

<b>Course Title</b>	<b>PHYSICS LAB-1</b>
<b>Course Code</b>	<b>MPHY-161</b>
<b>Credit Hours</b>	<b>CH 1</b>
<b>Pre- requisites</b>	<b>FSc / A-Level (Physics) or equivalent</b>
<b>Learning outcomes</b>	The objective of this course is to develop laboratory skills in students which provides depth of understanding the physics and laws of physics by performing experiments.
<b>Contents</b>	<p><b>Mechanics:</b> To measure the moments of inertia of different bodies, To determine surface tension by capillary rise, Study of 2D motion, Find the value of ‘g’ using Free-Fall method, To determine elastic constant by spiral spring and coupled pendulum, The study of harmonic oscillation of helical springs connected in parallel and series, Laws of gyroscope, Measurement of speed of sound in air, Interference of light by Fresnel biprism, Study of the diffraction intensity using double slit system, Modulus of rigidity by using Maxwell Needle, Determine radius of curvature of a sphere, Conservation Laws of momentum and energy.</p> <p><b>Waves and Optics:</b> Resonance by using Barton Apparatus, Measurement of speed of sound by using Kundt’s tube apparatus, To study the properties of the waves by using ripple tank, To determine wavelength of light by Fresnel’s biprism, Determine the angle of elevation between two points at large distance by using sextant apparatus, To study the intensity of light by using Polarizers, To determine wavelength of light by diffraction grating, To determine wavelengths of sodium D lines by Newton's rings, To study the relationship between frequency and the tension, length, and mass per unit length of the string by using sonometer, To determine the refractive index of different materials.</p> <p><i>*Note: Any eight experiments must be performed subject to the availability of apparatus.</i></p>
<b>Teaching-learning Strategies</b>	Classroom teaching / Lecturing
<b>Assignments- Types and Number</b>	<p>Problem sheets: 3-4</p> <p>Experimental write-up, data analysis and data plotting, observations and calculations etc.,</p>
<b>Assessment and Examinations</b>	<p>Mid-Term Assessment: 35%</p> <p>Formative Assessment: (25%): It includes classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.</p> <p>Final Term Assessment: 40%</p>
<b>Text Books</b>	<ol style="list-style-type: none"> <li>1. Physics laboratory experiments by Jerry D. Wilson, Cengage Learning (2014).</li> <li>2. General Physics Laboratory I Experiments by Kapila Clara Castoldi, Kendall Hunt, (2015)</li> <li>3. Physics Lab Experiments by Matthew French, Mercury Learning &amp; Information, (2016)</li> <li>4. Experiments And Demonstrations in Physics: Barilan Physics Laboratory by Kraftmakher Yaakov, World Scientific (2014).</li> </ol>