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 principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear 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. Young, Adams, and Chastain. 10th edition. Pearson Publishing. ISBN: 9780321902788

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 & non-conservative 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

Lecture Topics

Chapter 1	Models, Measurements, and Vectors
Chapter 2	Motion Along a Straight Line
Chapter 3	Motion in a Plane
Chapter 4	Newton's Laws of Motion
Chapter 5	Applications of Newton's Laws
Chapter 6	Circular Motion and Gravitation
Chapter 7	Work and Energy
Chapter 8	Momentum
Chapter 9	Rotational Motion
Chapter 10	Dynamics of Rotational Motion
Chapter 11	Elasticity and Periodic Motion
Chapter 13	Fluid Mechanics
Chapter 14	Temperature and Heat
Chapter 15	Thermal Properties of Matter
Chapter 16	The Second Law of Thermodynamics

Laboratory Topics

Lab 1	Introduction. Safety. Significant figures. Fitting curves
Lab 2	Addition of force: Vector
Lab 3	Free fall
Lab 4	Projectile motion
Lab 5	Static and kinetic friction
Lab 6	Newton's 2nd law
Lab 7	Circular motion
Lab 8	Energy Conservation
Lab 9	Ballistic pendulum
Lab 10	Equilibrium and torque
Lab 11	Simple harmonic motion
Lab 12	Archimedes principle

Notes to Instructors

- In order to pass the course, students should earn 50 % of the entire homework grade by the end of the semester. Earning less than 50% of homework will result in 'F grade'.