



THE NATIONAL INSTITUTE OF ENGINEERING

An Autonomous Institution under Visvesvaraya Technological
University, Belagavi), Recognized by AICTE, New Delhi,
Grant-in-Aid by Government of Karnataka,
Accredited by NAAC, New Delhi

Curriculum Structure and Syllabus 2025-26

I Year B.E. Mechanical Engineering

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**Code: 1BPHMEL202****Course: Applied Physics Laboratory for Mechanical Engineering****Credits: 1****L:T:P:S- 0:0:2:0****SEE: 50 Marks****CIE: 50 Marks****SEE Hours: 3****Max. Marks:100**

Learning objectives	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. Determination of spring constant.
4. Verification of Stefan's Law
5. Verification of the inverse square law of radiation.
6. Determination of moment of inertia of irregular body by Torsional Pendulum
7. Determination of dielectric constant using charging and discharging of a capacitor.
8. Resonance in LCR circuit.
9. Determination of Young's modulus by uniform bending.



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10. Newton's ring to study the interference by the division of amplitude.
 11. Data Analysis using a Spreadsheet.
 12. 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.