

## SCHOOL OF ENGINEERING

### FACULTY

James Matheny, *Dean*

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Engineering may be defined as the application of science for the benefit of society. Therefore, the engineering student pursues courses in the sciences, mathematics, humanities, and social sciences; and in engineering science which interfaces the courses in science with those in professional engineering. Because it embraces a broad horizon, engineering is divided into interrelated fields of specialization. The School provides instruction in the fields of civil, electrical, industrial, and mechanical engineering. Electrical engineering includes the study of electronics. A program in surveying and photogrammetry is also offered. Engineering students are prepared to enter the practice of professional engineering or graduate study; students studying surveying and photogrammetry are prepared to become specialists in the various aspects of surveying.

The civil, electrical, and mechanical engineering programs are accredited by the Engineers' Council for Professional Development (ECPD), the nationally recognized accrediting agency of the engineering profession.

The School of Engineering offers a program in cooperation with the Health Science Department. The program is designed to prepare its graduates for careers in occupational health and safety. Interested persons are referred to the section of this catalog entitled Health Science Department.

### HIGH SCHOOL PREPARATION

Recommended preparation for engineering or surveying and photogrammetry consists of: English (4 years), algebra (2 years), geometry (1 year), trigonometry ( $\frac{1}{2}$  year), physics or chemistry (1 year). Additional recommended courses are: advanced mathematics ( $\frac{1}{2}$  year), chemistry or physics (1 year), mechanical drawing ( $\frac{1}{2}$  year).

### TRANSFERS

Transfers from community colleges or other institutions of higher learning are accepted under provisions outlined under *General Information—Admissions*. Students planning to transfer to the California State University, Fresno engineering or the surveying and photogrammetry programs should follow as closely as possible the outline of the program of their choice.

### ENGINEERING FIELDS

**Civil Engineering.** Civil engineering is concerned with the science and technology of planning, analyzing, designing, constructing, operating, and maintaining structures, transportation systems, environmental works, and water resource developments. Within these fields the civil engineer deals with buildings, bridges, foundations, highways, airports, waterways, pipelines, surveying, mapping, water supply systems, waste treatment systems, environmental water quality control, dams, hydropower installations, irrigation, flood control, and other fixed engineering works.

The civil engineer may utilize computer methods of analyzing and designing complex structures and systems; undertake research on structural use of new materials or on advanced methods of water and waste treatment; design protective structural features and radiation shielding in nuclear power plants; participate in structural and facility aspects of aerospace projects; or work in municipal engineering, urban planning, or vehicular traffic control.

**Electrical Engineering.** Electrical engineering concerns the production and utilization of electrical energy. The many specialties are grouped under the areas of electronics and power. In each area, the engineer is responsible for the analysis, development, design, and management of equipment and systems.

Electronics engineering specialists are concerned with high-frequency power and its use