

PHY 152
COLLEGE PHYSICS II

COURSE DESCRIPTION:

Prerequisites: PHY 151

Corequisites: None

This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. Laboratory experiments, along with some computer-based labs and tutorials, consolidate the basic principles discussed in lectures. *This course has been approved to satisfy the Comprehensive Articulation Agreement for the general education core requirement in natural sciences/mathematics.* Course Hours Per Week: Class, 3. Lab, 2. Semester Hours Credit, 4.

LEARNING OUTCOMES:

Upon completion of this course, the student will demonstrate basic knowledge in the following:

- a. Electromagnetic waves.
- b. Geometrical optics.
- c. Wave optics.
- d. Applied optics.
- e. Electric charge.
- f. Electric field.
- g. Electric energy.
- h. Electric circuits.
- i. Electromagnetism.
- j. Applied electricity.
- k. Relativity.
- l. Electrons and photons.

- F. Objects and images
- G. Mirrors

III. Wave optics

- A. Theories of light
- B. Interference
- C. The grating
- D. Single-slit diffraction
- E. Michelson interferometer
- F. Polarization of light

IV. Applied optics

- A. The camera
- B. The human eye
- C. The magnifier
- D. The microscope
- E. Resolving power
- F. The telescope
- G. The spectroscope

V. Electric charge

- A. Electric and magnetic forces
- B. Conductors and insulators
- C. Coulomb's law
- D. Electrolysis

VI. Electric field

- A. Concept of electric field
- B. Lines of force
- C. Potential difference
- D. Equipotential s Tf0.00065t21

