C-ID Descriptor
Algebra/Trigonometry-Based Physics A

Descriptor Details

- **Descriptor Title**: Algebra/Trigonometry-Based Physics A
- **C-ID Number**: 105
- **Units**: 4.0
- **Hours**: 0000
- **Date of Last Revision**: 10/12/2017 04:43:58 PM PDT

General Description

This course is intended for students not majoring in physics or engineering but needing a one-year course in physics as a requirement for their major program. The course is part of a two-semester sequence whose contents may be offered in other sequences or combinations. Core topics include: kinematics, dynamics, work and energy, momentum, fluids, and simple harmonic motion.

Prerequisites

No information provided

Corequisites

No information provided

Advisories

Prior completion of a course covering Trigonometry (C-ID MATH 851)

Content

- Vectors and Scalars
- Newton’s Laws

- Statics and Dynamics
- Translational Kinematics
- Rotational Kinematics
- Rotational Dynamics
- Work and Energy
- Momentum
- Gravitation
- Simple Harmonic Motion
- Fluids
- Laws of Thermodynamics
- Heat Engines
- Kinetic Theory
- Entropy
- “Floating topics” which may be included in this semester
    - Mechanical Waves and Sound

Lab Activities

Laboratory activities should cover the range of topics designated for lecture. The majority of labs should be hands-on activities with “real world” data collection as opposed to computer simulation.

Objectives

Course Objectives: *At the conclusion of this course, the student should be able to:*

1. Predict the future trajectory of an object in two dimensions with uniform acceleration.
2. Analyze a physical situation with multiple constant forces acting on a point mass using Newtonian mechanics.
3. Analyze a physical situation using concepts of work and energy.
4. Analyze static and dynamic extended systems using the concepts of torque and angular acceleration.

Laboratory Course Objectives: *At the conclusion of the laboratory component of this course, the student should be able to:*

1. Analyze real-world experimental data, including appropriate use of units and significant figures.
2. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.

Evaluation Methods

Examinations which include problem solving, exercises, final examinations, projects, homework problems, laboratory reports.

*Note that not all of the methods listed are required.

Textbooks

Typical Textbooks:

Walker, James; *Physics*

Cutnell, John D.; Johnson, Kenneth W.; *Physics*

Serway, Raymond A.; Faughn, Jerry S. *College Physics*

Typical Lab Manuals:

Wilson, Jerry D.; Hernandez, Cecilia A.; Physics Laboratory Experiments

Gastineu, John; Physics with Computers

Sokoloff, David R.; Thornton, Ron; Laws, Priscilla; Real Time Physics: Active Learning Laboratories Modules 1 – 4

Laboratory manuals developed on site.