BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

PHYSICS (PHYS)

DIVISION: Math and Science
DEPARTMENT: Physics
DEAN: Danny Nguyen
DIVISION CHAIR: Thais Winsome
DEPT CHAIR: Clint Poe
PHONE: 408-855-5262
COUNSELING: 408-855-5030

Mission College's Physics program presents physics as a dynamic, exciting field and is taught by experienced and dedicated instructors who consider teaching as a primary responsibility. Laboratories are a central, not subservient, part of the courses. The sequences are designed to meet transfer requirements for majors in the Physical and Natural Sciences.

Student Learning Outcomes:

Upon completion of courses, students will understand the principles of physics and be able to apply these theoretical and analytical principles to real world situations.

Career Options:

CALCULUS-BASED PHYSICS:

• Astronomer • Architect • Chemist • Geologist • Engineer • Physicist • Physical Scientist • Meteorologist • Oceanographer

NON-CALCULUS-BASED PHYSICS:

• Pre-Med • All Life Sciences fields

Most career options require a B.S. degree. Classes beyond the Associate Degree level may be required for preparation for transfer to a university program.

Highlights:

• Modern and well-equipped laboratories. • Class size limited.

Physical Science - A.S. Degree

To earn an A.S. Degree in Physical Science, a minimum of 18 units of course work, distributed among the following courses must be completed:

Select 18 units from the following:	**Units**
ASTRO 001 .....Astronomy	3.0
ASTRO 002 .....Astronomy Lab	1.0
CHEM 001AB ....General Chemistry	5.0 each
CHEM 002 .....Introductory Chemistry	4.0
CHEM 005 .....Quantitative Analysis	4.0
CHEM 030AB ....Fundamentals of Chemistry	3.0 each
PHYS 002AB .....General Physics	5.0 each
PHYS 004A.....Engineering Physics - Mechanics	5.0
PHYS 004B .....Engineering Physics - Electricity and Magnetism	5.0
PHYS 004C .....Engineering Physics - Light and Heat	5.0
PHYS 004D .....Atomic Physics	2.0
PHYS 010.....Introduction to Physics..	4.0
Total Program A.S. Requirements:	**18.0**

PHYSICS (PHYS)

002A • GENERAL PHYSICS - MECHANICS AND THERMODYNAMICS — 5.0 units

Total Lecture 72 hours, Total Lab 54 hours
Prerequisite: MATH 000D
Acceptable for credit: University of California, California State University

This is the first lecture/lab course in physics for majors in subjects other than engineering or the physical sciences. Topics covered include Newton's laws of force, dynamics of rigid bodies, the concepts of potential and kinetic energy, momentum, thermodynamics, hydrodynamics, and wave motion. Analytical solutions of numerical problems at the trigonometric and algebraic level are emphasized. *NOTE: UC credit may be limited. See a counselor. Materials Fee. Grade Only.*

002B • GENERAL PHYSICS - ELECTRICITY, MAGNETISM AND OPTICS — 5.0 units

Total Lecture 72 hours, Total Lab 54 hours
Prerequisite: PHYS 002A
Acceptable for credit: University of California, California State University

This lecture/lab course is a continuation of PHYS 002A as a lecture/lab course with the study of electricity, magnetism, geometrical and wave optics and atomic physics. *NOTE: UC credit may be limited.See a counselor. Materials Fee. Grade Only.*

004A • ENGINEERING PHYSICS-MECHANICS — 5.0 units

Total Lecture 72 hours, Total Lab 54 hours
Prerequisite: MATH 003A
Acceptable for credit: University of California, California State University

This course in mechanics, the first in a series of engineering physics courses, is a calculus-based study of forces, energy and momentum. Kinematic problems are solved using position, velocity and acceleration. Conservation of momentum and energy is applied to moving and interacting systems, rotational mechanics, simple harmonic motion, gravity, mechanical properties of matter, fluid statics and dynamics. *Materials Fee. Grade Only.*

004B • ENGINEERING PHYSICS-ELECTRICITY AND MAGNETISM — 5.0 units

Total Lecture 72 hours, Total Lab 54 hours
Prerequisite: PHYS 004A and MATH 003B
Acceptable for credit: University of California, California State University

This lecture/lab course is the second in the calculus-based engineering physics series. The course continues the concept of field theory and develops the concepts of Maxwell's equations. Topics include: Coulomb's Law, Gauss' Law, Electric Potential, Biot-Savart Law, Ampere's Law, Faraday's Law, and introduces Kirchoff's Laws and AC circuits. Numerical and theoretical problem solutions are emphasized at the calculus level. *Materials Fee. Grade Only.*

004C • ENGINEERING PHYSICS-LIGHT AND HEAT — 5.0 units

Total Lecture 72 hours, Total Lab 54 hours
Prerequisite: MATH 003B and PHYS 004A
Acceptable for credit: University of California, California State University

This lecture/lab course is the third semester in the engineering physics series. The course content includes thermodynamics, geometrical and wave optics, atomic and modern physics. The dual nature of light is investigated in lecture and laboratory by the use of interference and diffraction effects. The laws of heat transfer, thermodynamics, and the Carnot cycle are covered. Numerical and theoretical solutions to problems are emphasized. *Materials Fee. Grade Only.*

004D • ENGINEERING PHYSICS-ATOMIC — 2.0 units

Total Lecture 36 hours
Prerequisite: PHYS 004B
Acceptable for credit: University of California, California State University

This course is an introduction to quantum physics with an emphasis on the electronic structure of atoms and solids, waves and particle duality, statistics, band theory, radiation and relativity. *Grade Only.*

010 • INTRODUCTION TO PHYSICS — 4.0 units

Total Lecture 54 hours, Total Lab 54 hours
Advisory: MATH 903
Acceptable for credit: University of California, California State University

This course is a conceptual course in physics, including the development of fundamental concepts, viewed as both human activities and as part of our culture. The application of physics to modern and future life is explored and placed in perspective. The topics included in this course are mechanics, thermodynamics, electricity and magnesium, optics, and modern physics. *Materials Fee. Grade Only.*