

Course Title	Physics I				
Course Code	PHY100				
Course Type	Compulsory				
Level	Bachelor (1 st Cycle)				
Year / Semester	1 st Year / 1 st Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	The objective of this course is to provide students with a comprehensive introduction to the science of Physics and the basic laws of mechanics. The course follows an embedded laboratory approach, where students are required to utilize a variety of experimental tools during the implementation of lectures.				
Learning Outcomes	<p>Upon successful completion of this course, students should be able to:</p> <ul style="list-style-type: none">• Appraise that Physics is the fundamental science upon which all other natural sciences and engineering are built.• Identify the distinction between fundamental and derived quantities.• Recognize and describe the basic laws of mechanics and use these laws to solve a wide range of related problems.• Identify the need for experimental verification or rejection of theoretical assumptions and predictions.• Carry out a series of result experiments• Appraise the impact that Physics has on our everyday lives by formulating and solving problems from the real world				
Prerequisites	None		Co-requisites	None	
Course Content	<p>Vectors:</p> <p>Vector and Scalar quantities. Vector addition and subtraction. Graphical addition. Resolution of vector into components.</p> <p>Uniformly accelerated motion in one dimension:</p> <p>Speed, average velocity, instantaneous velocity. One dimensional motion. Acceleration, uniformly accelerated linear motion.</p> <p>Newton's laws:</p> <p>Inertia and mass. Newton's first, second and third laws and applications. Friction.</p>				

	<p>Static equilibrium:</p> <p>Bodies in equilibrium. Torque of a Force. Conditions for equilibrium. The center of gravity.</p> <p>Work and Energy:</p> <p>The definition of work. Power, kinetic energy. The work-energy theorems. Gravitational potential energy. The conservative nature of the gravitation force. The law of conservation of energy.</p> <p>Linear Momentum:</p> <p>The concept of linear momentum. Newton's second law restated. Conservation of linear momentum. Elastic and Inelastic collisions.</p> <p>Motion in a circle:</p> <p>Angular displacement, velocity, acceleration. Centripetal and Tangential acceleration and force.</p> <p>Gravitation:</p> <p>Kepler's laws. Newton's law of gravity. Satellites, parking orbits, escape speed.</p> <p>Vibration and Waves:</p> <p>Periodic motion. Simple harmonic motion. Forced oscillations and resonance. Transverse and Longitudinal Waves. Reflection, Refraction and Diffraction of Waves.</p>								
Teaching Methodology	Face- to- face								
Bibliography	<p><i>"Physics for Scientists and Engineers"</i>, by P.A. Tipler and G. Mosca,</p> <p><i>"Introductory College Physics"</i>, by J.F. Mulligan</p> <p><i>"Physics for Engineers and Scientists"</i>, by H.C. Ohanian</p> <p><i>"Principles of Physics"</i>, by F.J. Bueche</p>								
Assessment	<table> <tr> <td>Examinations</td><td>85%</td></tr> <tr> <td>Assignments/Lab</td><td>5%</td></tr> <tr> <td>Class Participation and Attendance</td><td>10%</td></tr> <tr> <td></td><td>100%</td></tr> </table>	Examinations	85%	Assignments/Lab	5%	Class Participation and Attendance	10%		100%
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Language	English								