

DETAILED COURSE DESCRIPTION

Course Number PHYS 136

Course Title Introduction to Physics for Physical Science and Mathematics Majors II

Target audience The course is designed for freshman-level physical science or physics majors. Well prepared students may consider Physics 138 as an alternative. The course includes a two-hour weekly lab.

Corequisites Mathematics 142

Catalog description Calculus-based physics of thermodynamics, 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) thermodynamics 2) electricity and magnetism, 3) circuits and circuit elements 4) geometrical optics 5) interference and diffraction

Sample Text

“Fundamentals of Physics, 6th Ed.”, Halliday, Resnick, and Walker; Wiley.

Minimum Material Covered

Temperature, heat, and the equation of state

Thermodynamics and the zeroth, first, second, and third laws

Charges and the electric field

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