

Course Name: PHY-128 General Physics II Laboratory

Date Updated: 2/2022

Credit Hours/week: Lab 1 hrs./wk. – 1 cr.

BEGINNING: SPRING 2022

Catalog Description: This is the second course of a two-semester sequence in laboratory physics for students who are enrolled concurrently in General Physics 11 (PHY-127). Experiments demonstrate concepts covered in the accompanying lecture course, while continuing to develop laboratory skills introduced in PHY-126.

Prerequisite: PHY-125, PHY-126, PHY-127

Text: Einstein, General Physics II Lab Manual, CPS

Craven, Computer Techniques for Physics, CPS

Supplementary Material: Must be held in the Physics laboratories, SH 216 or 268. Makes use of equipment required to carry out the exercises listed in the course outline below.

Scientific Calculator Materials: Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations:

Syllabus:

Topics
Demonstrations: springs, Hooke's Law, simple harmonic motion
Hooke's Law and Simple Harmonic Motion
Demonstrations: Mechanical Waves
Standing Waves in a String
Electrostatic Demonstrations
The Elementary Electric Charge
Electric Fields and Equipotential Surfaces
Workshop: resistivity & resistors; Basics of direct current circuits
Voltmeter-Ammeter Method for Measuring Resistance
The Wheatstone Bridge: Measuring Resistance Workshop: capacitors and capacitance
Workshop: capacitors and capacitance
Demonstrations: Magnetic Forces and Fields; Electromagnetic Induction; Motors and Generators
Demonstration: Reflection and Refraction
Electromagnetic radiation; polarization; electromagnetic spectrum; dispersion; Electromagnetic Radiation
Thin-Lens and Magnification Equations; Images Produced by Lenses and Mirrors

Format for Offering this Course: Traditional

Students are expected to adhere to the policies of the County College of Morris. These can be accessed at: (insert link here)

Statement of Expected Course LEARNING OUTCOMES

- Describe the physical forces acting on a mass in a spring-mass system
- Describe the physical laws involved in electricity, magnetism and fields
- Produced an laboratory report that organizes, analyzes, synthesizes and evaluates experimental data
- Evaluate and draw conclusions from numerical data and graphical information
- Use the scientific method to analyze and derive conclusions from collected data and information (Gen Ed)
- Explain the difference between a hypothesis, a theory and a law as they are used in science (Gen Ed)
- Learning Activities to support general education outcomes: Lab experiments, videos and in-class demonstrations. Assessment Methods related to general education outcomes: Laboratory experiments requiring students to draw correct conclusions based on observation and processing of experimental data documented in a lab report.

Statement of Relation to Curriculum(s);

A General Education Science Required by no program of study; elective for students in the science and mathematics programs (chemistry, biology, mathematics, and mathematics/science options).