GROUP 1: SEMESTER I

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	ES101T	Engineering Physics & Materials Science	2	0	-	2	15	35	50
2	BSC	ES101P	Engineering Physics & Materials Science Lab	-	-	2	1	25	25	50
3	BSC	ES102T	Applied Mathematics-I	3	1	-	4	30	70	100
4	ESC	ES103T	Engineering Practices-I (Electrical & Electronics)	3	-	-	3	30	70	100
5	ESC	ES103P	Engineering Practices-I Lab (Electrical & Electronics)	-	-	2	1	25	25	50
6	ESC	ES104T	Logic Building with C	2	-	-	2	15	35	50
7	ESC	ES104P	Logic Building with C Lab	-	-	2	1	25	25	50
8	AEC	ES105P	Business Communication Skills-I Lab	-	-	2	1	25	25	50
9	IKS	ES106T	Indian Knowledge Systems	2	-	-	2	15	35	50
10	SEC	ES107P	Career Development-I	-	-	2	1	50	-	50
11	PCC	xx101T	Program Foundation-I	2	-	-	2	15	35	50
12	CC	ES108T	Co-curricular Course-I	2	-	-	2	50	-	50
Total				16	1	10	22	320	380	700

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GROUP 1: SEMESTER II

Sr No	Course Category	Course Code	Course Title	Hours per Week L	T	P	Credits	Continual Assessment	End Sem Examination	Total
1	BSC	ES201T	Engineering Chemistry & Environmental Science	2	-	-	2	15	35	50
2	BSC	ES201P	Engineering Chemistry & Environmental Science Lab	-	-	2	1	25	25	50
3	BSC	ES202T	Applied Mathematics–II	3	1	-	4	30	70	100
4	ESC	ES203T	Engineering Practices-II (Civil & Mechanical)	3	-	-	3	30	70	100
5	ESC	ES203P	Engineering Practices-II Lab (Civil & Mechanical)	-	-	2	1	25	25	50
6	ESC	ES204T	Problem Solving with Python	2	-	-	2	15	35	50
7	ESC	ES204P	Problem Solving with Python Lab	-	-	2	1	25	25	50
8	AEC	ES205P	Business Communication Skills II Lab	-	-	2	1	25	25	50
9	ESC	ES206T	Design Thinking	2	-		2	15	35	50
10	SEC	ES207P	Career Development II	-	-	2	1	50	-	50
11	PCC	xx201T	Program Foundation II	2	-	-	2	15	35	50
12	CC	ES208T	Co-curricular Course - II	2	-	-	2	50		50
13	ELC	ES209P	Tinkering & model Lab	-	-	2	-	-	-	-
			Total	16	1	12	22	320	380	700

FIRST SEMESTER (GROUP-I) / SECOND SEMESTER (GROUP-II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES101T	**Engineering Physics & Materials Science**	**2**	**--**	**--**	**2**	15	35	50

Course Objectives	Course Outcomes
This course is intended ● To understand the basic laws of physics and their application in engineering and technology. ● To develop scientific temper and analytical capability.	Students will be able to ● Distinguish the types of solids on the basis of conductivity and acquire a brief idea about semiconductors. ● Explain the properties and applications of Magnetic Materials. ● Explain the structure of Crystals. ● Interpret the concepts of Quantum Mechanics.

Unit I BASICS OF SOLID STATE PHYSICS - I	[07 Hrs]

Free electron Theory (qualitative idea) and its features; Idea of band formation in solids, Classification of solids: Metal, Insulator, Semiconductor; Semiconductors, Intrinsic and Extrinsic Semiconductors and applications.

Unit II BASICS OF SOLID STATE PHYSICS - II	[06 Hrs]

Magnetic Materials: Terms and definitions, Types of magnetic materials, characteristics and applications of Diamagnetic, Paramagnetic and Ferromagnetic Materials.

Unit III CRYSTAL STRUCTURE	[06 Hrs]

Space lattice, Crystal structure, Unit cell, Types of unit cell, Bravais lattice, Miller Indices, Inter-planer distance, Diffraction of X-rays - Braggs' Law and its applications.

Unit IV QUANTUM MECHANICS	[07 Hrs]

Dual nature, de-Broglie hypothesis, Uncertainty principle - physical significance and its application, Wave function - probability and normalization, Wave packet, phase and group velocity, Schrodinger's time dependent and time independent equation and its applications.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Fundamentals of Physics	David Halliday, Robert Resnick and Jerle Walker	8e extended	John-Wiley India
2	Electronic Engineering Materials and Devices	John Allision	edition 10th reprint	TMH
3	Engineering Physics	M. N. Avadhanulu	Latest edition	S. Chand & Co.

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Solid State Physics	Charles Kittel	Eighth edition	John Wiley & Sons, Inc
2	Solid State Physics	R.L. Singhal	Eighth edition	Kedarnath Ramnath
3	Quantum Mechanics	Schiff	First Edition	McGraw-Hill Book Company, Inc.

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FIRST SEMESTER (GROUP-I) / SECOND SEMESTER (GROUP-II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES101P	Engineering Physics & Materials Science Lab.	--	--	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended ● To understand the basic laws of physics and their application in engineering and technology. ● To develop scientific temper and analytical capability.	Students will be able to ● Verify principles/laws by selecting and using proper measuring instruments, interpret result and draw conclusions. ● Find various parameters using various properties of light. ● Apply the concepts of Semiconductors and Magnetic Materials.

Expt. No.	Title of the experiment
1	Study of semiconductor diodes
2	Study of Phenomenon of Diffraction
3	Study of Interference
4	Study of Birefringence
5	Guoy's Balance Method a) Determination of Magnetic Susceptibility of different magnetic materials. b) Identification of different types of Magnetic Materials
6	Study of Planck's Constant by means of LED
7	Determination of Curie Temperature of Ferromagnetic Material.
8	Determination of phase difference and frequency of ac voltage using CRO.
9	Study of Transistors.
10	Study of Hall Effect.
11	Experiment on 'Quantum Eraser'.
12	Demonstration of phenomena of Optics using Laser.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Fundamentals of Physics	David Halliday, Robert Resnick and Jerle Walker	8e extended	John-Wiley India
2	A Textbook of Engineering Physics	Dr. M. N. Avdhanulu, Dr. P. G. Kshirsagar	Latest edition	S. Chand Publication.
3	Principles of Physics	David Halliday, Robert Resnick, Jearl Walker	10th Edition	John Wiley and Sons (2017)

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Solid State Physics	Charles Kittel	Eighth edition	John Wiley & Sons, Inc
2	Solid State Physics	R.L. Singhal	Eighth edition	Kedarnath Ramnath
3	University Physics	Young and Freedman	Fifteenth edition	Pearson Education

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FIRST SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	**ESE**	**Total**
ES102T	**Applied Mathematics-I**	3	1	0	4	30	70	100

Course Objectives	Course Outcomes
• The goal of this paper is to introduce advanced concepts of 1) Probability & statistics 2) Differential Equations 3) Matrix Algebra	• Solve the system of linear equations using matrices. • Identify, analyse and solve statistical problems. • Solve first order and first degree differential equations by various methods and apply these techniques to solve problems in engineering fields. • Solve higher order differential equations by various methods and apply these techniques to solve problems in engineering. • Describe the importance of probability theory in the field of engineering and prepare student to use it for analysis of data.

Unit I	[7Hrs]

Matrix Algebra : Introduction to matrices, , Rank of a matrix, Consistency of system of linear equations, Linear and orthogonal transformations, Cayley- Hamilton Theorem.

Unit II	[7Hrs]

Statistics: Fitting of straight line, parabola and exponential curves by method of least squares, Coefficient of correlation and lines of regressions, Rank correlation.

Unit III	[6Hrs]

First OrderDifferentialEquations: First order and first degree differential equations: Linear, Reducible to linear & Exact differential equations (excluding the cases of Integrating Factor), Applications of differential equations.

Unit IV	[8Hrs]

Higher OrderDifferentialEquations: Higher order differential equations with constant coefficients, Method of variation of parameters, Cauchy's homogeneous linear equation, Applications of differential equations.

Unit V	[7Hrs]

Probability : Random Variable: Discrete & Continuous random Variable, Distribution function, Mathematical expectations, Variance and Standard deviation.

Text Books

S. N.	Title	Authors	Edition	Publisher
1	Higher Engineering Mathematics	B. S. Grewal		Khanna Publishers, New Delhi.
2	A Text Book of Applied Mathematics (Vol I & II)	P. N. Wartikar and J. N. Wartikar		Pune Vidyarthi Griha Prakashan, Pune
3	Higher Engineering Mathematics	H. K. Das and Er. Rajnish Verma		S. Chand & CO. Pvt. Ltd., New Delhi

Reference Books

S. N.	Title	Authors	Edition	Publisher
1	Higher Engineering Mathematics	B.V. Ramana,	11th reprint, 2010.	Tata McGraw Hill New Delhi
2	A Text Book of Engineering Mathematics	Peter O' Neil		Thomson Asia Pvt. Ltd., Singapore.
3	Advanced Engineering Mathematics	Erwin Kreyszig		John Wiley & Sons, New York.

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FIRST SEMESTER (GROUP-I) / SECOND SEMESTER (GROUP-II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES103T	**Engineering Practices - I (Electrical & Electronics)**	3	-	-	3	30	70	100

Course Objectives	Course Outcomes
• The goal of this course is to introduce advanced concepts of 1. To understand the basic fundamentals of Electrical & Electronics engineering. 2. To summarize and apply the basic concepts of Electrical & Electronics engineering.	Students will be able to ● Understand the different electrical components and devices. ● Understand the basic working of AC/DC motors. ● Understand the properties of materials, working principles of various electronic devices and illustrate their applications ● Recognize & Understand, the working of different electronics instruments and different types of sensors to use them in real time applications ● Understand the basics of Boolean algebra, number system , types of signals

Unit I	[8Hrs]

DC Electric Circuit: Introduction to Voltage, Current, Resistor, Ohm's Law, Series and Parallel Connections with Numericals, Kirchhoff's Laws with numerical, Types of electrical energy Sources (Ideal and Practical Independent Sources only). AC Electric Circuit: Generation of Single Phase A.C. power, A.C. fundamentals, Steady state behavior of R-L-C circuit with excitation, Numerical, Resonance in Series R-L-C circuit.

Unit II	[6Hrs]

Introduction to Electrical Power System: Introduction to Power Generation (Thermal, Hydro, and Solar) with block schematic presentation. Utilization of Electrical Energy: Necessity of equipment earthling, Importance of Fuses, Basic operation of MCB, ELCB (RCCB), tariff, types of tariff & calculation of household electricity bill.

Unit III	[10Hrs]

Introduction to Electrical Machines: Basics of Magnetic circuit, Basic principle of operation, construction, classification and application of: single phase Transformer, D.C. Motor, BLDC Motor, Stepper Motor, Universal Motor.
Introduction to Electronic Devices : Types of Semiconductors, P-N Junction, V-I Characteristics of PN junction diode, applications, LED, photo diode, Zener diode, Bipolar Junction Transistor: types, configuration and applications, photo transistor, solar cell

Unit IV	[6Hrs]

Electronics Instrumentation : Analog ammeter and voltmeter, Block diagram of digital multimeter, Power Supplies (single & dual) Introduction to Transducers and Sensors, Classification, Applications. LVDT, LDR & Temperature Sensor & its types.

Unit V	[6Hrs]

Unit 5: Digital electronics : Number system- binary, decimal, hexadecimal, Logic gates, Boolean Algebra, De-Morgan's theorem, Introduction to microprocessors and Microcontrollers & its applications.

Text Books

S.N	Title	Authors	Edition	Publisher
1	A Text Book of Electrical Technology	B. L. Theraja and A. K.Theraja,	(Volume I, II & III)	S. Chand and Company
2	Electronic Devices and Circuits,	N. Suresh Kumar, S. Salivahanan,	4 th Edition	Mc-Graw Hill Education Pvt. Ltd. New Delhi
3	Modern Digital Electronics,	R. P. Jain	4 th Edition,	Mc-Graw Hill Education,

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Integrated Electronics, ,	J. Millman, C. Halkias,	4 th Edition,	Mc-Graw Hill Education
2	Fundamentals of Digital Circuits	A. Anand Kumar,		PHI Learning Pvt. Ltd.

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FIRST SEMESTER (GROUP-I) / SECOND SEMESTER (GROUP-II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES103P	**Engineering Practices - I Lab (Electrical & Electronics)**	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended	Student will able to
- To understand the basic fundamentals of Electrical & Electronics engineering. - To summarize and apply the basic concepts of Electrical & Electronics engineering.	- Develop circuits using bread board. - Verify truth tables of gates. - Study RLC circuit and transformer

Expt. No.	Title
1	To study basic electrical and electronic components.
2	To visit and study solar power plant generation unit at rooftop.
3	To study LDR and LED circuit.
4	To verify truth tables of basic gates.
5	To verify NAND gate as universal gate.
6	To study KCL and KVL equations.
7	To study series RLC circuit.
8	To study and demonstrate single phase transformer/dimmerstat.

Text Books

S. N	Title	Authors	Edition	Publisher
1				
1	A Text Book of Electrical Technology	B. L. Theraja and A. K.Theraja,	(Volume I, II & III)	S. Chand and Company
2	Electronic Devices and Circuits,	N. Suresh Kumar, S. Salivahanan,	4 th Edition	Mc-Graw Hill Education Pvt. Ltd. New Delhi
3	Modern Digital Electronics,	R. P. Jain	4 th Edition,	Mc-Graw Hill Education,

Reference Books

S. N	Title	Authors	Edition	Publisher
1	Integrated Electronics, ,	J. Millman, C. Halkias,	4 th Edition,	Mc-Graw Hill Education
2	Fundamentals of Digital Circuits	A. Anand Kumar,		PHI Learning Pvt. Ltd.

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GROUP 1: SEMESTER I / GROUP 2: SEMESTER II

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	**ESE**	**Total**
ES104T	**Logic Building With C**	**2**	**-**	**-**	**2**	**15**	**35**	**50**

Course Objectives	Course Outcomes
This course is intended	**Students will be able to**
● To make the student learn a programming language. ● To learn problem solving techniques. ● To teach the student to write programs in C and to solve the problems	● Develop problem solving logic. ● Analyse and design problems. ● Understand the fundamentals of C Programs. ● Implement decision making control structures. ● Implement loop control structures.

Unit I	[4Hrs]

Logic Building:
Mathematical Preliminaries: Numbers, Number System, sum, product, powers, factorials, Fibonacci numbers, Armstrong numbers.
Problem solving techniques: Modular, Top-down, Bottom-up, Structured Programming, advantages and disadvantages.
Information Structures: Array, Linked List, Trees, Graphs.

Unit II	[5Hrs]

Algorithms and Flowcharts:
Characteristics, Advantages and Disadvantages of algorithms, pseudo-code conventions, Characteristics of flowcharts, flowchart symbols, Advantages and Disadvantages of flowcharts.

Unit III	[5Hrs]

Fundamentals of C: C Character Set, Identifiers, Keywords, Data Types, Constants, Variables, Declarations, Expressions, Statements, Symbolic Constants.
Operators and Expressions: Arithmetic Operators, Unary Operators, Relational and Logical Operators, Assignment Operators the Conditional Operator, Hierarchy of operations.

Unit IV	[5Hrs]

Data Input and Output library functions.
Decision Making Control Structures: if, if-else, nested if statements, Forms of if, Switch Case Statement.

Unit V	[5Hrs]

Loop Control Structures: For Loop, While Loop, Do-While Loop, Nesting of Loops, break and continue statement.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Programming in ANSI C	E. Balguruswamy	2nd	Tata Mc-Graw Hill
2	Programming Techniques Through 'C'	M. G. Venkateshmurthy	2nd	Pearson
3	Let Us 'C'	Yashwant P. Kanetkar	1st	BPB
4	Programming With C	Byron S. Gottfried	2nd	Schaum Series
5	How to solve it by Computer	R.G. Dromey	1st	Pearson Education

Reference Books

S.N	Title	Authors	Edition	Publisher
1	The Complete Reference C	Herbert Schildt	4th	Tata Mc-Graw Hill
2	The 'C' programming language	Kernighan and Ritchie	1st	Prentice Hall
3	Programming and Problem Solving	M. Sprankle	2nd	Pearson Education

GROUP 1: SEMESTER I / GROUP 2: SEMESTER II

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES104P	Logic Building With C Lab	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended	**Student will able to**
• To make the students learn a programming language. • To learn problem solving techniques. • To teach the student to write C programs and to solve the problems.	• Develop problem soving logic. • Analyse and design problems. • Understand the fundamentals of C Programs. • Implement decision making control structures. • Implement loop control structures.

Expt. No.	Title
1	To study Number System.
2	To study problem solving techniques.
3	To study operators and variables.
4	To study simple If and If-else statement.
5	To study If-else if ladder and nested If control structures.
6	To study Switch-case statement.
7	To study While loop structure.
8	To study Do-while loop structure.
9	To study for loop structure.
10	To study Nested loops, break and continue statement.

Text Books

S. N	Title	Authors	Edition	Publisher
1	Programming in ANSI C	E. Balguruswamy	2nd	Tata Mc-Graw Hill
2	Programming Techniques Through 'C'	M. G. Venkateshmurthy	2nd	Pearson
3	Let Us 'C'	Yashwant P. Kanetkar	1st	BPB
4	Programming With C	Byron S. Gottfried	2nd	Schaum Series
5	How to solve it by Computer	R. G. Dromey	1st	Pearson Education

Reference Books

S. N	Title	Authors	Edition	Publisher
1	The Complete Reference C	Herbert Schildt	4th	Tata Mc-Graw Hill
2	The 'C' programming language	Kernighan and Ritchie	1st	Prentice Hall
3	Programming and Problem Solving	M. Sprankle	2nd	Pearson Education

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FIRST SEMESTER (Group I / Group II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES105P	**Business Communication Skills I Lab**	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
To empower students to develop a career oriented mindset while harnessing the power of LSRW skills.	**Students will be able to:** 1. apply verbal and non-verbal skills to confidently and effectively deliver presentations. 2. prepare themselves for overall language ability through listening and reading tasks. 3. demonstrate formal writing skills. 4. draft impactful Resumes and Cover Letters. 5. prepare themselves for Personal Interviews.

Expt. No.	Title of the experiment
1	Presentation Skills
2	Poster Making (Product/ Event)
3	Reading Comprehension for Competitive Exams.
4	Writing Skills for Academic Purposes.
5	Listening Skills I
6	Business Correspondence I
7	Resume Writing and Cover Letter
8	Mock Interviews

Reference Books

S. N	Title	Authors	Edition	Publisher
1	Communication Skills for Engineers	C. Muralikrishna & SunitaMIshra	2nd Edition, 2011	Pearson India Education Services
2	Communication Skills	Dr. L .Bisen, Dr. B. Agrawal & Dr. N. T. Kalyani	1st Edition, 2021	Himalaya Publishing House
3	Barron's IELTS Superpack	Lin Lougheed	2012	Barrons Educational Series

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FIRST SEMESTER (Group I / Group II)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES106T	Indian Knowledge Systems	2	-	-	2	15	35	50

Course Objectives	Course Outcomes
To provide a broad overview of Indian philosophical systems, Indian thought in a multidisciplinary and interdisciplinary mode.	**Student will be able to:** 1. demonstrate a thorough understanding of Indian numeral systems. 2. develop a comprehensive understanding of Indian astronomy and the Indian calendar system. 3. understand the fundamental concepts of Ayurveda. 4.critically analyze and appreciate the diverse philosophical traditions of India. 5. understand the significance of cultural preservation and heritage.

Unit I: Indian Mathematics [5Hrs]

A. Salient features of the Indian numeral system - Importance of decimal representation - The discovery of zero and its importance, Unique approaches to represent numbers.

B. Unique aspects of Indian mathematics - Great mathematicians and their significant contributions in the area of arithmetic, algebra, geometry, trigonometry, combinatorial problems in Chandaḥ-sastra of Pingala, binary mathematics and Magic squares in India.

Unit II: Highlights of Indian Astronomy [5Hrs]

A. Historical development of astronomy in India - The Celestial Coordinate, System - Astronomical terminologies - Equinotical points, precession of eqinoxes, movable and fixed.

B. Elements of the Indian calendar: Notion of years and months, Pañcāṅga – The Indian calendar system, Astronomical Instruments (Yantras), JantarMantar of Rājā Jai Singh Sawai.

Unit III: Indian Health Sciences [5Hrs]

A. Vedic foundations of Ayurveda. Ayurveda is concerned both with maintenance of good health and treatment of diseases. Basic concepts of Ayurveda. The three Gunas and Three Doshas, Pancha-mahabhuta and Sapta-dhatu.

B. The importance of Agni (digestion). Six Rasas and their relation to Doshas. Ayurvedic view of the cause of diseases.

Unit IV: Indian Philosophy [5Hrs]

A. Schools of Indian Philosophy: Overview of the major philosophical schools in India, including Vedanta, Nyaya, Vaisheshika, Samkhya, Yoga, and Mimamsa. Examination of their metaphysical, epistemological, and ethical theories.

B. Indian Ethics: Study of ethical frameworks in Indian philosophy, including concepts like dharma (moral duty), karma (action and its consequences), and the pursuit of virtue and righteousness.

Unit V: Indian Traditional Practices [4Hrs]

A. Unique Traditional Practices: Myths, Rituals, Spirituals, Taboos and Belief System, Folk Stories, Songs, Proverbs, Dance, Play, Acts and Traditional Narratives.

B. Indian Fine Arts: The importance of Gandharva-veda. Natyasastra: the nature and purpose of fine arts. Different schools of music, dance and painting in different regions of India. Important examples of Indian painting in various part of India.

Reference Books:

S. N	Title	Authors	Edition	Publisher
1.	History of Indian Mathematics	C. N. Srinivasiengar	1967	The WorldPress
2.	Introduction to Indian Philosophy	Satishchandra Chaterjee, Dhirendramohan Datta	7th	Rupa Publications India
3.	Holistic Science and Vedant	Swami Jitatmanand	1st	Bharatiya VidyaBhavan, Bombay, 1991
4.	Arts of India	Krishna Chaitanya	1st	Abhinav Publications, 1987
5.	History of Astronomy in India.	S.N.Sen&K.S.Shukla	2ns	INSA Delhi,2001

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SECOND SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
ES202T	Applied Mathematics - II	3	1	0	4	30	70	100

Course Objectives	Course Outcomes
To inculcate and strengthen students with adequate knowledge of • Differential & Integral calculus • Vector calculus • Probability distributions	**Students will be able to:** ● Apply numerical integration methods and find analytical solutions to difference equations. ● Understand the concept of multivariable differential calculus & apply the knowledge of applications of differentiation. ● Implement concept of vector calculus to solve engineering problems. ● Evaluate improper Integrals and apply concept of multiple integrals in engineering field. ● Apply concept of probability distributions to engineering problems.

Unit I	[7Hrs]

Finite Differences: Operator E and delta, Factorial Polynomial, Numerical integration: Trapezoidal rule, Simpson's 1/3 rule, Simpson's 3/8 rule, Difference equations with constantcoefficients.

Unit II	[7Hrs]

Multivariate Calculus: Functions of several variables and their partial derivatives, Chain rule and total differential coefficient, Jacobians and its properties, Maxima –Minima of functions of two variables, Lagrange's method of undetermined multipliers.

Unit III	[8Hrs]

VectorCalculus: Vector differentiation, Gradient, Directional derivatives, Divergence and Curl with their physical interpretation Solenoidal and irrotationalmotions, Scalar potential, Line integral & Work done.

Unit IV	[7Hrs]

IntegralCalculus: Beta and Gamma functions, Differentiation of definite integral, Elementary double integrals (cartesian & polar).

Unit V	[6Hrs]

Probability Distributions: Binomial Distribution, Poison's Distribution, Normal Distribution.

Text Books

S. N.	Title	Authors	Edition	Publisher
1	Higher Engineering Mathematics	B. S. Grewal	40th	Khanna Publishers, New Delhi.
2	Higher Engineering Mathematics	H. K. Dass and Er. Rajnish Verma		S. Chand & Co. Pvt. Ltd., New Delhi.
3	Advanced Engineering Mathematics	Erwin Kreyszig		John Wiley & Sons, New York.

Reference Books

S. N.	Title	Authors	Edition	Publisher
1	Higher Engineering Mathematics	B. V. Ramana		Tata McGraw-Hill Publications, New Delhi.
2	Advanced Engineering Mathematics	C. R. Wylie & L. C. Barrett		Tata McGraw-Hill Publications, New Delhi.
3	A Text Book of Engineering Mathematics	Peter O' Neil		Thomson Asia Pvt. Ltd., Singapore.
4	Schaum's Outline of Probability and Statistics	John J. Schiller, R. Alu Srinivasan and Murray R. Spiegel	4th	McGraw-Hill Education.

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