Course Information Form (CIF)

Course Code: PHY 122
Course Title: General Physics II

Department: Natural Sciences
PCS Code: 1.1 - Baccalaureate/Transfer
CIP Code: 40.0801
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 4-3-5
Credit Hour Distribution:

Lecture: 4	Lab: 3	Clinical: 0	**Total: 5**

General Course Information

Catalog Description

Concepts and methods of physics for students in arts and sciences. Electricity, magnetism, optics, relativity, and atomic structure.

General Course Objectives

To give the arts and science student an appreciation and working knowledge of the fundamentals of the physics of electricity and magnetism, optics, and modern physics.

Minimum Placement Levels

English	Reading	Math
None	Placement out of CCS 098	None

Prerequisites

Credit in PHY 121 or equivalent

Methods of Evaluation

12 quizzes, 3 two-hour exams, 12 homework assignments, 15 labs, and a final exam.

Instructional Materials and Additional Supplies

Physics Fundamentals, Coletta; current edition.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Introduction/Review	1. Identify a scalar and vector and how they differ. 2. Identify Newton's Laws.	2	0	0
Coulomb's Law	1. Calculate and identify direction of coulomb force. 2. LAB: Measure and draw electric field lines. 3. LAB: Identify charges of different magnitudes.	2	3	0
Gauss' Law	1. Calculate the electric flux passing through a geometric surface.	2	0	0
Electric Potential, Potential Energy	1. Identify the difference between electric potential and electric potential energy. 2. LAB: Measure and draw lines of equipotential. 3. LAB: Predict the path taken by a test charge in an electric field.	2	3	0
Ohm's Law	1. Calculate the current in a circuit. 2. LAB: Calculate the resistance of a circuit by measuring voltage and current. 3. LAB: Identify factors influencing resistance.	2	3	0
Resistors	1. Calculate the effective resistance of resistors in series and/or parallel. 2. LAB: Construct circuits of specified effective resistance. 3. LAB: Identify series/parallel wiring.	2	3	0
Kirchoff's Laws	1. Apply Kirchoff's Laws to a circuit and calculate current flow. 2. LAB: Measure voltage around a circuit and confirm Kirchoff's Laws.	4	3	0
Capacitors	1. Calculate the effective capacitance of capacitors in series and/or parallel. 2. LAB: Construct circuits of specified effective capacitance.	2	3	0
Magnetic Fields	1. Use the right-hand rule to identify direction of magnetic force. 2. LAB: Measure the strength of a magnetic field by viewing circular path of charged particle.	2	3	0
Ampère's Law	1. Calculate the magnitude of the field produced by current. 2. LAB: Measure magnetic field produced by current.	4	3	0
Induction	1. Calculate the induced EMF caused by a changing magnetic field. 2. LAB: Identify the factors that cause an induced current. 3. LAB: Predict the direction of an induced current.	4	3	0
AC Circuits	1. Calculate the impedance of an AC circuit containing capacitors and inductors. 2. LAB: Measure the reactance of capacitors and inductors in an AC circuit. 3. LAB: Identify the current graph for a resistor, capacitor, and inductor.	4	3	0
Electromagnetic Waves	1. Identify components of E and M waves, such as wavelength, frequency, speed, and energy. 2. LAB: Measure light intensity. 3. LAB: Identify more/less efficient light bulbs.	4	3	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Polarization	1. Calculate the intensity of light emerging from various polarizers. 2. LAB: Predict and measure the intensity of light emerging from various polarizers.	4	3	0
Optics	1. Identify when an image is formed, if it is inverted or erect, and if it is real or imaginary. 2. LAB: Measure focal length and positions of object and image. 3. LAB: Measure and calculate the critical angle for total internal reflection.	8	3	0
Interference	1. Identify the positions of maximum and minimum in interference. 2. LAB: Calculate the width of a slit by measuring the distance of maxima.	4	3	0
Relativity	1. Identify and calculate the amount of length contraction, time dilation, and change of momentum for relativistic speeds.	4	0	0
Atoms	1. Identify the components of the atom and the forces which hold them together. 2. LAB: Identify materials by measuring spectrum of light emitted.	4	3	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
60	45	0