

# MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

## COURSE OUTLINE

DEPT. PHYS

COURSE NUMBER: 2121

NUMBER OF CREDITS: 5

Lecture: 4 Lab: 1 OJT 0

Course Title:
General Physics I

Catalog Description:
General Physics I teaches the fundamentals of physics using calculus and vectors. Uses laboratory centered instruction with calculator and computer based investigations. Topics include kinematics, Newton's Laws of motion, forces, collisions, momentum, work, and energy, energy conservation, rotational motion, angular momentum, torque, harmonic motion, oscillations, and fluids. This course includes a lab.

Prerequisites or Necessary Entry Skills/Knowledge:
MATH 1121 (can be taken concurrently).

### 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
Rotational motion, inertia, angular momentum, and torque


<b>Student Learning Outcomes</b>
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Oscillations, harmonic motion, and sound
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Fluids and pressure
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<b>Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></b>
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<i>*If yes, please list the competencies below</i>
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Revised Date: 1/18/2022