COURSES

ENGINEERING COURSES

ENGR 1 - Introduction to Engineering

2 units

Introduction to careers, activities, and topics related to the field of engineering, including computer applications to design and problem solving. 36 hours lecture. Transfer: CSU, UC; C-ID# ENGR 110.

Recommended Course Preparation: Eligibility for ENG 1A/1AEX.

- Credit - Degree Applicable
- Grading Option: Letter or P/NP

ENGR 23 - Engineering Graphics

3 units

Introduction to the engineering-design process, and to technical graphic communications tools used by engineers. Conceptual design of products. Development of spatial reasoning skills. Orthographic and axonometric projection-drawing techniques. Tolerance analysis for fabrication. Documentation of designs through engineering working drawings. Use SolidWorks Computer-Assisted Drawing software as a design tool. Basic CAD 3-Dimensional solid-modeling. 36 hours lecture, 54 hours laboratory. Transfer: CSU, UC.

Recommended Course Preparation: MATH 39 with a minimum grade of C. ENG 1A with a minimum grade of C or ENG 1AEX with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

ENGR 26 - Computational Methods for Engineers and Scientists

3 units

Methodology and techniques for solving engineering/science problems using numerical-analysis computer-application programs MATLAB and EXCEL. Technical computing and visualization using MATLAB software. Examples and applications from applied mathematics, physical mechanics, electrical circuits, biology, thermal systems, fluid systems, and other branches of science and engineering. 36 hours lecture, 54 hours laboratory. Transfer: CSU, UC.

Prerequisite: MATH 1 with a minimum grade of C.

Recommended Course Preparation: CS 7 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

ENGR 35 - Statics

3 units

A first course in engineering mechanics: properties of forces, moments, couples and resultants; two- and three-dimensional force systems acting on engineering structures in equilibrium; analysis of trusses, and beams; distributed forces, shear and bending moment diagrams, center of gravity, centroids, friction, and area and mass moments of inertia. Optional additional topics include fluid statics and cables. 36 hours lecture, 54 hours laboratory. Transfer: CSU, UC; C-ID# ENGR 130.

Prerequisite: PHYS 1A with a minimum grade of C. MATH 2 with a minimum grade of C.

Recommended Course Preparation: ENGR 22 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

ENGR 37 - Applied Statics and Materials

3 units

Applied statics, mechanics of materials, and materials science. Topics include stress, strain, types of forces, moments, moment of inertia, friction, truss structures, centers of gravity, modulus of elasticity, fasteners, chemistry and atomic structure, crystalline structures, phase diagrams. This course is designed for Engineering Technology majors; it is not intended for students pursuing the Engineering Requirements (Transfer Preparation) path. 36 hours lecture, 54 hours laboratory. Transfer: CSU.

Prerequisite: MATH 39 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter or P/NP

ENGR 44 - Introduction to Circuit Analysis

4 units

Introduction to analysis methods for electrical circuits. Topics include general techniques for circuit analysis, simple resistive circuits, inductors, capacitors, mutual coupling, operational amplifier circuits, transient and steady-state analysis of first-order and second-order circuits. Lab topics include introduction to the use of electronic test equipment, designing, assembling, testing and simulating various resistive, LC, RC and operational amplifier circuits. Simulations are done with available circuit simulations codes such as PSpice. 54 hours lecture, 54 hours laboratory. Transfer: CSU, UC.

Prerequisite: PHYS 1A with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

ENGR 46 - Materials of Engineering

4 units

Application of principles of chemistry and physics to the properties of engineering materials; the relation of microstructure to mechanical, electrical, thermal and corrosion properties of metals; ceramics and polymers. 54 hours lecture, 54 hours laboratory. Transfer: CSU, UC; C-ID# ENGR 140B.

Prerequisite: PHYS 1A with a minimum grade of C. CHEM 1A with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade

ENGR 50 - Introduction to Electronic Systems and Measurements

4 units

Introduction to electrical and electronic systems and circuits. Overview of digital and analog electronics, semiconductor devices and software tools. Direct current and alternating current circuit analysis including Ohm's law and Kirchhoff's laws. Measurement and characterization of electronic systems, data collection, and reporting results. Comparing system and component performance to published specifications and developing troubleshooting techniques. Laboratory practice includes operation and proper use of standard test instruments. 36 hours lecture, 108 hours laboratory. Transfer: CSU.

Prerequisite: MATH 39 with a minimum grade of C.

- Credit - Degree Applicable
- Grading Option: Letter Grade