



<b>Course Number</b> <b>Course Name</b>	PHYS 1230, Algebra-based Physics I
<b>Credit Value</b> <b>(Breakdown of theory and lab credits)</b>	3 Theory, 1 Lab
<b>Catalog Course Description</b>	An algebra-based treatment of Newtonian mechanics. Topics include kinematics and dynamics in one and two dimensions, conservation of energy and momentum, rotational motion, equilibrium, and fluids. Prerequisite: MATH 1215; Co-requisite: PHYS 1230L. (3, 3T+0L)
<b>Student Learning Outcomes/Objectives /Competencies of the Course</b>	<p><b>Student Learning Outcomes:</b> Upon completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate converting units and other aspects of dimensional analysis in the working of numerical problems.</li> <li>2. Apply principles of Newtonian mechanics to predict and account for simple phenomena modeled by the motion of particles in one and two dimensions.</li> <li>3. Apply principles of Newtonian mechanics to predict and account for simple phenomena modeled by the motion of a rigid body in two dimensions.</li> <li>4. Apply Newton's theory of gravitation to circular orbits and demonstrate understanding of how Kepler's laws of planetary motion provide the empirical foundation for Newton's theory.</li> <li>5. Apply the mathematics of vectors to the principles of Newtonian mechanics.</li> <li>6. Apply principles of Newtonian mechanics to the case of static and dynamic incompressible fluids, including Archimedes' and Bernoulli's principles.</li> </ol> <p><b>Optional topics may include</b> (some schools include these in Physics I, others in Physics II):</p> <ol style="list-style-type: none"> <li>1. sound</li> <li>2. waves</li> <li>3. heat</li> <li>4. oscillatory motion</li> <li>5. thermodynamics</li> </ol> <p><b>Optional Student Learning Outcomes</b></p> <ol style="list-style-type: none"> <li>1. Describe the fundamental properties of periodic motion.</li> <li>2. Explain and apply the basic concepts of sound and wave motion.</li> <li>3. Explain the basic concepts of heat and thermodynamics.</li> </ol>
<b>College-Wide Student Learning Outcomes</b>	<p>PHYS 121/L learning objectives align with the following NNMCC College Wide Goal:</p> <p><i>Critical thought: Students are required to analyze and synthesize information and draw reasoned conclusions.</i></p>