PHY 201 Revised: Summer 2018

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 & 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.

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Topical Description

Lecture Topics

Chapter 1 Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6 Chapter 7 Chapter 8 Chapter 9 Chapter 10 Chapter 11 Chapter 13	Models, Measurements, and Vectors Motion Along a Straight Line Motion in a Plane Newton's Laws of Motion Applications of Newton's Laws Circular Motion and Gravitation Work and Energy Momentum Rotational Motion Dynamics of Rotational Motion Elasticity and Periodic Motion Fluid Mechanics
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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'.