

SYLLABUS :-

1.Introduction: Course overview and Fundamental Laws of Electrical Engineering, Concepts of circuit elements, independent current and voltage sources, symbols, circuit elements of resistance, examples, battery and solar cells.2.DC Networks: Series and parallel combination of resistance, Star Delta and Delta Star Transformation.DC Networks: Network Analysis by Mesh Currents, Superposition Theorem, Circuit Analysis by Node-pair Voltages, Thevenin's Theorem, Norton's Theorem3.DC Transients: Capacitance and inductance and their series/parallel combinations, RC Circuits, RL Circuits, Response of RL circuit to sinusoidal inputs.4.AC circuits (Sinusoids and Phasors): Average and effective values of sinusoids, j operator, Phasor diagram, Phasor relation with circuit elements (R,L,C), impedance and admittance and their representation5.Impedance combinations (AC): series-parallel, star-delta, Kirchhoff's laws in AC.6.Network theorems (AC): solving examples7.AC Power: Instantaneous and average power, Maximum power transfer, power factor, resonance 8.Three phase EMF generation,9.Delta and Y connection - line and phase quantities10.Balanced supply voltage and balanced load - phasor diagram11.Solution of Three phase circuits12.Measurement of power in three phase circuits13.Magnetic circuits: Ampere's law and B-H curve14.Magnetic circuits: Examples and solutions15.Magnetic circuits: Hysteresis and Eddy current losses16.Transformers: Construction, EMF equation, ratings, phasor diagram, no load and full load equivalent circuit17.Transformers: Regulation and efficiency calculations, open and short circuit tests, auto-transformers18.The revolving magnetic field 19.Induction Motor: Principle of operation, construction, ratings20.Induction Motor: Equivalent circuit21.Induction Motor: Torque - speed characteristics22.Starters for cage and wound rotor type induction motor.23.Safety from electrical shocks and fire hazards