

# ENGINEERING

## **ENGR V01 - INTRODUCTION TO ENGINEERING - 1 Unit**

Hours: 1 lecture weekly

This course provides students with an overview of the engineering profession. It includes academic preparation requirements; engineering curricula, methods and history of engineering; projected employment opportunities; professional career duties, responsibilities, and expectations; employer requirements and expectations; and recent developments in engineering and future needs.

Field trips may be required. Formerly Engr 1. Transfer credit: CSU; UC.

## **ENGR V02 - ENGINEERING GRAPHICS - 2 Units**

Prerequisite: MATH V05 or the fourth year of high school mathematics ((advanced mathematics) with grade of C or better

Recommended preparation: MATH V20

Hours: 1 lecture, 3 laboratory weekly

This course covers the concepts of graphic presentation by orthographic, pictorial, and auxiliary projections; development of charts and graphs; development of empirical equations from linear, log-log, and semi-log graphs of empirical data; and graphical differentiation and integration. Computer Assisted Drafting (CAD) is an integral part of this course.

Formerly Engr 2. Transfer credit: CSU; UC. **CAN ENGR 2.**

## **ENGR V03 - DESCRIPTIVE GEOMETRY - 2 Units**

Prerequisite: MATH V05 or the fourth year of high school mathematics ((advanced mathematics) with grade of C or better

Recommended preparation: MATH V20

Hours: 1 lecture, 3 laboratory weekly

This course covers study of points, lines and planes, intersections and developments as a basis for more advanced design courses. Students will be introduced to the use of computer-aided design equipment.

Formerly Engr 3. Transfer credit: CSU; UC.

## **ENGR V05A - PLANE SURVEYING - 3 Units**

Prerequisite: MATH V05 or the fourth year of high school mathematics ((advanced mathematics) with grade of C or better

Recommended preparation: MATH V20

Hours: 2 lecture, 3 laboratory weekly

This course covers the theory and practice of land surveying including horizontal, angular, and elevation measurements. The analysis of errors pertinent to surveying, and the analysis of surveying measurements and adjustments are included.

Field trips may be required. Formerly Engr 5A. Transfer credit: CSU; UC. **CAN ENGR 10 [with ENGR V05B].**

## **ENGR V05B - ENGINEERING SURVEYS - 3 Units**

Prerequisite: ENGR V05A

Hours: 2 lecture, 3 laboratory weekly

This course provides instruction and experience in office calculations and field techniques for: control surveys, topographic surveys using transit-stadia and plane table alidade, horizontal and vertical curves, earthwork, practical astronomy, and introduction to photogrammetry.

Field trips may be required. Formerly Engr 5B. Transfer credit: CSU; UC. **CAN ENGR 10 [with ENGR V05A].**

## **ENGR V12 - ENGINEERING STATICS - 3 Units**

Prerequisite: MATH V21B or concurrent enrollment; and PHYS V04-V04L

Hours: 3 lecture weekly

The course provides an analysis of forces on structures in equilibrium. It includes properties of forces, moments, shear, couples, resultants, friction, centroids, and area moments. Methods of analysis include mathematical modeling, vectors, scalars, and virtual work.

Field trips may be required. Formerly Engr 12. Transfer credit: CSU; UC. **CAN ENGR 8.**

## **ENGR V16 - ELECTRONIC CIRCUITS AND DEVICES - 3 Units**

Prerequisite: MATH V21B and PHYS V05-V05L

Hours: 3 lecture weekly

This course is an introduction to electronic circuits and devices for the engineering major. It includes resistive and transient circuit analysis, sinusoidal AC circuits, computer-aided analysis, semiconductors, diodes, transistors, digital logic circuits, and operational amplifiers with negative feedback.

Field trips may be required. Formerly Engr 16. Transfer credit: CSU; UC. **CAN ENGR 12 or CAN ENGR 6 [with ENGR V16L].**

## **ENGR V16L - ELECTRONIC CIRCUITS AND DEVICES LABORATORY - 1 Unit**

Prerequisite: ENGR V16 or concurrent enrollment

Hours: 3 laboratory weekly

This course provides the laboratory experience to illustrate the principles covered in electronic circuits and devices to develop the student's laboratory skills.

Field trips may be required. Formerly Engr 16L. Transfer credit: CSU; UC. **CAN ENGR 6 [with ENGR V16].**

## **ENGR V18 - ENGINEERING MATERIALS - 3 Units**

Prerequisite: CHEM V01A-V01AL and PHYS V04-V04L

Hours: 2 lecture, 3 laboratory weekly

This course covers the application of chemistry, physics, and mathematics to the analysis of internal structures of materials, the dependency on properties of materials upon those structures, and the study of the behavior of materials in service. Lab related observations and material performance are compared to theory. Computers are utilized where appropriate.

Field trips may be required. Formerly Engr 18. Transfer credit: CSU; UC. **CAN ENGR 4.**

## **ENGR V88 - ENGINEERING WORKSHOPS - .5-10 Units**

Prerequisite: varies with topic

Hours: lecture and/or laboratory as required by unit formula

Designed to meet specific needs of the college and community, as required and requested by persons whose needs in this area are not met by present course offerings.

Fees may be required. Field trips may be required. Courses with same title may not be repeated; may be taken for a maximum of 4 times.

## **ENGR V89 - WORKSHOPS IN ENGINEERING - .5-10 Units**

Prerequisite: varies with topic

Hours: lecture and/or laboratory as required by unit formula

Designed to meet specific needs of the college and community, as required and requested by persons whose needs in this area are not met by present course offerings.

Fees may be required. Courses with same title may not be repeated; may be taken for a maximum of 4 times. Formerly Engr 89. Transfer credit: CSU; for UC, determined after admission.