

Department of Electrical (Electronics and Power) Engineering

B.E. 3rd Sem

Course: Engineering Mathematics-III

Course Code: (3EP01)

At the end of Engineering Mathematics-III course the student will be able:

- CO 1:** To demonstrate the knowledge of differential equations and partial differential equations, applied to electrical engineering systems.
- CO 2:** To apply Laplace Transform to solve Differential Equation with constant coefficients.
- CO 3:** To demonstrate the use of Fourier Transform to connect the time domain and frequency domain.
- CO 4:** To apply Z Transform to solve of various Linear Difference equations with constant coefficients.
- CO 5:** To apply the knowledge of vector calculus to solve physical problems.
- CO 6:** To evaluate Line, Surface and volume integrals, solenoidal vector fields, Stokes & Divergence Theorem.

Course: Electrical Circuit Analysis

Course Code: (3EP02)

At the end of Network Analysis course the student will be able:

- CO 1:** To determine V-I characteristics of inductance and capacitance, also understand basic nodal and mesh analysis
- CO 2:** To analyze the circuit using Network simplification theorems.
- CO 3:** To formulate various combinations of RC circuits, understand the concept of steady state and sinusoidal steady state-frequency response of circuits
- CO 4:** To evaluate transient response of different circuits using Laplace transform
- CO 5:** To evaluate two-port network parameters and network functions.
- CO 6:** To formulate two port networks, their characterizations in terms of impedance, admittance, hybrid and transmission parameters.

Course: Electrical Machines-I

Course Code: (3EP03)

At the end of Electrical Machines-I course the student will be able:

- CO 1:** To Explain the construction and working of DC Machines.
- CO 2:** To illustrate the different Characteristics, types, their applications and parallel Operation of D.C. Generators.
- CO 3:** To demonstrate the various characteristics, starting, speed control and braking operation on DC motors
- CO 4:** To analyze the performance of DC machines by conducting the various tests on it
- CO 5:** To determine the parameters of equivalent circuits, performance parameters of single phase transformer and merits & demerits of autotransformer.
- CO 6:** To explain the construction, working, different connections, applications and testing of three phase transformer

Course: Energy Resource and Generation

Course Code: (3EP04)

At the end of Energy Resource and Generation course the student will be able:

- CO 1:** To describe basic working of Thermal power plant and Hydro Electric power plant, their mountings and accessories.
- CO 2:** To explain basic working of Nuclear power plant and Diesel Electric power plant, their mountings and accessories.
- CO 3:** To summarize solar energy conversion, solar radiation measuring instruments, wind energy conversion and their applications.
- CO 4:** To outline the principle and operation of fuel cells & Wind Energy.
- CO 5:** To outline the principle and operation of ocean & tidal energy conversion, and other non-conventional energy resources.
- CO 6:** To determine the various factors and curves related to electrical load & generating plant.

Course: Electronic Devices and Circuits

Course Code: (3EP05)

At the end of Electronic Devices and Circuits course the student will be able:

- CO1:** To demonstrate the knowledge of semiconductor physics and PN Junction Diode.
- CO 2:** To analyze the rectifier and regulator circuits.
- CO 3:** To analyze the operational parameters of BJT.
- CO 4:** To analyze various multistage amplifier circuits.
- CO 5:** To demonstrate the knowledge of JFET, MOSFET, UJT and their operational parameters.
- CO 6:** To implement and analyze various electronic.

B.E. 4th Sem

Course: Electromagnetic Fields

Course Code: (4EP01)

At the end of Electromagnetic Theory course the student will be able:

- CO 1:** To demonstrate the basic mathematical concepts related to electromagnetic vector fields.
- CO 2:** To memorize and recognize the basic laws of electrostatics fields.
- CO 3:** To apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
- CO 4:** To examine and evaluate electrostatics fields in dielectric.
- CO 5:** To examine and evaluate electromagnetic fields in dielectrics.
- CO 6:** To apply Maxwell's equation in different forms (differential and integral) to diverse engineering problems.

Course: Electrical Measurements & Instrumentation

Course Code: (4EP02)

At the end of Energy Resource and Generation course the student will be able:

- CO 1:** To classify the various measuring instruments like PMMC, MI, Electrodynamometer, and induction type instruments for measurement of current, voltage, power, and energy.
- CO 2:** To demonstrate the construction & working of Wattmeter and Energy meter.
- CO 3:** To demonstrate the construction & working of CT and PT.
- CO 4:** To analyze various methods for measurement of resistance, inductance, and capacitance using AC/DC bridges.
- CO 5:** To explain the working of various Digital measuring instruments.
- CO 6:** To explain the generalized Instrumentation system & working of different transducers.

Course: Control Systems

Course Code: (4EP03)

At the end of Control System course the student will be able:

- CO 1:** To demonstrate the fundamental concepts of automatic Control and mathematical modeling of the Systems.
- CO 2:** To describe control system components like motors synchro devices etc. and their application and analysis.
- CO 3:** To determine the transfer function of control system components.
- CO 4:** To analyze of stability criteria's and to plot root locus of given control system.
- CO 5:** To analyze about frequency response methods of control system like Bode plot, Nyquist plot.
- CO 6:** To evaluate the stability of linear systems using various methods.

Course: Numerical Methods & Optimization Techniques

Course Code: (4EP04)

At the end of Numerical Methods and Computer Programming course the student will be able:

- CO 1:** To solve linear and Simultaneous Equations with the help of Numerical Methods.
- CO 2:** To apply various Numerical methods to fit the curve.
- CO 3:** To solve Numerical differentiation, integration, and Differential Equations.
- CO 4:** To solve linear optimization problems by various methods.
- CO 5:** To solve nonlinear optimization problems by various methods.
- CO 6:** To solve dynamic optimization problems by various methods and also determine the optimum scheduling by using CPM and PERT.

Course: Analog Device and Circuit

Course Code: (4EP05)

At the end of Analog Device and Circuit course the student will be able:

CO 1: To explain the principles of operational amplifiers, parameters of op-amp.

CO 2: To illustrate the linear and nonlinear applications of op-amp.

CO 3: To demonstrate the knowledge of Voltage regulator and Timer ICs.

CO 4: To describe the working of Logic families and their applications.

CO 5: To design various Combinational digital circuits in Electronics

CO 6: To analyze various Sequential digital circuits in Electronic.