PHYS - 1014 Introductory Physics, 4.00 Credits
Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is appropriate for students lacking a strong math and science background and will develop physical concepts in the classroom in a highly interactive laboratory. The laboratory portion of the course will include traditional and conceptual physics experiments, computer work and time devoted to physics problem solving. Considerable attention will be paid to problem solving and the development of problem analysis skills.

PHYS - 1024 General Physics I, 4.00 Credits
Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This is the first semester of a one-year course designed for students in Engineering Technology. The course covers the physics of motion. The topics covered include: conversion of units and dimensional analysis, vectors, linear and rotational kinematics, Newton's Laws of Motion and the application of these laws to problems, equilibrium, friction, work and energy, power, momentum, circular motion and the dynamics of rotational momentum. The course includes laboratory work covering some of these topics.

PHYS - 1044 College Physics I, 4.00 Credits
Prerequisite(s): MATH 1033 with D or better or MATH 1034 with D or better or MATH 1054 with D or better or MATH 1084 with D or better
Level: Lower

Applied Learning-Other, Gen Ed - Natural Sciences, Liberal Arts and Science

This is the first semester course of a two-semester physics sequence, which is appropriate for Liberal Arts students or technical students who plan to pursue a four year degree in the biological sciences. In this course, students will learn how to explain natural phenomena both qualitatively and quantitatively. Problem solving skills are emphasized. Topics include: motion, force, energy, collisions, rotational motion, and fluids. Students will do some open-ended labs where they will create a model of the experiment, design and run the experiment.

PHYS - 1064 Physics for Engr & Science I, 4.00 Credits
Prerequisite(s): MATH 1084 with D or better
Level: Lower

Applied Learning-Other, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is the first of two calculus-based courses intended to cover elementary classical physics for those students who are planning to transfer into a four-year program in engineering, mathematics, or one of the natural sciences. The topics covered include: measurements, vectors, kinematics, dynamics, work and energy, impulse and momentum, rotational kinematics and dynamics, including energy and momentum principles, for single and multiple particle systems including rigid bodies. In addition the laboratory component of this course will be used to expose students to activities that will require them to apply the knowledge they have learned to design experiments, collect and analyze appropriate data and then interpret the results in such a way as to demonstrate their understanding of the concepts being covered.

PHYS - 2023 General Physics II, 3.00 Credits
Prerequisite(s): PHYS 1024 with D or better
Level: Lower

Gen Ed - Natural Sciences, Liberal Arts and Science

This course is the second course in introductory physics for engineering students. The topics covered include: wave motion, sound, electrostatics, current, electricity, electric circuits, magnetic effects, light and illumination, reflection, refraction, mirrors, thin lenses, dispersion interference, and diffraction. Laboratory work is also included covering many of these topics.

PHYS - 2044 College Physics II, 4.00 Credits
Prerequisite(s): PHYS 1044 with D or better
Level: Lower

Applied Learning-Other, Gen Ed - Natural Sciences, Liberal Arts and Science

This is a continuation of PHYS 1044. It is appropriate for a Liberal Arts or technical student who plans to complete a four-year degree. The topics covered include: simple harmonic motion, waves, heat, light, electricity and magnetism. Problem solving is stressed. The course includes a weekly lab covering the topics listed for this course and a comprehensive final. Hans-on lab activities require students to design experiments, make appropriate measurements, perform data analysis, and discuss the results to reinforce their understanding of the subject matter.

PHYS - 2064 Physics for Engr & Sci II, 4.00 Credits
Prerequisite(s): PHYS 1064 with D or better and MATH 1084 with D or better
Level: Lower

Applied Learning-Other, Gen Ed - Natural Sciences, Liberal Arts and Science

This course is a continuation of PHYS 1064. Topics include: wave motion, simple harmonic motion, electricity, circuit analysis, magnetism and ray optics. In addition, structured physics labs will require: hands-on collection of data, analysis of data (including error analysis) with a spreadsheet, a formal written report and an evaluation of the lab report. A comprehensive final exam will be given.

PHYS - 2900 Directed Study, 1.00 TO 5.00 Credits
Level: Lower

A student may contract for one to five credit hours of independent study through an arrangement with an instructor who agrees to direct such a study. The student will submit a plan acceptable to the instructor and to the department chairperson. The instructor and student will confer regularly regarding the process of the study.

PHYS - 8013 Modern Physics, 3.00 Credits
Prerequisite(s): (PHYS 2023 with D or better or PHYS 2044 with D or better or PHYS 2064 with D or better) and (MATH 2094 with D or better or MATH 2074 with D or better)
Level: Upper

Applied Learning-Other, Gen Ed - Natural Sciences, Liberal Arts and Science, Upper Level

This is a one-semester course for liberal arts students or technical students. This course provides students with information about the discoveries made, ideas and concepts advanced, and the knowledge gained in physics since 1900. Topics include: special theory of relativity, relativistic calculation, modern experiments, atomic structure, matter waves, quantum mechanics, and quantum theory of hydrogen. Hands-on lab activities require students to make appropriate measurements, perform data analysis, and discuss the results to reinforce their understanding of the subject matter.