### Physics 1: Introduction to Physics

Course # DMNS 1051

Credits 4

# Pre-requisites and Co-requisites: Precalculus

### **Course Description**

The Physics I course has been developed to meet the scope and sequence of UCA physics courses and gives a foundation for a career in computer science. The course provides an important opportunity for students to learn the core concepts of physics and understand how those concepts apply to their lives and to the world around them. The course covers basic principles of mechanics including kinematics, statics, equilibrium and dynamics of particles, work & energy, rotational motion, momentum and oscillations.

## **Course Learning Outcomes**

Upon the completion of this course, students should be able to:

- Apply kinematic equations to non-accelerating frames.
- Solve motion problems using Newtonian principles.
- Identify the different forms of energy (Work, Kinetic energy, Potential energy, etc.).
- Use the conservation of energy law to solve conservation of energy problems.
- Relate a gravitational force field to the potential of a point mass distribution.
- Solve numerical problems in translational, rotational and oscillatory motions.
- Describe and model the oscillations of damped and undamped systems.
- Solve linear momentum problems with the conservation of energy principle.

#### **Course Assessments and Grading**

Item	Weight
Homework	10%
Quizzes	15%
Laboratory experiments	10%
Project	15%
Midterm Exam	20%
Final exam	30%