PH-127 Applied Physics for Engineers

Properties of Matter: Elasticity and modulus of elasticity, Bending of beams, Cantilever

Fluids: Steady and turbulent flow, Bernoulli`s theorem, Viscosity, Surface tension, Surface energy, Angle of contact

Heat & Thermodynamics: Heat, temperature and theories of heat, Adiabatic and isothermal processes, The four laws of thermodynamics, Thermodynamic functions, Efficiency of heat engines, Carnot`s cycle, Entropy, Reversible process and cycles, Thermodynamic equilibrium, Introduction to heat transfer mechanisms

Optics: Waves and oscillations, Simple harmonic motion, Types of wave motion, Optics of light, Interference, Diffraction, Polarization, Double refraction, Dispersion, Types and uses of deviation lasers

Electricity and Magnetism: Electric charges, Electric field, Electric potential, Coulomb`s law, Gauss`s law, Capacitors and dielectrics, Electric current, Ohm`s law, Magnetic properties of matter, Magnetic field, Magnetic force on current, Ampere`s law, Faraday`s law, and Lenz`s law

Sound: Speed of sound, Different types of sound waves

Recommended Books:

1. D. Halliday, R. Resnick and J. Walker, “Fundamentals of Physics”, John Wiley, 9th ed. 2010.
2. Thomas L Floyd, “Electronic Devices”.9th Edition, Pearson 2011