



PHY 410 Experimental Techniques of Physics

Course Description

General Bulletin Description: Four semester hours, three hours lecture and two hours lab per week. Presentation of the experimental techniques used to measure the physical observables associated with matter, mechanics, waves, sound, light, electricity and magnetism.

Number of Credit Hours - 4 for lecture, 0 for lab

Course Prerequisites

General Physics I (PHY101)

General Physics II (PHY 102) or Classical and Modern Astronomy (AST 105)

Specific Course Requirements

Textbook Requirements

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

Program Learning Outcome

The student will develop good experimental technique, including proper setup and care of equipment, conducting experiments and analyzing results in order to observe physical phenomena, assess experimental uncertainty, and make meaningful comparisons between experiment and theory.

Student Learning Outcome

By the end of the course, a successful student will be able to demonstrate skill in using instruments to measure the properties of sound and light, electric circuits, and magnets.

Outline of Topics

- Wave Phenomena (20%) – Vibrations, Wave Properties, Describing Waves
- Sound (20%) – Sound media, Properties of Sound
- Light (20%) – Optics, Color, Vision
- Electricity (20%) – Conductors, Circuits, Electrical Devices
- Magnetism (20%) – Magnets, Magnetic Fields, Electromagnetic Devices

Laboratory

The PHY 410 laboratory and lecture are fully integrated and share the same learning outcomes and course objectives.