



Code: 1BPHCSL102/202

Course: Applied Physics Laboratory for Computer Science and Engineering stream

Credits: 1

L:T:P:S- 0:0:2:0

SEE: 50 Marks

CIE: 50 Marks

SEE Hours: 3

Max. Marks:100

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| Learning objectives | <ol style="list-style-type: none"> 1. To develop the ability to perform physics experiments and relate the results to theoretical concepts. 2. To enhance skills in data analysis, error estimation, and interpretation of experimental outcomes. |
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Course Outcomes:

On the successful completion of the course, the student will be able to

| Cos | Course Outcomes | Bloom's level |
|------------|--|----------------------|
| CO1 | Apply the knowledge of basic concepts and principles of experimental physics in measurements of various physical quantities, which in turn provide insight into the behavioral properties of radiation and matter. | Apply |
| CO2 | Analyze the data using scientific tools and validate results with theoretical principles. | Analyze |

Mapping with POs and PSOs:

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|---|------|------|
| CO1 | 3 | 1 | | | | | | | 2 | | | To be identified for each branch by the Course Instructor | | |
| CO2 | 3 | 1 | | | | | | | 2 | | | | | |

Mapping Strength: Strong– 3 Medium – 2 Low – 1

Course Structure

List of Experiments

1. Determination of the Wavelength of LASER using a Grating
2. Measurement of acceptance angle and numerical aperture of an optical fiber
3. Study the Characteristics of a Photo-Diode and to determine the power responsivity.
4. Determination of Planck's Constant using LEDs.
5. Verification of Stefan's Law

6. Verification of the inverse square law of radiation.
7. Determination of Fermi Energy of Copper.
8. Determination of the Energy gap of a given Semiconductor.
9. Determination of dielectric constant using charging and discharging of a capacitor.
10. Resonance in LCR circuit.
11. Quantum Computing simulation experiment.
12. Determination of the thickness of a material using the air wedge
13. Newton's ring to study the interference by the division of amplitude.
14. Data Analysis using a Spreadsheet.
15. Virtual Lab Experiment.

Reference Books

1. Laboratory manual for Engineering Physics Lab by Department of Physics, NIE, Mysuru
2. Engineering Lab Manual by WBUT-New Age International Publishers.
3. Applied Physics Lab Manual by Anoop Sing Yadav.