MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

DEPARTMENT OF PHYSICS

Course: Modern Physics Lab

Course Type	Course Title	Credits	Lecture	Tutorial	Practical	Studio
IC	Modern Physics Lab	1	0	0	2	0

COURSE CONTENTS

To equip students with basic knowledge of standard experimental concepts, techniques and apparatus in undergraduate Modern Physics

COURSE CONTENTS

The course will consist of the following experiments:

1. [Basic measurements, error analysis and curve fitting]: To learn about various types of basic measurement tools and devices, error propagation and curve fitting using least squares method.
2. [Photoelectric effect]: To determine the value of Plank's constant by measuring the stopping potential of different color filters.
3. [I-H curve]: To plot I-H curve for an iron rod.
4. [Newton's rings]: To determine the wavelength of sodium light by Newton's ring.
5. [Diffraction grating]: To determine the wavelength of any three lines of mercury light by diffraction grating in1st order spectrum.
6. [Polarimeter]: To determine the specific rotation of glucose by Polarimeter using three different concentrations.
7. [Four Probe]: To determine the energy band gap of Germanium crystal by Four Probe Method.
8. [Hall Effect]: To determine the Hall coefficient of a given sample.
9. [Dielectric constant]: To determine the dielectric constant of a given solid.

Text Books / Reference Books

1. *Concepts of Modern Physics,* Arthur Beiser, Shobhit Mahajan, S. Rai Choudhary (Mc Graw Hill), 2017
2. *Introduction To Semiconductor Materials And Devices*, M.S Thyagi (John Wiley & Sons), 1991
3. *Introduction to Electrodynamics* (4th edition), Griffiths (Pearson), 2015
4. *Essentials of Engineering Physics,* A. S. Vasudeva (S. Chand), 2010
5. *Optics* (4th edition), Ajoy Ghatak (Tata McGraw Hill), 2008