

Common Course Outline

PHYS 252

General Physics III

4 Semester Hours

The Community College of Baltimore County

Description

PHYS 252--4 Credits--General Physics III includes wave motion, covering transverse and longitudinal elastic waves and electromagnetic waves, physical optics and selected topics in modern physics; builds on PHYS 151 toward a three-semester set of calculus-based courses in the basic principles of physics for students who plan to major in engineering, mathematics or physical sciences.

4 credits: 3 lecture hours per week, 1 recitation hour per week, and 3 laboratory hours per week

Prerequisites: PHYS 151 and MATH 252 (corequisite/prerequisite)

Overall Course Objectives

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

1. analyze geometric optics;
2. apply laws of geometric optics to problem solving;
3. apply the theory of optical instruments;
4. apply the laws of physical optics to problem solving;
5. apply the laws of elementary quantum mechanics to problem solving;
6. apply laws of nuclear physics to problem solving; and
7. write coherent and presentable laboratory reports.

Major Topics

- I. Mechanical Waves
- II. Wave Interference and Normal Modes
- III. Sound and Hearing
- IV. The Nature and Propagation of Light
- V. Geometric Optics
- VI. Optical Instruments
- VII. Interference
- VIII. Diffraction
- IX. Photons, Electrons, and Atoms
- X. The Wave Nature of Particles
- XI. Quantum Mechanics

XII. Atomic Structure
XIII. Nuclear Physics

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but include the following: a minimum of three examinations, quizzes, a final examination and laboratory reports.

Writing: Written laboratory reports will be required on a more or less weekly basis.

Other Course Information

This course is part of a three-course set.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

Date Revised 3/26/07