

PH 251 BS

**APPLIED PHYSICS LABORATORY
B.E.1/4, II-SEMSTER
(Common to CSE, ECE and BME)**

Instruction	: 3 Hours/Week
Duration of SEE	: 3 Hours
SEE	: 50 Marks
CIE	: 25 Marks
Credits	: 1.5

Course Objectives:

- i. Demonstrate an ability to make physical measurements and understand the limits of precision in measurements.
- ii. Demonstrate the ability to use experimental statistics to determine the precision of a series of measurements.
- iii. Demonstrate the ability to prepare a valid laboratory notebook.
- iv. Demonstrate the ability to understand the construction and working of different experiments.

Course Outcomes:

- i. Student recognize the correct number of significant figures in a measurement or in the results of a computation.
- ii. Students can use a best fit to create a graph from a series of data points. Students can extrapolate and interpolate.
- iii. Students will keep a lab notebook that documents their experience in each lab procedure.
- iv. Develop skills to impart practical knowledge in real time solution and learn to design new instruments with practical knowledge.

List of Experiments:

1. To calculate the Numerical aperture (NA), acceptance angle of a given optical fibre.
2. Determination of wavelength of LASER using diffraction grating.
3. Determination of Velocity of ultrasonic waves in a liquid by Debye-Sears method.
4. To draw the I-V Characteristics of P-N Junction diode and to evaluate the value of potential barrier of the diode.
5. Determination of carrier concentration, Mobility and Hall Coefficient of Ge Crystal using Hall Effect Experiment.
6. To draw the curve between the magnetizing field and the intensity of magnetization of the specimen (soft iron rod) and to find out i) Coercivity ii) Retentivity and iii) Hysteresis loss.
7. To draw the I-V Characteristics of a solar cell and to calculate the i) Fill factor ii) Efficiency and iii) Series resistance.
8. To find the values of Electrical conductivity and energy gap of Ge crystal by Four probe method.
9. To determine the Dielectric constant and Phase transition temperature of Lead Zirconium Titanate (PZT).
10. To determine the constants of A, B and α using Thermistor characteristics.