

Physics 160

Students will be able to solve problems involving motion with constant acceleration. Many practical events will be modeled as problems of this type. These include both horizontal motion (for example, an aircraft taking off on the runway, an automobile coming to a stop) and vertical motion near Earth's surface where the acceleration of gravity can be considered constant (for example, a ball thrown straight up in the air). Projectile motion problems also fall into this category; these involve objects experiencing vertical and horizontal motion at the same time (for example, a baseball hit at an angle of 30 degrees above the horizontal).

(Relates to UNM/HED Area III, Competencies 2, 4, & 5)

Students will be able to solve a variety of problems with Newton's second law. This law deals with forces, inertial mass and acceleration is a foundation of Newtonian Mechanics and has wide application to science engineering. Problems of various types (possible examples include effects of forces on objects, circular motion, orbits of planets, inclined planes and motion with friction) will be analyzed.

(Relates to UNM/HED Area III, Competencies 2, 4, & 5)

Students will be able to solve problems involving Newton's Universal Law of Gravity. Gravity is one of 4 fundamental forces in the universe and is therefore one of the most important foundation topics for the future physics and engineers who take this course. Possible examples may include planetary orbits, calculation of acceleration of gravity on a planet, derivation of Kepler's 3rd law and calculations of forces that masses attract each other.

(Relates to UNM/HED Area III, Competencies 2, 4, & 5)

Students will be able to solve problems involving the Conservation of Energy and Momentum. These two laws enable introductory students to solve a wide variety of practical problems. Possible examples of problems include elastic and inelastic collisions and the basic concepts of impulse, momentum, kinetic energy, gravitational potential energy and elastic potential energy.

(Relates to UNM/HED Area III, Competencies 2, 4, & 5)

Students will be able to solve problems involving Rotational Motion. Many concepts and their application can be included in rotational motion; possible examples include angular momentum, moment of inertia, conservation of angular momentum, angular velocity, angular acceleration and torque.

(Relates to UNM/HED Area III, Competencies 2, 4, & 5)