FIRST YEAR

Electronic Physics I	COE104
Prerequisite : None	**(2-2-0-0)**

Concept of Energy Levels and Atomic Structure: The models of atom, wave nature of light, Electromagnetic waves, Wave particle duality, de-Broglie matter's waves, Quantum Mechanics (Wave function. Time Dependent and Time Independent Schrodinger equations), energy–band theory of metals, insulators and Semiconductors, Crystal Physics of solid, Brags law and x-ray diffraction, Motion of charge in electric and magnetic field. Electrical Conduction in Metals: Resistivity, Mobility and conductivity, Fermi-Dirac statistics and Fermi level of matel, current density, Ampere's law. Semiconductors: Semiconductor and optoelectronic materials, (Si, Ge, and compound semiconductors) Extrinsic semiconductors, fermi-level in semiconductor, diffusion and Carrier lifetime, Hall Effect. Semiconductor P-N Junction: p-n junction in equilibrium, current-voltage characteristics, substrate bias effects, capacitance effects, charge control decryption of a diode transition and diffusion capacitance, diode switching Times, diode models, small-signal model and load line concept.