

Common Course Outline

PHYS 100

General Physical Science

3 Semester Hours

The Community College of Baltimore County

Description

PHYS 100--3 Credits--General Physical Science gives a general understanding of the scientific method and its application to the real world; draws principles from basic physical science (physics/chemistry) and takes a conceptual approach; covers motion, momentum, energy, gravity, solids, liquids, and gases. For students needing a lab PHYS 111 Physical Science Lab serves as the accompanying lab.

3 lecture hours per week.

Prerequisites: (RDNG 052 or ESOL 054), (ENGL 052 or ESOL 052), MATH 082

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. apply the concepts of linear motion to problems involving speed, velocity, and acceleration;(I, III,VI, 1, 3)
2. analyze projectile motion in terms of vectors and do simple calculations for projectiles; (I, III,VI, 1, 3)
3. solve problems using Newton's Laws; (I, III, 1, 3)
4. apply conservation of linear momentum to problems using real life examples; (I, III, 1, 3)
5. differentiate between work and energy and solve real life examples involving work and energy; (I, III, 1, 3)
6. apply concepts of rotational inertia, torque, and forces to solve problems of rotational motion; (I, III, 1, 3)
7. use Kepler's laws to explain the motion of the planets around the sun; (I, III, 1, 3)
8. apply the basic principles of satellite motion to real life examples; (I, III, 1, 3)
9. detect differences in elements, compounds, and mixtures; (I, 1, 3)
10. describe common solids in terms of their properties; (I, II, 1, 3)
11. apply the properties of liquids to real life examples; (I, III, VI, 1,3)
12. analyze gases and all of their properties; (I, III, 1, 3)
13. work collaboratively (in groups of 2 or 3) on two computer projects that will be assigned; and (I,III,1,3)
14. discuss contributions of diverse cultures to the development and history of physics.(V,5)

Major Topics

- I. Linear Motion
- II. Nonlinear Motion
- III. Newton's Laws of Motion
- IV. Momentum
- V. Energy
- VI. Rotational Motion
- VII. Gravity
- VIII. Satellite Motion
- IX. The Atomic Nature of Matter
- X. Solids
- XI. Liquids
- XII. Gases

Course Requirements

Grading/Exams: Grading procedures will be determined by the individual faculty member teaching the course but include the following:

1. minimum of two examinations
2. minimum of two quizzes
3. two written reports on the two assigned computer projects
4. final examination

Writing: Additional writing assignments may be given by the faculty member teaching the course.

Other Course Information

1. This course and PHYS 111 (Physical Science Lab) may be used to fulfill four credits of the General Education requirement in Biological and Physical Sciences.
2. Individual faculty members may include additional course objectives/topics.

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