

PHYS: Courses in Physics

Department of Natural Science

PHYS 101 Elements of Physics I 3-4 Cr

A survey course designed primarily for non-science majors. Topics include classical mechanics and states of matter. This course satisfies the CORE requirement for science. An optional, one-credit laboratory may be taken concurrently. Prerequisite: Proficiency in elementary algebra. Fall semester, if sufficient demand.

PHYS 102 Elements of Physics II 3-4 Cr

A continuation of PHYS 101, covering topics in heat, light, sound, and modern physics. This course satisfies the CORE requirement for science. An optional, one-credit laboratory may be taken concurrently. Prerequisite: Proficiency in elementary algebra. Note: PHYS 101 is not a prerequisite for this course. Spring semester, if sufficient demand.

PHYS 201 Physics I: Mechanics, Wave Motion, & Sound 4 Cr

An introductory calculus-based physics course, with emphasis on the principles of physics, for health science majors. Topics include classical mechanics, oscillatory (wave) motion, sound, and the behavior of solids and fluids. Three (3) hours lecture and one two-hour laboratory per week. Prerequisites: MA 122 or MA 232. Fall semester. 17820

PHYS 202 Physics II: Thermodynamics, Electricity and Magnetism, Optics, and Modern Physics 4 Cr

A continuation of PHYS 201. Topics include thermal physics, electrical and magnetic phenomena, simple electrical circuits, optics, and quantum physics. Three (3) hours lecture and one two-hour laboratory per week. Prerequisite: PHYS 201. Spring semester.

PHYS 205 Engineering Physics I: Mechanics 4 Cr

For mathematics and engineering majors. Statics, kinematics, and dynamics of particles and rigid bodies, work and energy, conservation of energy and momentum (linear and angular), harmonic motion. Three (3) hours lecture and one two-hour laboratory per week. Prerequisite: MA 232 required, high school physics recommended. Fall semester.

PHYS 206 Engineering Physics II: Electricity and Magnetism 4 Cr

Electrostatics and Gauss' Law, dielectrics, DC circuits, electromotive force, magnetic field and magnetic properties of matter, geometric optics and an introduction to modern physics. Three (3) hours lecture and one two-hour laboratory per week. Prerequisite: PHYS 205 required, high school physics recommended. Spring semester.

PHYS/ENGR 305 Electronics and Circuit Analysis I 4 Cr

An introductory course providing fundamental knowledge for students planning engineering or scientific careers. Review of current, voltage, and passive circuit elements (resistors, capacitors, and inductors). Kirchhoff's Laws, network theorems, and basic network analysis. General characteristics of amplifiers and electronic instrumentation. Introduction to operational amplifiers and active elements (transistors). Laplace transform analysis of transient response and complex phasor analysis of sinusoidal steady-state response. Three (3) hours lecture and one two-hour laboratory per week. Prerequisites: PHYS 206 and MA 334. Fall semester.

PHYS/ENGR 306 Electronics and Circuit Analysis II 4 Cr

A continuation of PHYS/ENGR 305, especially recommended for students planning 3-2 programs or graduate study in electrical

engineering. Systematic node-voltage and mesh-current methods of circuit analysis. Network transfer functions and frequency spectra. Resonance, complex power, mutual inductance, and transformers. Diode circuits and detailed analysis of amplifiers using bipolar-junction and field-effect transistors. Three (3) hours lecture and one two-hour laboratory per week. Prerequisite: PHYS/ENGR 305. Spring semester, if sufficient demand.

PHYS/ENGR 308 Thermodynamics 3 Cr

A practical introduction to thermodynamics for engineering students. Fundamental state variables are defined (e.g., temperature, pressure, energy, enthalpy, entropy, etc.), and the three laws of thermodynamics are extensively discussed and illustrated. Applications include power systems, gas turbines, and refrigerators. Three (3) hours lecture per week. Prerequisites: PHYS 205-206 and MA 334. Spring semester.