

PH-211 General Physics

Mechanics: Motion with constant and variable acceleration, Applications of Newton's laws of motion, Rotational motion, Moment of inertia, Work, Energy, and Power.

Electrostatics and Magnetism: Electric field, Applications of Coulomb's law, Applications of Gauss's law, Electric potential of continuous charge distribution, Magnetic field, Magnetic force on a current-carrying conductor, Hall effect, Biot–Savart law, Ampere's law, RLC circuits, Magnetic dipole.

Semiconductor Physics: Energy levels in semiconductors, Band theory of solids, Hole concentration, Intrinsic and extrinsic regions, PN-junction.

Waves and Oscillations: Simple harmonic oscillations, Damped harmonic motion, Forced oscillations and resonance, Types of waves, Principle of superposition, Wave speed on a stretched string.

Optics and Lasers: Two-slit interference, Huygens' principle, Single-slit diffraction, Characteristics and working of lasers, Types of lasers, Applications of lasers.

Modern Physics: Inadequacies of classical physics, Planck's explanation of black body radiation, Photoelectric effect, Compton effect, De Broglie hypothesis.