

# MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

## COURSE OUTLINE

**DEPT. PHYS**

**COURSE NUMBER: 1100**

**NUMBER OF CREDITS: 3**

**Lecture: 2 Lab: 1 OJT 0**

<b>Course Title:</b>
Survey of Physics

<b>Catalog Description:</b>
Survey of Physics includes a general survey of conceptual physics. Topics include a basic introduction to Newton's Laws of motion, gravitation, physical mechanics, properties of matter, heat, sound, electricity, magnetism, light and nuclear physics. This is mainly a lab activity course for students who have not had high school physics.

<b>Prerequisites or Necessary Entry Skills/Knowledge:</b>
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.

<b>Topics to be Covered</b>
Physics and measurement.
Linear and nonlinear motion – speed, velocity, acceleration.
Energy and momentum.
Rotation, gravitation, and satellite motion.
Atomic nature of matter – solids, liquids, gases, and plasmas.
Newton's Laws of motion.
Temperature and heat transfer.
Vibrations, waves and sound.
Electrostatics and electric current.

Magnetism and electromagnetism.
Properties of light and color.
Reflection and refraction of light.
Light waves.
Atomic physics, fusion and fission.

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

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

Revised Date: 1/18/2022