



(Integrated Bachelor-Masters Programme)
IBMP (B Sc.- M Sc. Physics) Semester - I

Course Code	IS01CPHY52	Title of the Course	Foundations in Physics (Laboratory Course)-I
Total Credits of the Course	01	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none">1. To provide a hands on training on the various topics covered in the theoretical course on foundations in physics-I2. To provide practical training while designing and doing experiment.3. To Provide scientific methodology for the Design / Plan of the experiment, Method of scientific data collection, Analysis and Conclusion.4. To train how to write a report of the scientific study through journal report writing.

Course Content		
Unit	Description (any 06 out of 08 expts)	Weightage* (%)
1	Determination of Specific heat by Newton's law of cooling	15%
2.	Verification of the second law of thermodynamics	15%
3.	Young's modulus (Y) by Cantilever- Load Vs depression graph.	15%
4.	Modulus of rigidity by Maxwell needle method	15%
5.	Young's modulus (Y) by uniform bending- Load Vs depression graph.	15%
6.	To study the variation of thermo emf across two junctions of a thermocouple with temperature	15%
7.	To record and analyze the cooling temperature of an hot object as a function of time using a thermocouple and suitable data acquisition system.	15%
8.	Error Analysis – Data analysis techniques and graphing techniques to be learnt (Mandatory)	10%

Teaching-Learning	Hands on training through Laboratory sessions. Learning the theoretical concepts by doing.
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Methodology	Use, functioning and application of various equipments and components used for Practical skills.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Use various laboratory equipments for different experimental applications.
2.	Learn the basics of the subject through hands on practice.
3.	Practice scientific methodology while designing the experiment
4.	Learn the method of data collection and analysis
5.	Draw conclusions while stating the experimental results
6.	Practice how to write a scientific report of a scientific study through journal writing.

Suggested References:	
Sr. No.	References
1.	Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition Copyright © 2004, American Society for Engineering Education Page 9.1326.2
2.	Physics Laboratory Manual, The LNM Institute of Information Technology, Jaipur - 302031, Rajasthan, India 2013-14
3	Undergraduate Experiment on Elasticity of Rubber Bands Emmanuel P. Papadakis American Journal of Physics 31 , 938 (1963); doi: 10.1119/1.1969212 View online: https://doi.org/10.1119/1.1969212





	Published by the American Association of Physics Teachers
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On-line resources to be used if available as reference material
On-line Resources
https://www.lockhaven.edu/~dsimanek/scenario/labman1/expans.htm
https://www.lockhaven.edu/~dsimanek/scenario/labman1/spheat.htm

