

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. PHYS

COURSE NUMBER: 1201

NUMBER OF CREDITS: 4

Lecture: 3 Lab: 1 OJT 0

Course Title:
Fundamentals of Physics I

Catalog Description:
Fundamentals of Physics I develops a foundation for future studies in fields not requiring calculus, using laboratory and lecture with calculator and computer based instruction. Develops a foundation in physics for liberal arts, premedical, or pre-pharmacy students. Topics include one and two dimensional motion, forces and acceleration, applications of Newton's Laws, momentum, gravitation, collisions, work and energy, rotational motion, angular momentum, harmonic motion and sound. This course includes a lab.

Prerequisites or Necessary Entry Skills/Knowledge:
Equivalent of MATH 1107, placement by multiple measures, or instructor permission

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)

☒ Goal 3: Natural Sciences: By meeting the following competencies:

- Demonstrate understanding of scientific theories.
- 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.

- Communicate their experimental findings, analyses, and interpretations both orally and in writing.

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

Topics to be Covered
Physics and measurement
Motion in one dimension – speed, velocity, acceleration
Gravity and projectile motion
Newton's Laws and their applications
Work-Energy Theorem – Potential and kinetic energy
Conservation of energy
Momentum and its conservation – collisions, impulse
Momentum and its conservation – collisions, impulse

Oscillations, harmonic motion, and sound
Fluids and pressure

Student Learning Outcomes
Define physics concepts and their applications.
Model physical behavior by performing hands-on activities and experiments.
Develop problem solving techniques using mathematical models describing physical concepts.
Analyze and interpret data collected in a variety of methods.
Describe and interpret physical properties in action with real-world situations encountered in their everyday environment.

Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<small>*If yes, please list the competencies below</small>

Revised Date: 1/18/2022