2009
2	Ramana B.V., "Higher Engineering Mathematics", TataMcgraw Hill Publishing Company, New Delhi, 2008
3	N P Bali, Manish Goyal, "A Text Book of Engineering Mathematics", 3 rd Edition, Laxmi Publication Private Limited, 2009.
4	McGraw –Hill "Statistical Methods", Combined Edition (Volumes I & II), N G DAS
5	Introduction to "Probability and Statistics for Engineers and Scientists", Third Edition SHELDON M. ROSS
6	Taha, H.A., "Operations Research", 8 th Edition, Pearson India Education Services, Delhi, 2009.

OTHER REFERENCES	
1	https://youtu.be/tp_MdKz3fC8
2	https://youtu.be/lnVTILPF2e8

CURRICULUM

SEMESTER I – Common to all

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23MA1T1	Calculus and Differential Equations	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
2	23EN1LT2	Communicative English	HS	50	50	3	0	2	4
3	23PH1LT3	Engineering Physics	BS	50	50	3	1	2	5
4	23CY1LT4	Engineering Chemistry	BS	50	50	3	1	2	5
5	23CS1LT5	Problem Solving and C Programming	ES	50	50	3	0	4	5
MANDATORY COURSE									
6		Universal Human Values 1 - Induction Programme	HS	-	-	-	-	-	-
7	23HS1T6	Heritage of Tamils	HS	100	-	1	0	0	1
Total						16	3	10	24

SEMESTER II - CSE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - EEE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23CM2T4	Basic Civil and Mechanical Engineering	ES	40	60	3	0	0	3
5	23MA2T6	Transforms, Complex Variables and Fourier Analysis	BS	40	60	3	1	0	4
THEORY COURSES WITH LABORATORY COMPONENTS									
6	23EE2LT1	Electrical Circuits Analysis	ES	50	50	3	0	4	5
Total						16	1	4	16

SEMESTER II - ECE

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T5	Laplace Transforms and Complex Analysis	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23EE2LT1	Electrical Circuits Analysis	ES	50	50	3	0	4	5
6	23EC2LT2	Electronic Devices and Circuits	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - MECH

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23ME2T4	Engineering Mechanics	ES	40	60	3	0	0	3
5	23MA2T5	Laplace Transforms and Complex Analysis	BS	40	60	3	1	0	4
THEORY COURSES WITH LABORATORY COMPONENTS									
6	23ME2LT1	Engineering Graphics	ES	50	50	3	0	2	4
LABORATORY COURSES									
7	23EM2L1	Engineering Practices Laboratory	ES	60	40	0	0	4	2
Total						16	1	6	17

SEMESTER II - IT

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

SEMESTER II - AIDS

Sl. No.	Course Code	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	23EN2T1	Technical English	HS	40	60	3	0	0	3
2	23HS2T2	Environmental Sciences	MC	100	-	3	0	0	0
3	23HS2T3	Tamils and Technology	MC	100	-	1	0	0	1
4	23MA2T4	Algebra and Number Theory	BS	40	60	3	1	0	4
THEORY COURSE WITH LABORATORY COMPONENTS									
5	23CS2LT1	Python Programming	ES	50	50	3	0	4	5
6	23EE2LT2	Basics of Electrical and Electronics Engineering	ES	50	50	3	0	4	5
Total						16	1	8	18

MATHEMATICS

SEMESTER III

Sl. No.	Department	Course Title	Category	CIA	ESE	L	T	P	C
THEORY COURSES									
1	MECH	Fourier Analysis and Statistics	BS	40	60	3	1	0	4
2	ECE	Transforms and Random Processes	BS	40	60	3	1	0	4
3	EEE	Boundary Value Problems and Numerical Methods	BS	40	60	3	1	0	4
4	CSE	Probability and Queuing Theory	BS	40	60	3	1	0	4
5	AIDS	Statistical Analysis	BS	40	60	3	1	0	4
6	IT	Probability and Queuing Theory	BS	40	60	3	1	0	4

ENGLISH

Sl. No.	Common to all Department	Course Title	Category	CIA	ESE	L	T	P	C
LABORATORY COURSES									
1	III SEM	Interpersonal Communication Skills Laboratory - I	HS	60	40	0	0	3	1.5
2	IV SEM	Interpersonal Communication Skills Laboratory - II	HS	60	40	0	0	3	1.5