



PHY 440 Introduction to Electricity & Magnetism

Course Description

This course covers electric and magnetic field theory, properties of dielectrics and magnetic materials.

Course Prerequisites

- Electricity, Sound, and Light (PHY 132) or Technical Physics II (PHY 242)
- Calculus II (MTH 234)

Specific Course Requirements

Textbook Requirements

See current semester textbook list at <http://www.physics.sfasu.edu/docs/books.pdf>

Course Objectives

- To introduce the principles of electricity and magnetism
- To understand and apply the laws governing electric and magnetic behavior
- To be aware of some of the applications of electromagnetic behavior

Student Learning Outcomes/Competencies

By the end of the course, a successful student will be able to:

- Demonstrate on examination and through homework assignments, proficiency in solving problems in electrostatics, special techniques of solving electrostatic problems, electric fields in matter, magnetostatics, magnetic fields in matter, electrodynamics, and Maxwell's Equations.
- Show problem solutions to the class from assigned homework problems.
- Associate applications of electromagnetism with global, ethical and societal issues such as hybrid electric automobiles, photovoltaics, etc.

Course Content

- Vector Analysis
- Electrostatics
- Special Techniques
- Electric Fields in Matter
- Magnetostatics
- Magnetic Fields in Matter
- Electrodynamics

Course Assessment

The course assessment may use any or all of the following evaluation tools: exam scores, classroom participation, homework average, quizzes, and team projects.