

ELECTRICAL ENGINEERING

Electrical circuit : Network theorems and applications, transient and steady state analysis of electric circuit. Transform techniques in circuit analysis. Resonant circuits, coupled circuits, Balanced three phased circuits, Two-port networks, Network parameters. Elements of network synthesis, active filters.

E-M theory : Electronic and magnetostatic fields, Maxwell's equations, Wave equations and electromagnetic waves, antennas and wave propagation. Transmission lines microwave resonators, wave guides.

Control systems : Mathematical modeling and simulation of physical dynamics systems, transfer function, time response and frequency response of Linear's system. Bode-plot and Nichols chart, stability of linear feedback control system, Routh Hurwitz and Nyquist criteria of stability steady-state errors, root locus diagrams. Basic concepts in compensator design, state variable methods in system modeling, analysis and design, controllability and observability, control system components error detectors and actuators.

Measurement and instruments : Electrical standards, error analysis, measurement quantities like current, voltage power, energy power factor etc measurement on resistance, inductance, capacitance and frequency, indicating instrument, bridge measurements, Electronic measuring instruments, electronic multimeter, CRO, digital voltmeter, frequency counter, Q Meter, spectrum analyzer, distortion meter etc. Transducers. Thermocouple, the mistor, LVDT strain gauges piezo-electric crystal etc. Use of transducers in the measurements of non-electrical quantities like temperature, pressure, flow rate, displacement acceleration noise level etc. data acquisition systems.

Electronics : Semi conductors and semi-conductor devices equivalent circuits. Transistors biasing, analysis of all types of amplifiers including feedback, d-c amplifiers, integrated circuit.

Operation amplifier and its applications, analog computers, oscillators and wave from generators, Multivibrators, digital electronic, logic gates, Boolean algebra, combinational and sequential circuits arithmetic operations, memories A/C and D/A converts, micro processors.

Communication Engineering : Amplitude frequency and phase modulation, their generation and demodulation, noise.

Electrical Machine : D-C machines, Characteristics and performance analysis of motors and generators, Applications, starting and speed control of motors A-C generators, Construction and performance analysis measurement of machine parameters.
