

North Hennepin Community College

PHYS 1601: General Physics I

A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:

This course requires any of these five prerequisites

MATH 1221 - Calculus I (Minimum grade: 1.67 GPA Equivalent)

MATH 1222 - Calculus II (Minimum grade: 1.67 GPA Equivalent)

MATH 2220 - Calculus III (Minimum grade: 1.67 GPA Equivalent)

MATH 2300 - Linear Algebra (Minimum grade: 1.67 GPA Equivalent)

MATH 2400 - Differential Equations (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This is the first course of a two-semester sequence for any student needing a physics course that includes applications of calculus. Topics include kinematics, dynamics, conservation of energy and momentum, rotational motion, static equilibrium, gravitation, periodic motion and thermal physics. Optional topics are fluids and thermodynamics. The course meets requirements for students majoring in engineering, mathematics, computer science or any of the physical sciences. (4 hours lecture, 2 hours laboratory)

Prerequisite: Math 1221 or consent of instructor.

B. COURSE EFFECTIVE DATES: 08/21/2006 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. The topics to be covered may include: motion in one and two dimensions, Newton's laws of motion, energy, momentum, rotational motion, oscillations, gravitation, fluids and wave motion.

D. LEARNING OUTCOMES (General)

1. The students will demonstrate an understanding of the scientific theories covered in this course. (MnTC Goal 3, Competency a)
2. The students will demonstrate skill in working with laboratory equipment. (MnTC Goal 3, Competency b)
3. The students will demonstrate an ability to collect data, perform statistical and graphical analysis on this data, and appreciate sources of error and uncertainty. (MnTC Goal 3, Competencies b and c)
4. The students will clearly express their mathematical ideas in writing. (MnTC Goal 3, Competency c)
5. The students will be able to communicate their experimental findings, analyses, and interpretations both orally and in writing. (MnTC Goal 3, Competency c)
6. The students will demonstrate that they can organize and present scientific material in a coherent manner. (MnTC Goal 3, Competency c)
7. The students will apply higher-order problem solving skills. (Discipline Goal)
8. The students will learn to integrate new skills into their customary ways of thinking as they develop their problem solving skills. (Discipline Goal)
9. Demonstrate knowledge of how physics principles can be used to evaluate science- related societal issues. (MnTC Goal 3, Competency d)

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted