Virginia Western Community College
PHY 201
General College Physics I

Prerequisites

MTH 115 or MTH 161 or MTH 167 or equivalent and a placement recommendation for ENG 111 or successful completion of all required developmental English courses.

Course Description

Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism, and selected topics in modern physics. Part I of II.

Semester Credits: 4 **Lecture Hours: 3** **Laboratory Hours: 3**

Required Materials

A calculator for exams and laboratory works

Textbook:
College Physics with MasteringPhysics access. Knight, Jones, Field. 3rd edition. Pearson Publishing.
ISBN: 9780134201979

Course Outcomes

At the completion of this course, the student should be able to:

- Apply the equations of kinematics to predict the position and the velocity at a later time.
- Apply Newton's laws of motion to find the acceleration of the objects and to identify other forces in the system.
- Apply the conservation laws (mechanical energy conservation and momentum conservation) to compare the system before and after the interaction.
- Find the solutions of problems involving rectilinear motion, parabolic motion, circular motion & objects in equilibrium.
- Apply the conservation laws to the solutions of problems involving collisions, conservative & nonconservative forces.
- Understand the fluid mechanics, such as buoyant force and Bernoulli's equation.
- Solve problems involving thermal expansion, heat transfer, thermodynamic processes & the behavior of ideal gases.

Topical Description

Chapter 1	Representing Motion
Chapter 2	Motion in One Dimension
Chapter 3	Vectors and Motion in Two Dimension
Chapter 4	Forces and Newton's Laws of Motion
Chapter 5	Applying Newton's Laws
Chapter 6	Circular Motion, Orbits and Gravity
Chapter 7	Rotational Motion
Chapter 8	Equilibrium and Elasticity
Chapter 9	Momentum
Chapter 10	Energy and Work
Chapter 11	Using Energy
Chapter 12	Thermal Properties of Matter
Chapter 13	Fluids
Chapter 14	Oscillations

Laboratory Topics

Lab 1	Introduction. Safety and Significant Figures. Fitting Curves
Lab 2	Free Fall
Lab 3	Addition of Force: Vector
Lab 4	Projectile Motion
Lab 5	Static and Kinetic Friction
Lab 6	Newton's 2^{nd} Law
Lab 7	Circular Motion and Centripetal Force
Lab 8	Ballistic Pendulum
Lab 9	Energy Conservation
Lab 10	Moment of Inertia
Lab 11	Simple Harmonic Motion
Lab 12	Archimedes' Principle

Notes to Instructors

None.