

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR
DEPARTMENT OF PHYSICS

DETAILS OF THE COURSE

Course Type	Course Code	Course Title	Credits	Lecture	Tutorial	Practical	Studio
IC	26PHP104	Modern Physics Lab	1	0	0	2	0

COURSE OBJECTIVE

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

COURSE ASSESSMENT

The Course Assessment (culminating to the final grade), will be made up of the following three components;

S. No.	Component	Weightage
1)	Internal assessment (based upon practical lab records, viva, and attendance)	20%
2)	Mid-term examination	30%
3)	End Semester Examination	50%

COURSE CONTENTS

The course will consist of the following experiments:

S. No.	List of Experiments
1.	To learn about various types of basic measurement tools and devices, error propagation and curve fitting using least squares method (Basic measurements, error analysis and curve fitting).
2.	To determine the value of Planck's constant by measuring the stopping potential of different color filters.
3.	To plot I-H curve for an iron rod.
4.	To determine the wavelength of sodium light by Newton's ring.
5.	To determine the wavelength of any three lines of mercury light by diffraction grating in 1st order spectrum.
6.	To determine the specific rotation of glucose by Polarimeter using three different concentrations.
7.	To determine the energy band gap of Germanium crystal by Four Probe Method.

8.	To determine the Hall coefficient of a given sample.
9.	To determine the dielectric constant of a given solid.

Text Books / Reference Books

1. *Concepts of Modern Physics*, Arthur Beiser, Shobhit Mahajan, S. Rai Choudhury (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* (8th edition), Ajoy Ghatak (Tata McGraw Hill), 2024