

**FOUR YEARS UNDERGRADUATE PROGRAM (2024 – 28)**  
**DEPARTMENT OF PHYSICS**  
**COURSE CURRICULUM**

<b>PART – A: INTRODUCTION</b>			
<b>Program: Bachelor in Science</b> (Certificate/ Diploma/ Degree/ Honors)		<b>Semester: I</b>	<b>Session: 2024-25</b>
1	Course Code	<b>PHSC- 01P</b>	
2	Course Title	<b>Mechanics</b>	
3	Course Type	<b>Discipline Specific Course</b>	
4	Pre-requisite (if any)	<b>As per Program</b>	
5	Course Learning Outcomes (CLO)	After the completion of the course, Students are expected to understand working mechanism and laws of classical mechanics. The Students will be able to <ul style="list-style-type: none"> <li>➤ Assemble required parts/devices and arrange them to perform experiments.</li> <li>➤ Record/ observe data as required by the experimental objectives.</li> <li>➤ Analyze recorded data and formulate it to get desired results.</li> <li>➤ Interpret results and check for attainment of proposed objectives related to laws of mechanics and its applications</li> </ul>	
6	Credit Value	<b>01 Credit</b>	<b>1 Credit = 30 Hours Laboratory Work</b>
7	Total Marks	<b>Maximum Marks: 50</b>	<b>Minimum Pass Marks: 20</b>
<b>PART – B: CONTENT OF THE COURSE</b>			
<b>Total No. of learning-Training/performance Periods-30 Periods (30 Hours)</b>			
Sr. No.	Objects (At least 10 of the following or related Experiments)	No. of Period	
1	Measurements of length (or diameter) using vernier caliper, screw gauge and travelling microscope.	<b>30</b>	
2	To study the random error in observations.		
3	To study the motion of the spring and calculate (a) Spring constant and, (b) g.		
4	To determine the Moment of Inertia of a Flywheel.		
5	To determine g and velocity for a freely falling body using Digital Timing Technique.		
6	To determine Coefficient of Viscosity of water by Capillary Flow Method (Poiseuille's method).		
7	To determine the Young's Modulus of a Wire by Optical Lever Method.		
8	To determine the Modulus of Rigidity of a Wire by Maxwell's needle.		
9	To determine the elastic constants of a wire by Searle's method		
10	To determine the value of g using Bar Pendulum.		
11	To determine the value of g using Kater's Pendulum.		
12	Study of bending of a beam/ cantilever		
13	To determine Moment of Inertia of an irregular body by Inertia Table		
<b>Keywords</b>	Moment of Inertia, Pendulum, Vernier Callipers, Screw Gauge, Travelling microscope, Elastic Constant, Searle's Method, Stoke's Method, Cappillary Rise Method, Viscosity, Surface Tension		

**Signature of Convener & Members (CBoS):**

## PART – C: Learning Resources

### Text Books, Reference Books and others

#### Text Books Recommended-

1. Advanced Practical Physics for students, B.L.Flint&H.T.Worsnop, 1971, Asia Publishing House.
2. Engineering Practical Physics, S.Panigrahi& B.Mallick,2015, Cengage Learning India Pvt. Ltd.
3. A Text Book of Practical Physics, Indu Prakash and Ramakrishna, 11th Edition, 2011, Kitab Mahal, New Delhi.
4. Practical Physics B.Sc. I : R P Goyal, Shivrul Publications

#### Reference Books Recommended-

1. Advanced Practical Physics for Students by B.L. Worsnop and H.T. Flint
2. Practical Physics by G.L. Squires
3. An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements by John R. Taylor
4. Mechanics and Properties of Matter by J.C. Upadhyaya

### Online Resources (e-books/ learning portals/ other e-resources)

1. Link for e-Books for Physics:Physics Practical:  
<https://www.uou.ac.in/sites/default/files/slm/BSCPH-104.pdf>
2. Virtual Lab :<https://vlab.amrita.edu/?sub=1&brch=74>
3. <https://vlab.amrita.edu/?sub=1&brch=74&sim=571&cnt=1>
4. <https://www.ae.msstate.edu/vlsm/>

## PART – D : ASSESSMENT AND EVALUATION

### Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment(CIA):15 Marks

EndSemester Exam(ESE):35 Marks

<b>Continuous InternalAssessment(CIA):</b> (By Course Teacher)	Internal Test / Quiz - (2): 10 & 10	Better marks out of the two Test/Quiz +Marks obtained in Assignment shall be considered against 15 Marks
	Assignment/Seminar +Attendance -05 Total Marks - 15	
<b>End Semester Exam (ESE):</b>	Laboratory Performance: On spot Assessment	Managed by Course teacher as per lab. status
	Performed the Task based on lab. work -20 Marks	
	Spotting based on tools & technology (written) - 10 Marks	
	Viva-voce (based on principle/technology) - 05 Marks	

Name and Signature of Convener & Members of CBoS:

