

# Minnesota State University Moorhead

## PHYS 201: Physics II with Calculus & Lab

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 4

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

MATH 261 - Calculus I

Corequisites: MATH 262

MnTC Goals: Goal 03 - Natural Science

Calculus-based study of general physics presented in a guided activity-based format which integrates laboratory and lecture using cooperative learning techniques. Includes electric charges, electric fields, capacitance electric circuits, magnetic fields, electromagnetic induction and an introduction to optics. MnTC Goal 3.

**B. COURSE EFFECTIVE DATES:** 05/21/2021 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. Apply a variety of physics concepts involving electrostatics, magnetism, AC and DC circuits, energy and geometric optics.
2. Develop critical thinking skills.
3. Develop estimating and unit analysis skills.
4. Apply the scientific method in a laboratory setting.
5. Develop laboratory skills and accurately communicate results.
6. Develop data analysis and error analysis within a laboratory experiment.

### 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