ENGINEERING

ENE-4
Introduction to Engineering Design   **3.50 units**
                                                                                        UC, CSU

Prerequisite: None.
Description: Students will develop an understanding of engineering design including the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving in order to produce a product. 54 hours lecture and 27 hours laboratory. (Letter Grade, or Pass/No Pass option)

ENE-5A
Engineering Principles I   **3.00 units**
                                                                                        UC, CSU

Prerequisite: None
Advisory: MAT-36
Description: First in a two-part series of project-based courses that demonstrates mastered skills in all fields of engineering. Course embraces the tenets of project-based learning, where students develop specific projects in mechanics, electrical and control systems. 36 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

ENE-5B
Engineering Principles II   **3.00 units**
                                                                                        UC, CSU

Prerequisite: ENE-5A.
Advisory: PHY-2A.
Description: Second in a two-part series of project-based courses that demonstrate skill mastery in all fields of engineering. These projects include design and execution of engineering systems such as thermodynamics, statics, strength of materials, engineering reliability and, as a capstone project, the design and implementation of an electrical/electronic marble sorter. 36 hours lecture and 54 hours laboratory. (Letter grade or Pass/No Pass only)

ENE-10
Intro to Engineering   **3.00 units**
(C-ID:ENGR 110)   UC, CSU
Prerequisite: None.
Description: Explores the branches of engineering, the functions of an engineer, and the industries in which engineers work. Covers the engineering education pathways and explores effective strategies for students to reach their full academic potential. Presents an introduction to the methods and tools of engineering problem solving and design including the interface of the engineer with society and engineering ethics. Develops communication skills pertinent to the engineering profession. 54 hours lecture.(Letter Grade, or Pass/No Pass option.)

ENE-21
Drafting   **3.00 units**
                                                                                        UC, CSU

Prerequisite: None.
Description: Fundamentals of Architectural and Mechanical Engineering drafting including lettering, instruments and their uses, geometric construction, types of projection, freehand drawing, sectioning, dimension, auxiliary views, and pictorial drawing. Recommended for beginners and students with up to one year of drafting in high school. 27 hours lecture and 81 hours laboratory. (Letter Grade, or Pass/No Pass option)

ENE-35
Statics   **3.00 units**
(C-ID:ENGR 130)   UC, CSU
Prerequisite: PHY-4A and MAT-1A
Description: A study of force and equilibrium problems; free body diagram techniques, friction problems, second moments and moments of interia, and their application to engineering. Algebraic, vector and classical, and graphical methods of calculation. 54 hours lecture. (Letter Grade, or Pass/No Pass option.)

ENE-38
Introduction to Programming Concepts and Methodologies for Engineers   **4.00 units**
(C-ID:ENGR 120)   UC, CSU
Prerequisite: MAT-10
Advisory: Students will be expected to have a basic understanding of computing technology and computer operating procedures, with typing skills.
Description: Introduces the basics of software development using a high level language utilizing programming and the interface of software with the physical world (e.g., the use of sensors). 54 hours lecture and 54 hours laboratory. (Letter grade only).

ENE-39
Engineering Circuit Analysis   **4.00 units**
(C-ID:ENGR 260; ENGR 260L)   UC, CSU
Prerequisite: PHY-4B.
Corequisite: MAT-2.
Description: An introduction to the analysis of electrical circuits. Use of analytical techniques based on the application of circuit laws and network theorems. Analysis of DC and AC circuits containing resistors, capacitors, inductors, dependent sources, operational amplifiers, and/or switches. Natural and forced responses of first and second order RLC circuits; the use of phasors; AC power calculations; power transfer; and energy concepts. 54 hours lecture and 54 hours laboratory. (Letter grade only)

ENE-51
Blueprint Reading   **2.00 units**
                                                                                                                              CSU
Prerequisite: None.
Advisory: ENE-21 or MAT-36.
Description: A beginning course in the study of blueprints and their interpretation, types of projections, sections, symbols and abbreviations. This course is designed for students interested in engineering blueprint reading for the basic mechanical, electrical and machine trades. 27 hours lecture and 27 hours laboratory. (Letter Grade, or Pass/No Pass option)

ENE-60
Math for Engineering Technology   **3.00 units**
Prerequisite: None.
Description: A course in mathematical problems frequently used by students enrolled in the trade and industrial and engineering programs. A review of basic arithmetic, linear measurement, basic algebra, basic plane geometry, trigonometry, and compound angles. 54 hours lecture. (Letter Grade, or Pass/No Pass option)