PHYSICS COURSES

PHYS 140 GENERAL EARTH SCIENCE
This course is an introductory survey of the earth and its environment for the non-science major. Subjects include physical and historical geology, meteorology, oceanography, planet earth, and the solar system. Prerequisite: None.

PHYS 131 GENERAL PHYSICAL SCIENCE
General Physical Science is an integrated basic survey of the physical sciences including physics, chemistry, geology, astronomy, and meteorology for the non-science major. Prerequisite: None.

PHYS 111L GENERAL PHYSICAL SCIENCE LAB.
In this Lab. students perform introductory level experiments in physics, chemistry, and geology.

PHYS 231 GENERAL PHYSICS I
This course covers the fundamentals of physics including mechanics, waves, and heat. Prerequisite: MATH 140.

PHYS 211L GENERAL PHYSICS I LAB
Students perform experiments in fundamentals of physics including mechanics, waves and thermal physics. Co-requisite: PHYS 231.

PHYS 232 GENERAL PHYSICS II
A continuation of general physics I. The course covers electricity, magnetism, light, and an introduction to modern physics. Prerequisite: PHYS 231.

PHYS 212 GENERAL PHYSICS II LAB
Students perform experiments in electricity, magnetism, and light. Co-requisite: PHYS 232.

PHYS 233 PRINCIPLES OF PHYSICS I
(SERVICE-LEARNING COURSE)
This is a Calculus based introduction to principles of mechanics, wave motion, and thermal physics. Prerequisite: MATH 143.

PHYS 213 PRINCIPLES OF PHYSICS I LAB
Students perform experiments in mechanics, waves, and thermal physics. Co-requisite: PHYS 233.

PHYS 234 Principles of Physics II
(SERVICE-LEARNING COURSE)
A continuation of Principles of Physics, topics covered includes electricity and magnetism, light and optics. Prerequisite: PHYS 233.

PHYS 214 PRINCIPLES OF PHYSICS II LAB
Students perform experiments in electricity, magnetism, light and optics. Co-requisite: PHYS 234.

PHYS 331 STATICS
This course covers the principles of statics including vector calculus, distributed forces, equilibrium of rigid bodies, trusses, Frames, beams, and various types of Fiction. Prerequisite: MATH 143; Co- requisite: PHYS 243.

PHYS 332 DYNAMICS
This course covers the principles of dynamics, including particles dynamics, work and energy, harmonic motion, systems of particles, moving coordinate systems, and rigid body motion. Prerequisite: MATH 143; Co-requisite: PHYS 233.

PHYS 333 PRINCIPLES OF PHYSICS III
This is an introduction to modern physics including relativity, quantum theory, atomic, nuclear and solid-state physics. Prerequisite: PHYS 234.

PHYS 334 THERMAL PHYSICS
(SERVICE-LEARNING COURSE)
This course covers thermodynamic processes, the first and second laws, enthalpy, entropy, Carnot cycle, principles of equilibrium, thermodynamic potential, kinetic theory and introductory statistical mechanics. Prerequisite: PHYS 233.

PHYS 335 ANALYTICAL MECHANICS
This course covers Newton's laws of motion applied to particle dynamics, systems of particles, and rigid bodies. Introduction to Lagrange's equations, tensor algebra, and analytical techniques such as approximations, expansions, and dimensional analysis. Prerequisite: PHYS 233; Co-requisite: MATH 241.

PHYS 336 ELECTRICITY AND MAGNETISM
(SERVICE-LEARNING COURSE)
This is a study of advanced treatment of electrostatic fields, dielectrics, steady current, electromagnetic induction, magnetic fields, magnetic materials, electromagnetic waves and Maxwell's equations. Prerequisite: PHYS 234; Co-requisite: MATH 241.

PHYS 337 RADIATION PHYSICS
Topics covered include the atomic nucleus, radioactivity, radioactive decay, interaction of radiation with matter, gas, and scintillation counters, and semiconductor detectors. Prerequisite: PHYS 333.

PHYS 338 MODERN ELECTRONICS
This course covers the fundamentals of semiconductor electronics, including D.C. and A.C. circuits' theory, diodes, transistors, other semiconductor devices, amplifier circuits and integrated circuits. Prerequisite: PHYS 234.

PHYS 430 DIRECTED INDIVIDUAL STUDY
Students engage in directed intensive training and research in the areas of their professional interest. Students may also engage in on-the-job training in government agencies or industrial companies. Prerequisite: Permission of the Instructor.

PHYS 431 MODERN PHYSICS I
(DESIGNATED SERVICE-LEARNING COURSE)
This course covers advanced treatment of relativity, quantum effect, and structure of atoms. Prerequisite: PHYS 244.

PHYS 432 MODERN PHYSICS II
(DESIGNATED SERVICE-LEARNING COURSE)
A continuation of Modern Physics I, the course includes nuclear physics, molecular physics, solid state physics, and elementary particles. A senior research paper is required. Prerequisite: PHYS 431.

PHYS 433 ADVANCED MECHANICS
This course covers advanced classical mechanics, including generalized coordinates and Lagrangian and Hamiltonian dynamics. Prerequisite: PHYS 335.

PHYS 444 ADVANCED MODERN PHYSICS LABORATORY
This course covers advanced laboratory experiments, projects, and techniques in modern physics. Prerequisite: PHYS 431.

PHYS 436 INTRODUCTION TO QUANTUM MECHANICS
This course introduces general principles of quantum mechanics, physical operators, wave equation and perturbation theory. Prerequisite: PHYS 431.

PHYS 438 SOLID STATE PHYSICS
This course is an introduction to solid state physics, covering crystal structure, band theory, semiconductors, and magnetics. Prerequisite: PHYS 431.

PHYS 435 OPTICS
This course covers geometrical and physical optics, the wave nature of light, lenses and optical instruments, interferometers, gratings, thin films, and polarization. Prerequisite: PHYS 234.