B.E. 3ʳᵈ Sem

Course: Engineering Mathematics-III   **Course Code: (3EP01)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Demonstrate the knowledge of differential equations and partial differentialequations, applied to electrical engineering systems	L3
2	Apply Laplace Transform to solve Differential Equation with constant coefficients.	L3
3	Demonstrate the use of Fourier Transform to connect the time domain and frequencydomain	L3
4	Apply Z Transform to solve of various Linear Difference equations with constant coefficients	L3
5	Evaluate the knowledge of vector calculus to solve physical problems	L5
6	Evaluate Line, Surface and volume integrals, solenoid vector fields, Stokes & Divergence Theorem	L5

Course: Electrical Circuit Analysis   **Course Code: (3EP02)**

At the end of **Electrical Circuit Analysis** course the student will be **able to**:

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Analyze V-I characteristics of inductance and capacitance, also understandbasic nodal and mesh analysis	L4
2	Analyze the circuit using Network simplification theorems	L4
3	Formulate various combinations of RC circuits, understand the concept of steadystate and sinusoidal steady state-frequency response of circuits	L6
4	Evaluate transient response of different circuits using Laplace transform	L5
5	Evaluate two-port network parameters and network functions.	L5
6	Formulate two port networks, their characterizations in terms of impedance,admittance, hybrid and transmission parameters	L6

Course: Electrical Machines-I **Course Code: (3EP03)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Explain the construction and working of DC Machines.	L2
2	Explain the different Characteristics, types, their applications and parallel Operation of D.C. Generators	L2
3	Explain the various characteristics, starting, speed control and braking operationon DC motors	L2
4	Analyze the performance of DC machines by conducting the various tests on it	L4
5	Analyze the parameters of equivalent circuits, performance parameters of single phase transformer and merits & demerits of autotransformer	L4
6	Explain the construction, working, different connections, applications and testing of three phase transformer	L2

Course: Energy Resource and Generation **Course Code: (3EP04)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Describe basic working of Thermal power plant and Hydro Electric power plant,their mountings and accessories	L2
2	Explain basic working of Nuclear power plant and Diesel Electric power plant,their mountings and accessories	L2
3	Understand solar energy conversion, solar radiation measuring instruments, wind energy conversion and their applications	L2
4	Explain the principle and operation of fuel cells & Wind Energy	L2
5	Understand the principle and operation of ocean & tidal energy conversion, and othernon-conventional energy resource**s**	L2
6	Analyze the various factors and curves related to electrical load & generating plant	L4

Course: Electronic Devices and Circuits   **Course Code: (3EP05)**

At the end of **Electronic Devices and Circui**ts course the student will be **able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Apply the knowledge of semiconductor physics and PN Junction Diode	L3
2	Analyze the rectifier and regulator circuits	L4
3	Analyze the operational parameters of BJT	L4
4	Analyze various multistage amplifier circuits	L4
5	Apply the knowledge of JFET, MOSFET, UJT and their operational parameters	L3
6	Explain various types of diodes	L2

LAB OUTCOMES

Course: Electrical Circuit Analysis-LAB   **Course Code: (3EP06)**

At the end of **Electrical Circuit Analysis- LAB** course the student will be **able to:**

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Verify the various theorems and principles of electrical circuits.	L5
2	Analyze basic two port network parameters	L4
3	Analyze the transient response of network	L4

Course: Electrical Machines-I -LAB   **Course Code: (3EP07)**

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

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Analyze the performance of D.C. motors and D.C. Generator by conducting suitable load test	L4
2	Execute speed control on D.C. Motors	L3
3	Conduct various tests on a single phase transformer	L3

Course: Electronic Devices and Circuits -LAB   **Course Code: (3EP08)**

At the end of **Electronic Devices and Circuits-LAB** course the student will be able to:

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)

			L5
1	Verify V-I characteristics of various Diodes.		
2	Verify performance of various rectifiers.		L5
3	Verify characteristics of various Transistors.		L5

Course: Electrical Technology LAB   **Course Code: (3EP09)**

At the end of: **Electrical Technology LAB** course the student will be able to:

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Understand standard symbols used in wiring diagram.	L2
2	Explain different wiring accessories.	L2
3	Explain safety precaution while working with electrical system.	L2

Course: Electromagnetic Fields   **Course Code: (4EP01)**

At the end of **Electromagnetic Fields** course the student will be **able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Apply the basic mathematical concepts related to electromagnetic vectorfields	L3
2	Apply the basic laws of electrostatics fields	L3
3	Apply the principles of electrostatics to the solutions of problems relating to electricfield and electric potential, boundary conditions and electric energy density	L3
4	Examine and evaluate electrostatics fields in dielectric	L4
5	Examine and evaluate electromagnetic fields in dielectrics	L4
6	Apply Maxwell's equation in different forms (differential and integral) to diverseengineering problems	L3

Course: Electrical Measurements & Instrumentation   **Course Code: (4EP02)**

At the end of **Electrical Measurements & Instrumentation** course the student will be **able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Classify the various measuring instruments like PMMC, MI, Electrodynamometer, and Induction type instruments for measurement of current, voltage, power, and energy	L2
2	Explain the construction & working of Wattmeter and Energy meter	L2
3	Describe the construction & working of CT and PT	L2
4	Analyze various methods for measurement of resistance, inductance, and capacitance using AC/DC bridges	L4
5	Explain the working of various Digital measuring instruments	L2
6	Explain the generalized Instrumentation system & working of different transducers	L2

Course: Control Systems   **Course Code: (4EP03)**

At the end of **Control Systems** course the student will be **able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Apply the fundamental concepts of automatic Control and mathematicalmodeling of the Systems	L3
2	Describe control system components like motors synchro devices etc. and theirapplication and analysis	L2
3	Formulate the transfer function of control system components	L6
4	Analyze stability criteria's and to plot root locus of given control system	L4
5	Analyze frequency response methods of control system like Bode plot,Nyquist plot	L4
6	Evaluate the stability of linear systems using various methods.	L5

Course: Numerical Methods & Optimization Techniques   **Course Code: (4EP04)**

At the end of **Numerical Methods & Optimization Techniques** course the student will be **able to:**

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Solve linear and Simultaneous Equations with the help of Numerical Methods	L3
2	Apply various Numerical methods to fit the curve	L3
3	Analyze Numerical differentiation, integration, and Differential Equations.	L4
4	Solve linear optimization problems by various methods	L3
5	Verify nonlinear optimization problems by various methods.	L5
6	Analyze dynamic optimization problems by various methods and also determine the optimum scheduling by using CPM and PERT	L4

Course: Analog Device and Circuit   **Course Code: (4EP05)**

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

CO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Explain the principles of operational amplifiers, parameters of op-amp	L2
2	Explain the linear and nonlinear applications of op-amp	L2
3	Apply the knowledge of Voltage regulator and Timer ICs	L3
4	Describe the working of Logic families and their applications.	L2
5	Design various Combinational digital circuits in Electronics	L6
6	Analyze various Sequential digital circuits in Electronic	L4

LAB OUTCOMES

Course: Electrical Measurements & Instrumentation-LAB   **Course Code: (4EP06)**

At the end of **Electrical Measurements & Instrumentation-LAB** course the student will be **able to:**

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Measure various types of resistance, inductance and capacitance.	L5
2	Measure active and reactive power.	L5
3	Describe various types of transducers and their application	L2

Course: Control Systems-LAB   **Course Code: (4EP07)**

At the end **of Control Systems-LAB** course the student will be **able to:**

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Understand Working of potentiometer as an error detector.	L2
2	Calculate error using Synchos as an error detector.	L3
3	Determine performance characteristics of DC motor	L5

Course: Analog Device and Circuit-LAB   **Course Code: (4EP08)**

At the end of **Analog Device and Circuit-LAB** course the student will be **able to:**

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Plot frequency response Op-AMP using IC741	L3
2	Verify operation of multiplexer IC74153	L5
3	Verify Operation various Flip Flop	L5

Course: Electronic Technology LAB   **Course Code: (4EP09)**

At the end of: **Electronic Technology LAB** course the student will be **able to:**

LO No.	Course Outcome	Level of Learning (as per Bloom`s Taxonomy)
1	Identify various Electronic Components	L4
2	Design electronic Circuit on PCB	L6
3	Construct electronic Circuit on Breadboard	L6