II Year

Mathematics -III

Course Outcomes: At the end of the course, student will be able to

- CO1: Understand the concepts of analyticity and integration of complex functions, construction of analytic functions if a part of it is known.
- CO 2: Evaluate line integrals using Cauchy's Integral formulae.
- CO 3: Find the Taylor's and Laurent's series expansion of complex functions.
- CO 4: Evaluate contour integrals of different types using Residue theorem.
- CO 5: Appreciate the concepts of Conformal mappings and Bilinear transformations of complex functions.
- CO 6: Apply the Frobenius method to obtain a series solution for the given linear 2nd order ODE.
- CO 7: Identify Legendre equation and Bessel equation and solve them under special conditions with the help of series solution method. Derive recurrence relations and orthogonality properties of Bessel and Legendre polynomials.

LOGIC AND SWITCHING THEORY

Course Outcomes: At the end of the course, student will be able

- CO1: To convert one number system into anther, detect and correct errors.
- CO2: To optimize Boolean functions and design various combinational logic circuits.
- CO3: To analyze and design various synchronous sequential logic circuits.
- CO4: To synthesize asynchronous circuits.
- CO5: To implement logic functions using PLDs

PRINCIPLES OF ELECTRICAL ENGINEERING

Course Outcomes: At the end of this course students able to

- CO 1: Understand the basic concepts of transients and also be able to solve real time electrical and electronic problems.
- CO 2: Design electrical and electronics circuits and analyze and interpret data related to electrical systems.
- CO 3: Define various terms related to Filter and attenuation circuits which are used for all electrical and electronic applications and also the concept of Characteristic impedance.
- CO 4: Learn the constructional features, principal of operation and the significance of DC Motors and Generators and their characteristics.
- CO 5: Study the Faraday's laws, Principle of operation of single phase transformer, testing of transformer and also calculation of efficiency and regulation of transformer.

- CO 6 : Understand the concept of Alternating Magnetic fields, Principle of operation and applications of single phase induction motors.

ELECTRONIC DEVICES AND CIRCUITS

Course Outcomes: At the end of the course, student will be able

- CO1: To analyze diode parameters.
- CO2:To analyze and design different rectifier circuits.
- CO3: To comprehend different transistor configurations and biasing techniques.
- CO4: To analyze different small signal amplifiers at low frequency.
- CO5: To gain familiarity of the devices FET, MOSFET, UJT, SCR and their characteristics.

SIGNALS AND SYSTEMS

Course Outcomes: At the end of the course, student will be able

- CO 1: To characterize and analyze the properties of continuous-time and discrete-time signals and systems.
- CO 2: To apply the knowledge of linear algebra topics like vector space, basis, dimension, inner product, norm and orthogonal basis to signals.
- CO 3: To represent continuous signals and systems in the frequency domain using Fourier series and Fourier Transform.
- CO 4: To compute convolution, correlation functions and spectral densities of deterministic signals.
- CO 5: To apply the Laplace Transform and Z- Transform for analyzing continuous-time and discrete-time signals and systems.
- CO 6: To understand the concept of sampling and reconstruction of analog signals.

TRANSDUCTION OF PHYSICAL VARIABLES

Course outcomes: At the end of the course, the student will be able to

- CO 1: Understand the basics of Instrumentation
- CO 2: Acquire confidence in designing a measurement system.
- CO 3: Work on laboratory and multidisciplinary tasks.
- CO 4: Identify measuring systems in the industry.

ELECTRONIC DEVICES AND CIRCUITS LAB

Course Outcomes: At the end of the lab course, student will be able

- CO1: To analyze diode, transistor and FET parameters.
- CO2: To design different rectifier circuits.
- CO3: To analyze small signal amplifiers at low frequencies.

ELECTRICAL ENGINEERING LAB

Course outcomes: At the end of the lab, students will be able to

- CO 1: Do simplification and Verification of theorems like superposition, Thevenin's and maximum power transfer etc.
- CO 2: Understand practical verification of two port network parameters.
- CO 3: Understand concept of series and parallel resonance circuits.
- CO 4: Analyse Magnetization characteristics of DC shunt generator are performed and characteristics are analyzed.
- CO 5: Conduct experiments like Swinburne's test and Break test on DC shunt motor and also analyze performance characteristics.
- CO 6: Do experiments on transformer under OC and SC conditions and also know calculation of equivalent circuit parameters, efficiency and regulation.
- CO 7: Understand operation of 3- phase induction motor under loading conditions.

REASONING AND DATA INTERPRETATION LAB

Course Outcomes: At the end of the course, student should be able to

- CO 1: Understand the concepts of Statement-Argument, Assumption and Course of Action and use reasoning as a tool to match. statements with arguments etc.
- CO 2: Look at data and find links and patterns, link data with conclusions and study data logically.
- CO 3: Study problem situations and use reasoning as a tool to find solutions.
- CO 4: Nurture the ability to use reasoning as a skill in real time problems solving.
- CO 5: Analyze and infer the data with respect to trend and case based.

ENVIRONMENTAL STUDIES

Course Outcomes: At the end of the course, the student will be able to

- CO 1: Develop awareness about the hazards to environment.
- CO 2: Develop awareness about optimum utilization of natural resources.
- CO 3: Learn about GREEN TECHNOLOGIES to maintain sustainable development.
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- CO 4: Get awareness about rules and regulations applicable for pollution control.

PRINCIPLES OF COMMUNICATIONS

Course Outcomes: At the end of the course, the student will be able to

- CO 1: Identify the modulation techniques used in communication.
- CO 2: Develop concepts in both Analog and Digital Modulation Techniques.

- CO 3: Perform the time and frequency domain analysis of the signals in a communication system.
- CO 4: Evaluate the performance of communications in the presence of noise.

ANALYSIS OF ELECTRONIC CIRCUITS

Course Outcomes: At the end of the course, the student will be able to

- CO 1: Find gain of given amplifier circuit.
- CO 2: Use small signal LF and HF models to analyze various amplifier circuits.
- CO 3: Identify the feedback topology of given amplifier circuit.
- CO 4: Distinguish among different amplifiers like power amplifiers, tuned amplifiers, feedback amplifiers etc…

TRANSDUCERS AND APPLICATIONS

Course outcomes: At the end of the course, student will be able to

- CO 1: Improve skills in selecting a suitable transducer for a given application.
- CO 2: Acquire confidence in applying various transducing principles for many domestic requirements.
- CO 3: Measure and control various process variables.
- CO 4: Develop concepts in data transmission of different types of physical data.
- CO 5: Analyze the performance of different meters used for measuring voltages, current and resistance.

CONTROL SYSTEMS ENGINEERING

Course Outcomes: At the end of the course, the student will be able to

- CO 1: Understand stability concept and time domain analysis using time and frequency response.
- CO 2: Develop modeling and analysis of simple physical system are investigated.
- CO 3: Study controller units, their type analysis and tuning.
- CO 4: Design Lead-Lag compensators based on frequency data for an open-loop linear system.

LINEAR AND DIGITAL INTEGRATED CIRCUITS

Course Outcomes: At the end of the course, the student will be able to

- CO 1: Construct op-amp applications.
- CO 2: Acquire confidence in designing all filters.
- CO 3: Develop different applications of 555 timer.
- CO 4: Design digital blocks using digital IC's.
- CO 5: Analyze and design A/D and D/A convertors

ANALYSIS OF ELECTRONIC CIRCUITS LAB

Course Outcomes: At the end of the course, student will be able to

- CO 1: Design and understand the single stage and multistage Amplifiers.
- CO 2: Understand the operation of RC Oscillators.
- CO 3: Design power Amplifiers.

TRANSDUCERS AND INSTRUMENTATION LAB

Course Outcomes : At the end of the course, student will be able to

- CO 1: Improve skills experimenting range extension of different meters.
- CO 2: Acquire confidence using capacitive and inductive transducers for displacement measurement.
- CO 3: Develop skills in finding out the accuracy of different circuit components.
- CO 4: Perform piezoelectric method of force and acceleration measurement.
- CO 5: Analyze the effect of temperature on resistance using RTD sensor.

VERBAL ABILITY LAB

Course Outcomes:

- CO 1: Students will develop familiarity with Corporate English.
- CO 2: Students will have enriched vocabulary.
- CO3: Students will develop the ability to write grammatically. correct sentences and enhance their professional writing skills.
- CO4: Students will be proficient in answering reasoning based Questions

GENDER SENSITIZATION

Course Outcomes:

- CO 1: Students will have developed a better understanding of important issues related to gender in contemporary India.
- CO 2: Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
- CO 3: Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
- CO 4: Students will acquire insight into the gendered division of labour and its relation to politics and economics.
- CO 5: Men and women students and professionals will be better equipped to work and live together as equals.
- CO 6: Students will develop a sense of appreciation of women in all walks of life.

- CO 7: Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.