



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
*Autonomous*  
Siddhartha Nagar, Vijayawada-520010  
*Re-accredited at 'A+' by the NAAC*

**PRACTICAL – III**  
**Lab – 1: GENERAL PHYSICS LAB– II**

Offered to: M.Sc.(PHYSICS)	Course Code: 22PH2L1
Course Type: Core (P)	Course: GENERAL PHYSICS LAB– II
Year of Introduction: 2004	Year of offering: 2023
Year of Revision: 2022	Percentage of Revision: Nil
Semester: II	Credits: 4

**Course Description:** This course deals with the experiments using lasers, optical fiber and diffraction experiments in addition to some basic experiments in physics

**Course Objectives:**

1. To understand the properties of the Laser.
2. To analyze the applications of laser.
3. To observe the process of powder X- ray diffraction.
4. To understand the resistance dependence of magnetic field.
5. To analyze the properties of optical fiber.

**Course Outcomes:** At the end of this course, students should be able to:

- CO1: Understand the different concepts of physics through experiments.  
: Apply the principles of propagation of light in materials to different devices.
- CO2: To apply the concepts  
: Determine the refractive indices of different liquids.
- CO3: To analyze the results obtained from different experiments through graphical analysis.  
: understand and apply the phenomenon of double refraction.
- CO4: Evaluate the crystal structure of materials from X ray diffraction pattern.
- CO5: Understand the propagation of light in optical fiber.

CO - PO MATRIX								
	CO- PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
22PH2L1	CO1	H	L	M		L	M	H
	CO2		H	M		L	M	

	CO3		H	M		L	M	
	CO4		H	M		L	M	
	CO5		H	L		L	M	

## Syllabus

### GENERAL PHYSICS – II

**(Minimum 10 experiments are to be done)**

1. Determination of Thickness of wire using laser
2. Determination of wavelengths of the laser using grating.
3. Determinations of refractive index of liquid using hollow Prism.
4. Double refraction.
5. Powder X-ray diffraction
6. I-V characteristics of solar cell.
7. Magneto Resistance
8. Determination of numerical aperture of optical fiber.
9. Determination of Young's modulus.
10. Verification Amper's law.
11. DC Conductivity of ferrite material
12. Determination of elastic constants of glass (and Perspex) by Cornu's interference method
13. Determine the radius of curvature of the Plano-convex lens by using Newton's rings experiment
14. Determination of the size of the lycopodium particles by diffraction method using a) Spectrometer method and b) Young's method.
15. Any two online virtual lab experiments within the syllabus have to be carried out (using MHRD web resource).

#### Reference Books:

1. Advanced Practical Physics Vol – I Dr. S. P. Singh
2. Advanced Practical Physics Vol II : DR. S.P. Singh
3. Practical Physics : Gupta, Kumar, Sharma
4. Practical Physics: P. R. Sasi Kumar
5. University Practical Physics by D. C. Tayal
6. Viva – Voce in Advanced Physics : Gupta , Kumar, Sharma