



B. This course requires a lab component for students to employ a scientific approach to understanding of the physics principles and concepts, and obtain first-hand experience in observation, data collection, analysis, and research.

C. This course generally transfers as a program requirement, general education course in science with lab, and/or free elective dependent on the transfer institution.

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#### **IV. Place of Course in College Curriculum**

A. Free Elective.

B. This course serves as a General Education course in Science with Lab.

C. This course meets a program requirement for:  
Mechanical Engineering Technology, Associate of Science  
Biological Sciences, Associate of Science Degree in Science and Mathematics  
Exercise Science, Associate of Science  
Mathematics, Associate of Science Degree in Science and Mathematics  
Information Systems & Technology, Associate of Science  
Environmental Science, Associate of Science Degree in Science and Mathematics  
Chemistry, Associate of Science Degree in Science and Mathematics

D. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, [www.njtransfer.org](http://www.njtransfer.org); b) for all other colleges and universities, go to the individual websites.

#### **V. Outline of Course Content**

This course explores the following topics:

- A. Measurement and error analysis
- B. One dimensional motion
- C. Vectors
- D. Two dimensional motion
- E. Newton's Laws
- F. Circular motion
- G. Gravitation
- H. Work and energy
- I. Center of mass
- J. Momentum
- K. Rotational motion
- L. Static equilibrium and elasticity
- M. Fluids
- N. Temperature and heat
- O. Kinetic theory
- P. The laws of thermodynamics

## **VI. A. Course Learning Outcomes:**

**At the completion of the course, students will be able to:**

1. Analyze and solve mathematically appropriate physics problems (**GE 2, 3**)
2. Conceive logical inferences to conceptual physics questions using scientific knowledge from the fundamental principles and laws of physics (**GE 2, 3**).
3. Use technology to identify and collect information (**GE 4**).
4. Collect and interpret data accurately (**GE 3**).

## **B. Assessment Instruments**

1. Exams
2. Final
3. Lab reports
4. Other, as specified by instructor

## **VII. Grade Determinants**

- A. Exams
- B. Final
- C. Lab reports
- D. Other, as specified by instructor (e.g., Extra credit assignments).

Given the goals and outcomes described above, LIST the primary formats, modes, and methods for teaching and learning that may be used in the course:

- A. Lecture/discussion
- B. Small-group work
- C. Laboratory
- D. Student collaboration
- E. Independent study
- F. Other, as specified by instructor

## **VIII. Texts and Materials**

- A. suggested textbooks
- B. web sources
- C. other computer-based sources
- D. other, as specified by instructor

Textbook Options:

[College Physics](#) (**free online**, OpenStax)  
Cutnell/Johnson, Physics, Wiley Publishers.

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

### **IX. Resources**

- A. Laboratory
- B. Computers
- C. Library

**X. Check One:**  Honors Course  N/A