PPH320 PHYSICS LAB VI

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Course Objectives: To expose students to some simple experiments and evaluation techniques in particle physics, fiber optics, materials characterization and electronics.

List of Experiments:

1. Determine Planck's constant.
2. Use computer programming for simple particle physics simulations.
3. Analyze the given Bubble chamber data.
4. Characterization of response of linear variable detector (LVDT) sensor.
5. Study the I-V characteristics of a solar cell and determination of its performance parameters.
6. To determine the acceptance angle and numerical aperture (NA) of a single mode optical fiber.
7. To determine the mode field diameter (MFD) of a single mode optical fiber.
8. To determine the bending loss in optical fiber.
9. Microstructure analysis of a metallic sample
10. Determination the composition of the given binary alloy by cooling curve method.
11. Determine the microhardness of the given sample.
12. To study and construct various clipping and clamping circuits.
13. To study and constructastable, bistable and monostablemultivibrators using discreet components/IC555 chip.
14. Study various aspects of amplitude and frequency modulation.
15. To construct logic gates OR, AND, NOT, NOR, NAND gates using discrete components and verify their truth tables

Course learning outcomes: Students will have achieved the ability to:

1. use computer programming for solving problems in particle physics.
2. determine the performance parameters for the given solar cell.
3. perform and analyze simple experiments involving optical fibers.
4. determine the composition of the given binary alloy, analyze the microstructure and microhardness of the given sample.
5. construct and analyze simple circuits. Use CRO, multimeters, signal generators, power source, etc. for electronics measurement and circuit evaluation.
6. analyze the experimental data and evaluate it for accuracy.

Evaluation Scheme:

Sr. No.	Evaluation Elements	Weightage (%)
1	Lab Evaluation	100