M.Sc. (Physics)
Semester - (II)

Course Code	PS02CPHY25	Title of the Course	Laboratory Course on Physics Practicals-2
Total Credits of the Course	04	Hours per Week	08

Main Focus of the Course outcomes	Employability	Skill Development	Entrepreneurship
	✓	√	√
Course Objectives:	1. To impart practical knowledge in foundations in Physics 2. To provide hands own experience in designing, planning, working, data collection and analysis as per the set objectives of the practicals.		

Course Content		
Unit	Description Note: A minimum of 06 experiments for each course must be performed.	Weightage (%)
1.	Empty lattice energy bands.	
2.	Band gap measurement of a semiconductor using four-probe method.	
3.	Geiger-Muller Counter – II (Determination of coefficient of beta ray absorption).	
4.	Characteristics of solar cell using different filters.	
5.	Measurement of Dielectric Constant of different Solid materials.	
6.	Frequency Response of LDR using different filters.	
7.	X-ray diffraction simulation – II	
8.	Study of different thermocouple for temperature measurement.	

9.	Numerical integration and differentiation.	
10.	Beta decay simulation.	

Teaching-Learning Methodology	Hands own experiment using required Equipments and other accessories for data collection and analysis

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Practical Examination (As per CBCS R.6.8.3)	20%
2.	Internal Continuous Assessment in the form of Journal writing, Practical Viva-voce, Attendance (As per CBCS R.6.8.3)	10%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Expected to gain hands own training to design and conduct of practicals relevant to the theoretical foundation courses in Physics
2.	Experience to handle Laboratory Equipments and other accessories for achieving the objectives of the experiments.

3.	Method of data collection and analysis to draw inferences.
4.	Know-how of the computer based analysis

Suggested References:	
Sr. No.	References
1.	Advanced Practical Physics by S.P.Singh, Pragati Prakashan, Meerut – 250001 (India).
2.	Fundamentals of Nuclear Physics by Jagdish Varma, Roop Chand Bhandary, D.R.S. Somayajulu, CBS Publishers & Distributors Pvt. Ltd., New Delhi.
3.	An Introduction to Lattice Dynamic by L.S.Kothari, Addison-Wesley Educational Publishers Inc, Germany.
4.	Elements of X-ray Diffraction by Cullity and Stock, Publisher : Pearson; 3rd edition (6 March 2001)
5.	Solid State Physics: Structure and Properties of Materials by M.A. Wahab, Narosa Publishers, New Delhi.
6.	Introduction to Solid State Physics, Charles Kittle, John Wiley & Sons, Inc., New York.
7.	Numerical Methods for Scientists and Engineers by K.Shankara Rao, PHI Learning Pvt. Ltd., New Delhi.

On-line resources to be used if available as reference material
On-line Resources
https://www.iitr.ac.in/departments/PH/uploads/Teaching%20Laboratory/3.%20Four%20Probe.pdf
https://en.wikipedia.org/wiki/Geiger_counter
https://www.niser.ac.in/sps/sites/default/files/basic_page/solar%20cell_p344.pdf
https://www.niser.ac.in/sps/sites/default/files/4_Dielectric%20Constant%20of%20different%

20materials.pdf
https://en.wikipedia.org/wiki/Thermocouple

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