



Bachelor of Science  
 B.Sc. Physics Practical Semester II

Course Code	US02CPHY52	Title of the Course	Physics Practical
Total Credits of the Course	02	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"> <li>1. To gain practical knowledge by applying the experimental methods to correlate with the Physics theory.</li> <li>2. To learn the usage of electrical and optical systems for various measurements.</li> <li>3. Apply the analytical techniques and graphical analysis to the experimental data.</li> <li>4. To develop intellectual communication skills and discuss the basic principles of scientific concepts in a group.</li> </ol>
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Course Content	
Description	Weightage* (%)
<ol style="list-style-type: none"> <li>1. <math>\lambda</math> by bending of beam</li> <li>2. Bar pendulum (<b>Mandatory</b>)</li> <li>3. Flywheel (<b>Mandatory</b>)</li> <li>4. Resolving power of grating</li> <li>5. Newton's ring</li> <li>6. <math>\lambda</math> by spectral line by diffraction photograph</li> <li>7. Half wave rectifier with filters( L, C, LC, <math>\pi</math> )</li> <li>8. Full wave rectifier with filters( L, C, LC, <math>\pi</math> )</li> <li>9. Zener diode as voltage regulator (<b>Mandatory</b>)</li> <li>10. CE transistor characteristics(Input, Output &amp; Transfer) <b>Mandatory</b>)</li> <li>11. Measurement of self-inductance</li> <li>12. Measurement of capacitance</li> <li>13. Study of probability distribution for two option system (coins) (<b>Mandatory</b>)</li> <li>14. Vibration magnetometer</li> <li>15. Simulation of radioactive decay</li> </ol>	100%

Note:

- [1] To provide flexibility, up to the maximum of **20%** of total experiments can be replaced/added by college to this list prepared by the Board of Studies.
- [2] A minimum of **Twelve (12)** experiments must be performed in practical course.
- [3] Experiments marked "**Mandatory**" must be performed necessarily.





[4] To maintain uniformity in assessment of practical examination the below mentioned marks distribution pattern is followed:

Sr. No.	Work done	Weightage as per 50 Marks
1.	Writing Principle / Statement/ Formula with explanation of symbols and units	08 Marks
2.	Diagram/Circuit Diagram / Expected Graph	08 Marks
3.	Setting up of the experiment + Tabular Columns + taking readings	14 Marks
4.	Calculations (explicitly shown) + Graph	10 Marks
5.	Accuracy of results with units	04 Marks
6.	Round the year Performance/ Records (to be valued at the time of practical Examination through oral viva)	06 Marks
<b>Total for Practical</b>		<b>50 Marks</b>

Note:

Wherever explicit setting up of experiments does not exist like in the case of spectral charts or pre-acquired data is involved, the marks for setting up of experiment may be provided for additional graphs and formulae.

Teaching-Learning Methodology	<ul style="list-style-type: none"> <li>Direct Teaching through Demonstration, Chalk-Walk and Talk</li> <li>ICT enabled teaching</li> <li>Question-Answer</li> <li>Class discussion led by teacher/students</li> <li>Problem solving activities</li> <li>Debate</li> <li>Collaborative and Co-operative Learning</li> <li>Think Pair Share</li> <li>Jigsaw</li> <li>Inquiry Based Learning</li> <li>Panel Discussion</li> <li>Flipped Classroom</li> <li>Blended Learning designs</li> </ul>
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	University Examination	100%

Course Outcomes: On the successful completion of the course, the students will be able to





1. Apply the various procedures and techniques for the experiments
2. Use different measuring devices and meters to record the data with precision
3. Apply the mathematical concepts/equations to obtain quantitative results
4. Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results

Suggested References:

Sr. No.	References
1.	Advanced Practical Physics for students B L Worsnop and H T Flint Methuen and Co. Ltd., London (1951)
2.	B.Sc. Practical Physics C L Arora S. Chand & Co. Ltd., New Delhi (2018)
3.	Advanced Practical Physics M S Chauhan and S P Singh Pragati Prakashan, Meerut (1984)
4.	Advanced Practical Physics S L Gupta and V Kumar Pragati Prakashan, Meerut (1998)
5.	B.Sc. Practical Physics Harnam Singh and Dr. P.S. Hemne S. Chand & Co. Ltd., New Delhi (2000)
6.	Practical Physics (4 <sup>th</sup> Edition) G. L. Squires Cambridge University Press (2014)
7.	An Advanced Course in Practical Physics D. Chatopdhyay, P.C. Rakshit New Central Book Agency Pvt. Ltd. (1990)
8.	Practical Physics (With Viva-Voce) Dr. S L Gupta and V Kumar Pragati Prakashan, Meerut (2014)





On-line resources to be used if available as reference material

On-line Resources:

<https://www.electronics-tutorials.ws/>

<https://www.electronicshub.org/tutorials/>

[www.allaboutcircuits.com](http://www.allaboutcircuits.com)

<https://nptel.ac.in/courses/115/105/115105110>

<https://nptel.ac.in/courses/115/105/115105121>

<https://nptel.ac.in/courses/115/105/115105120>

<https://ocw.mit.edu/courses/physics/8-13-14/2016-spring-2017>

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