Department of Electrical Engineering

<u>B.E. 3rd Sem</u>

Course: Engineering Mathematics-III   **Course Code: (3EE01)**

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: Network Analysis   **Course Code: (3EE02)**

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: Energy Resource and Generation   **Course Code: (3EE03)**

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

CO 1:   To identify the factors to be consider in site selection for different power plants in view of social, environmental and safety.

CO 2:   To describe basic working of Thermal power plant and Hydro Electric power plant, their mountings and accessories.

CO 3:   To explain basic working of Nuclear power plant and Diesel Electric power plant, their mountings and accessories.

CO 4:   To explain basic Solar Energy and Its measurement.

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: (3EE04)**

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

CO 1:   To explain the working of PN junction diode and different types of Rectifiers.

CO 2:   To identify basic characteristics of BJT, methods of biasing, stability factor and compensation techniques.

CO 3:   To classify different types of transistor amplifier circuits.

CO 4:   To differentiate different types of amplifier circuits and calculation of different parameters

CO 5:   To describe theory, construction and applications of different Diodes.

CO 6:   To describe types, characteristics, working and parameters of FETs and to use them for various applications

Course: Electrical Measurements & Instrumentation   Course Code: (3EE05)

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

B.E. 4th Sem

Course: Electrical Machines-I   **Course Code: (4EE01)**

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 armatures winding 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 transformer.

CO 6:   To identify the various conversion connections and its application.

Course: Electromagnetic Theory   **Course Code: (4EE02)**

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: Analog Device and Circuit   **Course Code: (4EE03)**

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 741as an op-amp and its parameter.

CO 2: To describe IC741op-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 concept of logic families.

CO 5: To design various Combinational   digital circuits in Electronics.

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

Course: Applied Mathematics-IV   **Course Code: (4EE04)**

At the end of Applied Mathematics-IV course the student will be able:

CO 1: To illustrate analytic function, harmonic function, mapping by elementary functions and bilinear transformation.

CO 2: To explain the concept of singular points, Taylor series, Laurent's series, Cauchy integral and Cauchy Residue theorem problems.

CO 3: To analyze partial differential equation of first order and first degree also Lagrange's form and Clarinet's form.

CO 4: To illustrate solution of Legendre's equations, Bessel's equations by Frobensious method, Legendre's polynomials and orthogonal properties.

CO 5: To discuss various types of probability, probability distribution and problems depend on it.

CO 6: To describe curve fitting by method of least squares, solution of differential equation by matrix method and Peano Baker method.

Course: Numerical Methods and Computer Programming   Course Code: (4EE05)

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 method 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 suitable Numerical method to obtain the solution of 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 method in c programming.

CO 6: To apply the basic concept and techniques which form the Object Oriented Programming paradigm and develop programming skills using Object Oriented Programming concept.