

# PHY-PHYSICS

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## PHY 1020C Conceptual Physics (3 Credits)

This course offers a comprehensive survey of physics, covering a wide range of topics including motion, Newton's laws, energy, sound, heat, electricity, magnetism, and optics. Emphasizing a conceptual understanding of physics, the course integrates critical thinking skills and real-world applications. Student Learning Outcomes: -Students will critically evaluate everyday phenomena using the scientific method. -Students will explain the basis of physical principles (such as conservation laws) and how they apply to everyday phenomena. - Students will interpret information conveyed in diagrams and graphs. - Students will perform simple calculations relevant to real world problems.

**Prerequisite:** Successful completion of all developmental math courses indicated through placement testing

General Education, Area V: Natural Sciences

## PHY 1057C Physics for Engineering w/Lab (3 Credits)

This course provides fundamentals of Physics in Electrical Systems that equips engineers and technicians with essential hands-on skills. The students delve into the principles of motor control, study the theory and operation of transformers, and gain proficiency in troubleshooting techniques through lab based activities. The course also addresses control relays, motor starters, basic timer control, reduced voltage circuits, and explores the intricacies of power generation, distribution, and the application of variable frequency drives. This course ensures a comprehensive understanding of key concepts, enhancing students' expertise in the dynamic field of electrical engineering.

**Prerequisite:** C or higher in PHY 1020C and EET 1084C

## PHY 2048C Physics I with Calculus w/Lab (5 Credits)

This calculus-based course serves as the first in a two-part series, covering topics like kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. Designed for science and engineering majors, the course integrates critical thinking, analytical skills, and real-world applications. Student Learning Outcomes: -Students will solve analytical problems describing different types of motion, including translational, rotational, and simple harmonic motion. -Students will apply Newton's laws, and conservation laws to solve analytical problems of mechanics. -Students will identify and analyze relevant information presented in various formats such as graphs, tables, diagrams, and/or mathematical formulations.

**Prerequisite:** C or higher in MAC 2311

General Education, Area V: Natural Sciences

## PHY 2049C Physics II with Calculus w/Lab (5 Credits)

This course is a continuation of PHY 2048C and covers principles of electricity, magnetism, waves, and optics.

**Prerequisite:** C or higher in PHY 2048C

General Education, Area V: Natural Sciences

## PHY 2053C College Physics I with Lab (4 Credits)

This course is the first in a two-part series intended for non-physics majors, offering an algebra and trigonometry approach to topics such as kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. The course fosters analytical and critical thinking skills to promote a scientific understanding of the real world. Student Learning Outcomes: -Students will solve analytical problems describing different types of motion, including translational, rotational, and simple harmonic motion using algebra and trigonometry. -Students will apply Newton's laws, and conservation laws by using algebra and trigonometry to solve analytical problems of mechanics. -Students will identify and analyze relevant information presented in various formats such as graphs, tables, diagrams, and/or mathematical formulations. -Students will solve real world problems using critical thinking skills and knowledge developed from this course.

**Prerequisite:** C or higher in MAC 1114 or documented consent of instructor

General Education, Area V: Natural Sciences

## PHY 2054C College Physics II w/Lab (4 Credits)

This course is a continuation of PHY 2053C, covering the basic principles of electricity, magnetism, optics and selected topics in modern physics.

**Prerequisite:** C or higher in PHY 2053C or documented consent of instructor

General Education, Area V: Natural Sciences

## PHY 2930C Special Topics in Physics (1-3 Credits)

Current and historic topics in physics and the physical sciences will be discussed. Content may include technological applications, modern physics, historical or societal perspectives or special projects.