

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 apply the fundamental concepts of Ordinary Linear Differential Equation by different methods.
- CO 2:** To apply Laplace Transform to solve Differential Equation with constant coefficients.
- CO 3:** To apply Laplace Transform to special function and to solve Fourier Transform.
- CO 4:** To solve difference equation first & higher order and to evaluate Difference equation by Z- Transform.
- CO 5:** To apply Gradient, Curl of Scalar Point Function and Vector Point Function & their physical meaning.
- 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 verify various network theorems and study of source transformations.
- 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 illustrate Laplace transform, functions shifting theorem and final value theorems.
- CO 5:** To analyze sinusoidal steady state and Fourier series representation of non-sinusoidal periodic waveforms
- 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 describe constructional details of dc electrical machines.
- CO 2:** To identify the various armature windings used in D.C. machines and also study the

various methods of commutation.

- CO 3:** To analyze data for qualitative and quantitative parameters to determine characteristics of dc machines.
- CO 4:** To Explain Autotransformer concept & testing of transformers.
- CO 5:** To explain construction, concepts, principles of operation, testing and application of three phase transformers.
- CO 6:** To identify the various conversion connections and its application.

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 explain basic Solar Energy and Its measurement.
- CO 4:** To identify the factors to be consider in site selection for different power plants in view of social, environmental and safety.
- CO 5:** To describe the Wind Mill and its use for Power Generation.
- CO 6:** To compare various Resources like Ocean, Tidal, Biomass, Biogas, MHD etc. used for Power Generation.

Course: Electronic Devices and Circuits

Course Code: (3EP05)

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

- CO 1:** Demonstrate the knowledge of semiconductor physics and PN Junction Diode
- CO 2:** Analyze the rectifier and regulator circuits.
- CO 3:** Analyze the operational parameters of BJT
- CO 4:** Analyze various multistage amplifier circuits
- CO 5:** Demonstrate the knowledge of JFET, MOSFET, UJT and their operational parameters
- CO 6:** 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 examine vector calculus to understand the behavior of electric and magnetic fields in standard configurations.
- CO 2:** To memorize and recognize the basic laws of electrostatics fields.
- CO 3:** To examine and evaluate electrostatics fields in dielectrics.
- CO 4:** To memorize and recognize the basic laws of electromagnetic fields
- CO 5:** To examine and evaluate electromagnetic fields in dielectrics.
- CO 6:** To evaluate Maxwell equations and wave equations.

Course: Electrical Measurements & Instrumentation

Course Code: (4EP02)

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

- CO 1:** To explain fundamental concepts and working principles of the different types of measuring instrument like Moving Iron , PMMC, Electrodynamics, Electrostatic.
- CO 2:** To compare different types of power and energy measuring instruments and theorems related to it.
- CO 3:** To describe special measuring instruments and instruments transformers along with the applicability of all.
- CO 4:** To analyze and learn the techniques to measure the different circuit parameters.
- CO 5:** To evaluate the basics of the transducers and its applicability and ultimately have the knowledge of generalized measurement system.
- CO 6:** To illustrate the transducers especially related to pressure and temperature

Course: Control Systems

Course Code: (4EP03)

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

- CO 1:** To apply the basics of control system and to represent physical system in mathematical form.
- CO 2:** To describe about control system components like motors synchro devices etc. and their application and analysis.
- CO 3:** To design control system of first order and second order and time response analysis of such system.

- 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 design State Space Model of control system with the help of 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 evaluate the polynomial and transcendental equations using appropriate Numerical methods to obtain the root of the equations and implementation of these methods in c-programming.
- CO 2:** To describe the system of linear equations using a suitable Numerical method to obtain the solution of the system of linear equations and implementation of these methods in c- programming.
- CO 3:** To formulate the interpolation by using proper Interpolation techniques based on finite difference to obtain the intermediate value in the given data and implementation of these Interpolation techniques in c-programming.
- CO 4:** To evaluate the numerical integration by using appropriate Numerical integration method derived on the basis of a parabola or polynomial over small sized intervals and implementation of these integration methods in c-programming.
- CO 5:** To solve and implement the ordinary differential equations using suitable numerical methods in c programming.
- CO 6:** To apply the basic concepts and techniques which form the Object Oriented Programming paradigm and develop programming skills using the Object Oriented Programming concept.

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 concept of IC, parameters of IC and understand functionality of IC 741 as an op-amp and its parameter.
- CO 2:** To describe IC741 op-amp for various electronics circuits.
- CO 3:** To compare IC 723 and its applications and understand IC 555 and its applications.
- CO 4:** To analyze CMOS, NMOS, PMOS transistor design and their used for designing various logic gates and understand the concept of logic families.
- CO 5:** To design various Combinational digital circuits in Electronics.
- CO 6:** To analyze various Sequential digital circuits in Electronic