IC222P Physics Practicum/Practicals

Credit: 0-0-3-2

Prerequisite: Consent of the faculty member

Students intended for: B.Tech

Elective or Core: Core Semester: Even/Odd

Course content:

Practicum kind of experiments

- Fourier series: Observing Fourier series in real life (simple electronic circuits) by making suitable arrangements.
- Four Probe method: Temperature dependent resistivity of a semiconductor, finding the Band gap.
- Newtons Ring: Division of amplitude, Interference, wavelength of source
- Fresnel biprism: Division of wavefront, Interference, wavelength of source
- Fraunhofer Diffraction: Study the diffraction effects by designing suitable slits (single/double)
- Dielectric properties of material: Determination of dielectric constant of glass, wood
- Make capacitor and measure the charging and discharging of the capacitor using different dielectric materials, various thickness.
- To generate potentials of different shapes and study the motion of the body in or through them

Standard experiments

- Mechanical Hysteresis: Relationship between torque and rotation of a metal bar (steel, aluminium, brass, Copper), Observation of memory effect (elasticity, plasticity, relaxation).
- Frank Hertz experiment: To study the excitation potential of a gas molecule.
- Magnetron method: Charge to mass ratio of an electron
- Magnetic field due to a single coil : Magnetic field along the axis of the coil at different positions, Effect of different coil radius
- Hemholtz coil: Magnetic field for different separation of the coils, Superposition of field.
- Magnetic Induction: Measure induced emf as a function of rate of change of flux.
- Millikan’s oil drop experiment: Determine the elementary charge
- Coupled Oscillator: Coupled vibration, Beats, Coupling of energy between two harmonic oscillators coupled to each other.