DETAILED COURSE DESCRIPTION

Course Number PHYS 138

Course Title Honors: Fundamentals of Physics for Physics Majors II

Target audience The course is designed for freshman-level physical science or physics majors. Physics 136 is an alternative. The course has a two-hour weekly lab.

Corequisites PHY 135 or PHY137

Corequisite Math 142

Catalog description Calculus-based physics of electricity, magnetism, optics.

Expected previous knowledge

Concepts Physical science at the high-school level. A previous physics course in physics is not required.

Skills Integral calculus should be taken concurrently.

Course Objectives

The objectives are: To cover the basics of 1) electricity and magnetism, 2) circuits and circuit elements 3) geometrical optics 4) interference and diffraction

Sample Text

Urone/Hinrichs/Dirks/Sharma's OpenStax College Physics

Minimum Material Covered

Gauss's law

Electric potential

Capacitors, resistors, dielectrics, and current

DC circuits

Magnetic fields

Faraday's law and induction

Inductance and AC circuits

Maxwell's equations and electromagnetic waves

Geometrical optics

Interference

Diffraction