



Course Number Course Name	PHYS 1230, Algebra-based Physics I
Credit Value (Breakdown of theory and lab credits)	3 Theory, 1 Lab
Catalog Course Description	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)
Course Student Learning Outcomes/Objectives /Competencies of the Course	<p>Student Learning Outcomes: Upon completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate converting units and other aspects of dimensional analysis in the working of numerical problems. 2. Apply principles of Newtonian mechanics to predict and account for simple phenomena modeled by the motion of particles in one and two dimensions. 3. Apply principles of Newtonian mechanics to predict and account for simple phenomena modeled by the motion of a rigid body in two dimensions. 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. 5. Apply the mathematics of vectors to the principles of Newtonian mechanics. 6. Apply principles of Newtonian mechanics to the case of static and dynamic incompressible fluids, including Archimedes' and Bernoulli's principles. 7. Some knowledge of Quantum Principles, and of the Principles of Special Relativity and General Relativity, <p>Optional topics may include (some schools include these in Physics I, others in Physics II):</p> <ol style="list-style-type: none"> 1. sound 2. waves 3. heat 4. oscillatory motion 5. thermodynamics <p>Optional Student Learning Outcomes</p> <ol style="list-style-type: none"> 1. Describe the fundamental properties of periodic motion. 2. Explain and apply the basic concepts of sound and wave motion. 3. Explain the basic concepts of heat and thermodynamics.
College-Wide Student Learning Outcomes	PHYS 121/L will expose students to the following NNMC College Wide Goal: <i>Critical thought: Students are required to analyze and synthesize information and draw reasoned conclusions.</i>
Program Student Learning Outcomes measured	None