

- The course serves as a program requirement in the non-physical sciences, health professions and mechanical and electronics technologies.

B. Course Transferability: The course transfers as a program requirement, elective, and/or a general education course.

V. OUTLINE OF COURSE CONTENT

This course explores the following topics:

- *Measurement and error analysis
- *One dimensional motion
- *Vectors
- *Two dimensional motion
- *Newton's Laws
- *Circular motion
- *Gravitation
- *Work and energy
- *Center of mass
- *Momentum
- *Rotational motion
- *Static equilibrium and elasticity
- *Fluids
- *Temperature and kinetic theory
- *Heat
- *The laws of thermodynamics

VI. EDUCATIONAL GOALS AND LEARNING OUTCOMES

A. GENERAL EDUCATION GOALS

Students will:

1. classify information (G.E. 1, G.E. 7);
2. analyze information (G.E. 1, G.E. 7);
3. synthesize information (G. E. 1, G.E. 7);
4. state a problem clearly (G.E. 1, G.E. 2);
5. compose hypotheses and problem solving strategies (G.E. 1, G.E. 7);
6. assess hypotheses and problem solving strategies (G.E. 1, G.E. 7);
7. interpret information (G.E. 1, G.E. 7);
8. discover information through research (G.E. 1, G.E. 3);
9. identify clearly defined and suitable research topics (G.E. 1, G.E. 3);
10. report on their analyses of research information (G.E. 1, G.E. 2, G.E. 3);

B. LEARNING OUTCOMES

Students will be able to:

1. interpret data accurately;
2. apply theoretical strategies to the analysis of data;
3. synthesize research results for the purposes of discussion and written work;
4. conceive reasonable inferences in response to observations;
5. analyze physics problems systematically and logically;
6. apply mathematical and/or statistical skills to other disciplines.

VII. MODES OF TEACHING AND LEARNING

Formats, modes, and methods for teaching and learning may be:

- lecture/discussion
- small group projects
- student oral presentations
- student collaboration
- independent study

VIII. PAPERS, EXAMINATIONS, AND OTHER ASSESSMENT INSTRUMENTS

Assessment methods may be:

- laboratory experimentation
- problem solving individually and in peer dialogue
- analysis of reading assignments and lecture in teams
- other, as specified by instructor

IX. GRADE DETERMINANTS

In order to evaluate achievement of the goals and outcomes listed above, possible grade determinants may be:

- Discussion questions
- Homework problems
- Exams and quizzes
- Research projects and/or collaborative projects
- Oral presentations
- Laboratory reports
- Class participation and preparation

X. TEXTS AND MATERIALS

- textbooks
- primary sources
- journals and publications

- web sources
- databases
- audio/visual sources

Samples of specific texts which may be featured:

Giancoli, *Physics*. Wiley Publishers, (Most Recent Edition).

Wilson/Hernandez, *Physics Laboratory Experiments*,
Houghton-Mifflin Publishers, (Most Recent Edition).

XI. RESOURCES

Students may need to use library databases and other library resources for critical research assignments.