

Indiana State University

PHYS 106 Section 001

General Physics II

Catalog Course Description

The course is the sequential continuation of 105. The topics include electricity and magnetism, optics, relativity, and atomic and nuclear physics.

Faculty Information

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Department:Chemistry And Physics

Office Hours:Monday, Wednesday, 2-3 pm. Friday 10-11am, and by appointment

Course Learning Objectives

- Develop a conceptual understanding of the principles of electricity, magnetism and optics. Strengthen quantitative reasoning and problem-solving skills .
- Develop the ability to connect physics concepts to real-world phenomena
- Be able to sketch electric field and magnetic field lines, compute the electric and magnetic fields for simple geometrical settings using the Gauss and Ampere laws.
- Use the Coulomb law to compute the forces between charges; Compute forces on moving charges and currents due to the magnetic fields. Explain how the lightning rod, Xerox and MRI work.
- Use the Ohm's law to find current and voltage across a resistor. Compute equivalent resistance, current and voltage for complex circuit diagram using the Kirschhoff's rule. Compute the induced emf from the Faraday's law of induction. Explain how a transformer works and how long distance transmission works.

Be able to use the ray tracing to find images of objects for mirrors and lenses. Use the mirror equation and the thin lens equation to compute the image distance and heights.

This course also meets the Foundational Studies Quantitative Literacy Learning Objectives.

Required Textbooks and Materials

Open Educational Resource: Openstax College Physics; Expert TA's Intro to Physics - Access

Graded Elements of the Course

Quizzes, exams, workshop, and homework