Laboratory Tour & Information

BIOMEDICAL ENGINEERING
192.130—Quality of Life Plus (QoLP) Hands-on education center, dedicated to the application of real-world engineering principles through learning by innovating. Students collaborate closely with wounded veterans, under the guidance of experienced faculty and staff, to develop innovative, transformative adaptive technologies as part of their educational curriculum.

INDUSTRIAL AND MANUFACTURING ENG.
41-101,106,107—Casting, Welding, Machining Students are exposed to various casting processes, injection molding, 3D printing, arc welding, TIG and MIG welding, and both manual and automated machining on various pieces of equipment. Our students can become better design engineers by knowing first hand the real world challenges of turning a conceptual design into a finished good.

MATERIALS ENGINEERING
41-203—Microfabrication Laboratory This Class 1000 clean room is used for making transistors and solar cells starting with silicon wafers and continuing with steps such as oxidation, photolithography, and etching. There are only 1000 particles per cubic foot of less than 0.5 μm in diameter in the room compared to the millions of particles you are currently breathing! The room must remain clean since the projects in this lab can be on the micro and nano order of magnitude.

AEROSPACE ENGINEERING
192-323, 327—Design Labs Set up as a design studio, the Spacecraft Design Lab is home to students for their senior year capstone experience. In this lab students design a full spacecraft system and present their results to industry at the Annual Design Symposium. The Aircraft Design Lab is home to students for their senior year capstone experience. In this lab students design a full aircraft system and present their results to industry at the Annual Design Symposium.

MECHANICAL ENGINEERING
192-102—Fluid Mechanics Laboratory Students study fluid flow and aerodynamics, the design of pumps and piping systems, and turbomachinery. Several wind tunnels are located in this space in addition to other pieces of equipment that allow students to visualize various concepts of fluid mechanics.

13-101—Bently Nevada, Solar Turbines Vibrations Lab Students study how vibration affects the design of structures, mechanisms and rotating machinery.

13-102—Parker Hannifin Controls Laboratory Control systems take random inputs and provide steady outputs, similar to a cruise control system in a car. Many of the experiments were designed and built by professors in this one-of-a-kind lab where theory becomes reality.

CIVIL ENGINEERING
192-136—Hydraulics Laboratory Apparatus for hydraulic experiments such as pipe flow measurement, weir flow, pipe friction, minor losses, open flow, jet force, orifice flow, turbine, and other fundamental fluid mechanics experiments give students hands-on experience of most hydraulic phenomena learned from the classroom.

13-120—Structural Engineering Lab Students test strength of materials including steel, timber, reinforced concrete, masonry, mortar, and fiber reinforced plastic.

ELECTRICAL ENGINEERING
20-146, 147, 148, 149—Basic Circuits Labs Students study the fundamentals of circuit analysis and design. Equipment includes oscilloscopes, digital multimeters, function generators and programmable power supplies.

COMPUTER ENGINEERING
20-124—Cisco Advanced Networks Lab Supports the teaching and research in the field of computer networks. A plethora of specialized network CISCO equipment, and Intel based workstations. Experimentation in router configuration and testing at all levels of the protocol stack.
Mission Statement

Provide the highest quality technical and professional engineering education, with a particular emphasis in new or evolving interdisciplinary areas, while allowing the student to participate in designing their own unique curricula.

Concentrations

The General Engineering Concentration is designed to provide the broad foundation of engineering competency in preparation for further graduate/professional studies, engineering careers requiring a breadth of knowledge, and non-engineering careers benefiting from a broad technical background. The General Engineering Concentration and the Individualized Course of Study are excellent preparation for an applied terminal master’s degree in interdisciplinary fields such as the Blended BS+MS program.

Examples of Individualized Course of Study

General Engineering students have chosen many paths when designing their own curricula. Some of those paths include Technology Management, Alternative Energy (wind, biofuels, ocean, solar), Pre-MBA, Pre-Law, Pre-Med, Pre-Teaching, Sales Engineering, MEMS/Nanotech/Microfluidics, Systems Engineering, Industrial Design, Mechatronics, Product Development, Entrepreneurship, Audio Engineering, and Chemical Engineering. But most importantly, this program allows you to put your vision here!

From the Program Director

flexibility, core competency and self-determination are the keys for students of the General Engineering Program. The primary goal of the General Engineering Program is to provide students with a theoretically rigorous and laboratory-centered, hands-on education that allows graduates to immediately participate and to excel in professional environments. The program is underpinned by a rigorous selection of mathematics, science, basic engineering and liberal-arts courses.

Notes:

MOST GENERAL EDUCATION COURSES CAN BE TAKEN IN ANY ORDER AS LONG AS PREREQUISITES ARE MET

* Refer to current catalog for prerequisites.

** One course from each of the following GE areas must be completed: A1, A2, C1, C2, C3, D1, D2, D3, D4. C4 should be taken only after junior standing is reached (90 units).

Refer to online catalog for GE course selection. United States Cultural Pluralism (USCP) and Graduation Writing Requirement (GWR). USCP requirements can be satisfied by some (but not all) courses within GE categories: C1, C2, D1, D2, or D4.

*** Concentration form required and should be submitted prior to junior year. Concentration courses should total 45 units (a minimum of 35 units need to be 200-400 level).

1 Course can be taken previously or concurrently.

Program Description

General Engineering is unique among Cal Poly engineering majors in that it allows you to build your own course of study. This flexibility is critical for those students seeking careers in some of today’s most exciting fields, where the required skills do not fit well within a single major. Working with a faculty advisor, General Engineering students build their own, unique interdisciplinary curriculum by taking classes from among those offered by any Cal Poly engineering department, as well as courses outside of the College of Engineering. As a result, General Engineers are among the most diverse and independent group of students on campus — they have taken charge of their education, and as a result, have provided themselves with a launch pad to achieve their career goals. This program is for directed, highly motivated students. The technical elective courses are elected to be consistent with a sharply defined career goal and each student is required to submit a study plan to the coordinator prior to the end of the first quarter of their junior year.