

CUMBERLAND COUNTY COLLEGE

Course: PI 141 General Physics

Credit: 3

Prerequisites: MA 130 or permission of instructor

Description:

This course provides exposure to the physical laws of nature necessary to further specialize in any field of science, engineering or technology. Calculus based, the course covers the general areas of mechanics, wave motions, sound and heat.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

- Apply calculus to analyze the motion of a particle
- Formulate vectors in unit vector notation
- Apply laws of motion
- Apply the conservation laws
- Explain the forms of energy and its conversion
- Explain the wave phenomena and oscillation
- Explain the concepts and laws in heat and thermodynamics
- Demonstrate the physical principles through experimental procedure
- Prepare a concise laboratory report
- Evaluate experimental data
- Calculate the center of mass of a simple system of particles
- Analyze the rotational motion of an object
- Explain and apply the laws of fluid dynamics
- Apply Calculus to solve problems in mechanics, heat and thermodynamics, waves and oscillations, and fluid dynamics.

Topical Outline:

- The topics covered in this course include the following:
- Vectors and vector algebra
- Kinematics
- Force and laws of motion
- Impulse and momentum and conservation of momentum
- Work, Energy, and conservation of energy
- Work-Kinetic energy theorem
- Circular and rotational motion
- Torque and moment of inertia
- Oscillations and waves
- Heat and thermodynamics

Text:

Fundamentals of Physics by Halliday, Resnik and Waker. Wiley Publishing

Student Assessment:

Assessment is based on Mid-semester examinations, Final examination, weekly quizzes, Laboratory reports, and workshop assignments as follows:

The three hour-exams	45%
Weekly quizzes	10%
Final exam	25%
Laboratory Reports	15%
Workshop Assignments	5%

Academic Integrity:

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation.

Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense.

As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

Tutoring & Project Assist:

If you are having difficulty with work in this class tutoring is available through the Center for Academic & Student Success. If you think that you might have a learning disability, contact Project Assist at 856.691.8600 x 1282 for information on assistance that can be provided to eligible students.

Before Withdrawing From This Course:

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA, which can limit or eliminate future financial aid in addition to causing academic suspension.