PHYSICS LAB: MECHANICS (PCMP-312)
(Credits: Practicals-02)
16 Lectures (4 hours each)

1. Use of Vernier callipers, Screw gauge, Spherometer, Barometer, Sphygmomanometer, Light meter, dry and wet thermometers, TDS/conductivity meter and other measuring instruments based on applications of the experiments. Use of Plumb line and Spirit level.
2. To study the random errors in observations.
3. Determination of height (of inaccessible structure) using sextant.
4. To study the Motion of Spring and calculate (a) Spring constant, (b) g and (c) Modulus of rigidity.
5. To determine the Moment of Inertia of a Flywheel.
6. To determine g and velocity for a freely falling body using Digital Timing Technique
7. To determine the value of g using Kater's Pendulum.
8. To study the variation of time period with distance between centre of suspension and centre of gravity for a bar pendulum and to determine:
    (i) Radius of gyration of the bar about an axis through its C.G. and perpendicular to its length.
    (ii) The value of g in the laboratory.
9. Determination of coefficient of viscosity of a given liquid by Stoke's method. Study its temperature dependence.
10. To determine the Young's modulus by bending of beam using a traveling microscope/laser.
11. Determination of modulus of rigidity by dynamic method Maxwell's needle.
12. To determine the elastic Constants of a wire by Searle's method.
13. To study one dimensional collision using two hanging spheres of different materials.

Reference Books:

- Advanced Practical Physics for students, B.L. Flint, and H.T. Worsnop, 1971, AsiaPublishing House.
- Advanced level Physics Practical, Michael Nelson, and Jon M. Ogborn, 4th Edition, reprinted 1985, Heinemann Educational Publishers.
- Engineering Practical Physics, S. Panigrahi & B. Mallick,2015, Cengage LearningIndia Pvt. Ltd.
- A Textbook of Practical Physics, Indu Prakash and Ramakrishna, 11th Edition,2011, Kitab Mahal, New Delhi.
