

## **B. Tech. (Physics Lab)**

The students shall complete at least nine experiments out of the following during the semester:

1. To study the Hall effect in a semiconductor and determine the Hall coefficient.
2. To determine the value of Planck's constant using a photo-cell.
3. To determine the band gap of a given semiconducting p-n junction diode (n or p type).
4. To study the B-H/I-H curve and hysteresis losses in a given magnetic material.
5. To study the variation of magnetic field along the axis of a uniform circular coil and also determine its diameter.
6. To study the temperature variation of resistivity using four probe method and determine the band gap of a given semiconductor.
7. To study the diffraction spectra using a plane transmission grating and find the wavelength of light constituents.
8. To study the polarization of light using a biquartz polarimeter and determine the specific rotation of glucose solution.
9. To study the formation of Newton's rings and determine the wavelength of sodium light.
10. To determine the dielectric constant of a given solid.
11. To determine the numerical aperture of an optical fiber, Wavelength of LASER, and determination of particle size using a laser source.
12. To determine the Fermi energy of the copper.

### **Newly proposed experiments:**

1. To study the characteristics of a solar cell and find the fill factor.
2. To study Zener diode voltage regulating characteristics.
3. To determine the acceleration due to gravity by Kater's reversible pendulum.
4. To study the characteristics of a damped harmonic oscillator
5. Study the characteristics of a GM tube and determination of its operating voltage, plateau length / slope etc
6. Estimation of Efficiency of the G.M. detector for (a) Gamma source & (b) Beta Source
7. To study Meissner / levitation effect in superconductor
8. To calculate the slit width using single slit Fraunhofer diffraction pattern with LASER
9. To determine e/m ratio