

North Hennepin Community College

PHYS 1201: Principles of 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 four prerequisites

Placement into MATH 1170 or MATH 1200

Placement into MATH 1221

MATH 1150 - College Algebra (Minimum grade: 1.67 GPA Equivalent)

MATH 1180 - College Algebra and Pre-Calculus (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course is the first of an algebra-based two-semester introductory physics sequence. Topics to be covered include: motion in one and two dimensions, Newton's laws of motion, energy, momentum, rotational motion, static equilibrium, oscillations, gravitation, fluids. Concepts of right-triangle trigonometry will be introduced as needed. (4 hours lecture, 2 hours lab).

Prerequisite: Successful completion of either MATH 1150 or MATH 1180 with a C or better OR eligibility for either MATH 1170 or MATH 1221 through College math placement score.

B. COURSE EFFECTIVE DATES: 09/10/1997 - 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, static equilibrium, oscillations, gravitation, fluids. If time permits, a short discussion of heat may also be included.

D. LEARNING OUTCOMES (General)

1. Define physics and physics-related terms, laws, and theories (MnTC Goal 3, Comp. a; ELO 1)
2. Identify the physical principles and laws that apply in a given physical event or situation. (MnTC Goal 3, Comp. a; ELO 1)
3. Describe and explain in conceptual terms what and how is taking place in various physical processes or events, and to make qualitative predictions about the outcome of these processes/events. (MnTC Goal 3, Comp. a; ELO 1, 2)
4. Examine a physical situation quantitatively and make a numerical prediction, through problem-solving and applied mathematics, about the result or outcome of the situation. (MnTC Goal 3, Comp. a; ELO 1, 2)
5. Collect data, perform statistical and graphical analysis on this data, and appreciate sources of error and uncertainty. (MnTC Goal 3, Comp. b; ELO 2)
6. Communicate experimental findings, analyses, and interpretations both orally and in writing. (MnTC Goal 3, Comp. c; ELO 2)
7. Integrate new skills into customary ways of thinking while developing organized problem-solving skills. (MnTC Goal 3, Comp. a; ELO 2, 4)
8. Utilize multiple physics topics and principles in problem-solving. (MnTC Goal 3, Comp. a; ELO 1, 2, 4)

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.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted