

## Physics

### PHYS 100 Concepts In Physics

#### 3.0 units

Acceptable for credit: Transfer to UC, CSU

Advisories: MATH 311 - Algebra 1 ; ENGL 101 - Freshman

Composition: Exposition ; or ENGL 514 - Writing Skills 4

An overview of the major areas of physics. Emphasis is on concepts, applications, and the consequences for modern life. An historical perspective on the development of physical theory and its impact on civilization is explored. (Fall, Spring) (Letter Grade or Pass/No Pass)

### PHYS 110 Introductory Physics

#### 3.0 units

Acceptable for credit: Transfer to UC, CSU

Prerequisite: MATH 121 - Trigonometry ; or MATH 141 - Precalculus

An introduction to physics with emphasis on units, vectors and the definitions of physical variables. Tools and strategies necessary to be successful in PHYS 161 are covered. (Fall, Spring, Summer) (Letter Grade or Pass/No Pass)

### PHYS 141 General Physics 1

#### 4.0 units

Acceptable for credit: Transfer to UC, CSU

C-ID Course Number: PHYS 105

Prerequisite: MATH 141 - Precalculus ; or completion of or concurrent enrollment in MATH 121

The initial semester of a two-semester introduction to trigonometry-based physics. Emphasizes the origin, nature, and application of fundamental concepts and principles. Required for most life-science and engineering-technology majors. Discusses motion, mechanics of particles and systems of particles, rigid, elastic and fluid systems, vibrations, wave motion, and sound. (Fall) (Letter Grade or Pass/No Pass)

### PHYS 142 General Physics 2

#### 4.0 units

Acceptable for credit: \*Transfer to CSU, limited to UC/see counselor

C-ID Course Number: PHYS 110

Prerequisite: PHYS 141 - General Physics 1

A continuation of PHYS 141. Discusses heat, thermodynamics, electricity, magnetism, geometric and physical optics, atomic and nuclear physics. (Spring) (Letter Grade or Pass/No Pass)

### PHYS 161 Engineering Physics 1

#### 4.0 units

Acceptable for credit: \*Transfer to CSU, limited to UC/see counselor

C-ID Course Number: PHYS 205

Prerequisite: PHYS 110 - Introductory Physics ; and MATH 182 - Calculus 2 which may be taken concurrently

The initial semester of a three-semester course in calculus-based physics which emphasizes the origin, nature and application of fundamental concepts and principles. Required for most baccalaureate majors in the physical sciences, engineering and

mathematics. Emphasizes mechanics, including measurement, linear and planar motion, statics and dynamics of particles and systems of particles, rigid, elastic and fluid systems. (Fall, Spring) (Letter Grade or Pass/No Pass)

### PHYS 162 Engineering Physics 2

#### 4.0 units

Acceptable for credit: \*Transfer to CSU, limited to UC/see counselor

C-ID Course Number: PHYS 215

Prerequisite: PHYS 161 - Engineering Physics 1 ; and MATH 182 - Calculus 2

A continuation of PHYS 161 which discusses temperature, heat, thermodynamics, simple harmonic and wave motion, sound, geometric and physical behavior of light, as well as topics in modern physics, which may include the special theory of relativity, and the quantum theory of atomic and nuclear systems. (Spring) (Letter Grade or Pass/No Pass)

### PHYS 163 Engineering Physics 3

#### 4.0 units

Acceptable for credit: \*Transfer to CSU, limited to UC/see counselor

C-ID Course Number: PHYS 210

Advisories: Completion of, or concurrent enrollment in MATH 183

Prerequisite: PHYS 161 - Engineering Physics 1 ; and MATH 182 - Calculus 2

A continuation of PHYS 161 which discusses electrostatic forces, fields and potentials, steady electric currents and circuits, magnetic forces and fields, induced electric and magnetic fields, electric and magnetic properties of continuous media, reactive circuits, and electromagnetic waves. (Fall) (Letter Grade or Pass/No Pass)

### PHYS 171 Computational Techniques for Physics I: Mechanics

#### 1.0 unit

Acceptable for credit: Transfer CSU

Corequisite: PHYS 161 - Engineering Physics 1

Prerequisite: PHYS 161 - Engineering Physics 1

Introduction to computational methods in physics applied to the solution of classical mechanics problems. Simulation and Visualization of elementary mechanical systems. Supports and complements material taught in PHYS 161. (Fall, Spring) (Letter Grade or Pass/No Pass)

### PHYS 172 Computational Techniques for Physics II: Modern Physics

#### 1.0 unit

Acceptable for credit: Transfer CSU

Corequisite: PHYS 162 - Engineering Physics 2

Prerequisite: PHYS 162 - Engineering Physics 2

Application of computational and data analysis methods to the solution of problems associated with oscillations, statistical mechanics, thermal physics, quantum physics. Simulation and Visualization of relevant physical systems. Complements material taught in PHYS 162. (Fall, Spring) (Letter Grade or Pass/No Pass)

## **PHYS 173 Computational Techniques for Physics III: Electricity and Magnetism**

### **1.1 units**

Acceptable for credit: Transfer CSU

Corequisite: PHYS 163 - Engineering Physics 3

Prerequisite: PHYS 163 - Engineering Physics 3

Computational techniques applied to the solution of problems relating to electric and magnetic fields and phenomena. Simulation and Visualization of electrodynamic systems. Complements material taught in PHYS 163. (Fall, Spring) (Letter Grade or Pass/No Pass)

## **PHYS 189 Independent Projects**

### **0.0 units**

Acceptable for credit: Transfer CSU

Courses for students capable of independent work who demonstrate the need or desire for additional study beyond the regular curriculum. Enrollment allows students to pursue activities such as directed field experience, research, or development of skills and competencies under faculty advisement and supervision. Independent projects may be earned in most disciplines. Students wishing to enroll in Independent Projects should contact the appropriate instructor identified in the class schedule. If the project proposed is acceptable to that instructor, a contract will be developed. All contracts for these classes must be completed and submitted to the Records Office no later than the end of the second week of the semester. Students may enroll for any combination (unit value) of Independent Projects 189 and/or 389 for a total of four semesters in a specific discipline. Units are awarded depending upon satisfactory performance and the amount of time committed by the student to the course. Allowable units vary according to discipline, and are based on the following formula: 1 unit - 48 hours per semester 2 units - 96 hours per semester 3 units - 144 hours per semester (Letter Grade Only)