



Alabama Community College System

PHY 213 General Physics I – Calculus Based

I. PHY 213 General Physics I—Calculus Based—4 Semester Hours

II. Course Description

This course is the first course in a two-part sequence of the calculus-based study of classical physics. Topics include kinematics, Newtonian Mechanics, the conservation of momentum and energy, and thermodynamics. Laboratory is required.

III. Prerequisite

MTH 125

IV. Textbook

Due to the varied selection of quality college-level textbooks, each college will select the textbook needed to meet the requirements of this course.

V. Course Learning Outcomes

Upon successful completion of the course, the student will demonstrate the following outcomes:

1. Apply the concepts of kinematics, Newtonian Mechanics, the conservation of momentum and energy, and the laws of thermodynamics to solve relevant problems.
2. Depict and analyze data and mathematical relationships using tables, equations, graphs, pictures, and words.
3. Demonstrate proper lab techniques and safety in the performance of common experiments in physics.

VI. Course Outline of Topics

1. Measurement and uncertainty
2. Kinematics
3. Vectors
4. Laws of motion
5. Work and energy
6. Impulse and momentum
7. Rotational mechanics

8. Static equilibrium
9. Universal gravitation
10. Fluid mechanics
11. Gas laws
12. Thermodynamics
13. Oscillatory motion and wave mechanics

VII. Evaluation and Assessment

Grades will be given based upon A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

It is the official policy of the Alabama Community College System and entities under its control, including all Colleges, that no person shall be discriminated against on the basis of any impermissible criterion or characteristic, including, without limitation, race, color, national origin, religion, marital status, disability, sex, age, or any other protected class as defined by federal and state law. (ACCS Policies 601.02 and 800.00)

X. Americans with Disabilities

The Rehabilitation Act of 1973 (Section 504) and the *Americans with Disabilities Act* of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's responsibility to provide appropriate disability documentation to the College.