
College of Engineering

Administration

Dean: David T. Hayhurst

Associate Dean: Gordon K. F. Lee

Assistant Dean for Student Affairs: Bruce D. Westermo

Director of Development: Pamela Becker

Director of Doctoral Programs: Gordon K. F. Lee

General Information

The College of Engineering was established as a distinct unit of the University in 1958, although first courses named "Engineering" appeared in the 1922-23 catalog. The 1942-43 catalog was the first to announce the establishment of a "General Engineering" program leading to the Bachelor of Arts degree. The College is now organized into the Departments of Aerospace Engineering and Engineering Mechanics, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering.

At the undergraduate level, the College of Engineering prescribes certain patterns of its courses, combined with those of other academic divisions of the University, leading to the Bachelor of Science degree in six specific major fields of engineering. At the graduate level, the College offers the Master of Science degree in four of these fields, a Master of Engineering degree in manufacturing and design, and a doctoral degree in Engineering Sciences/Applied Mechanics jointly with the University of California, San Diego.

Consistent with the role and mission of The California State University System, the faculty of the College of Engineering at San Diego State University believes its mission to consist of the following integrated components:

- To provide a high quality, practice based undergraduate engineering education.
- To provide a high quality graduate level education with particular research emphasis on problem areas that confront Southern California and to contribute to the economic development of the region.
- To provide a platform for the dissemination of topical technical information supporting local industry.
- To provide life-long learning opportunities for the practicing professional engineering community in Southern California.

Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis on the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the social facets of our civilization, because engineering graduates must expect to find their best expression as leaders, conscious of the social and economic implications of their decisions.

Although the profession of engineering presents in practice a variety of specialties, undergraduate students initially focus their attention on a pattern of coursework emphasizing engineering fundamentals. Students then are able to apply this knowledge of fundamentals in developing special expertise in their areas of specific interest.

Accreditation and Academic Association

The College of Engineering is a member of the American Society for Engineering Education. Undergraduate engineering programs in aerospace engineering, civil engineering, electrical engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Registration of Engineers

Registration of engineers is required for many fields of practice. The engineering graduate cannot acquire registration as an engineer immediately upon graduation; however, early application for the required state examination is advisable. Graduation from an accredited program such as San Diego State's facilitates registration as a professional engineer.

Curricula Offered

Refer to the Courses and Curricula section of this catalog for a complete listing of program requirements and courses offered by departments within the College of Engineering.

Doctoral Program

Engineering Sciences/Applied Mechanics

Master's Degrees

Master of Science (M.S.)

Aerospace Engineering, Civil/Environmental Engineering, Electrical Engineering, Mechanical Engineering

Master of Engineering (M.Engr.)

Manufacturing and Design

Bachelor's Degrees

Aerospace Engineering (B.S.), Civil Engineering (B.S.), Computer Engineering (B.S.), Electrical Engineering (B.S.), Environmental Engineering (B.S.), Mechanical Engineering (B.S.).

Minor

Engineering

Certificate Program

Rehabilitation Technology

Research Centers and Institutes

California Institute of Transportation Safety

Sheila Sarkar, Director

The California Institute of Transportation Safety (CITS) was created to conduct research, administer programs, and teach courses in transportation safety. Several renowned professionals in engineering, public health, and psychology are affiliated with the Institute, and GIS is used for engineering design work. CITS offers courses for traffic engineers as well as opportunity for students in transportation engineering to work as interns. Current projects include traffic safety evaluation (engineering and enforcement) of cities, collision mapping and analyses, and statistical research on driving behaviors.

Communications Systems and Signal Processing Institute

Madhu S. Gupta, Director

This Institute is engaged in educational, research, and service activities in the field of electronic communication systems, with an emphasis on radio frequency and digital signal processing aspects. Faculty, students, and industrial partners collaborate to advance the state-of-the-art in the institute's core areas of expertise, such as RF devices and integrated circuits, modems, receivers, transmitters,

synthesizers, A-D and D-A converters, digital signal processing algorithms and hardware, antenna, and communication networks. Specific activities include research and design projects; development of products, software, algorithms, and techniques; and training programs including short courses.

Concrete Research Institute

M. Ziad Bayasi, Director

The Concrete Research Institute supports educational needs in civil engineering curriculum and concrete research performed for sponsors from industry and governments. The Institute encompasses a wide range of topics. The main emphasis is currently on concrete materials and structures. Civil and environmental engineering faculty members are involved with finding optimum design solutions in bridges, seismic resistant structures, residential buildings, and retaining walls.

Energy Engineering Institute

Asfaw Beyene, Director

The Energy Engineering Institute has supported educational and research activities in energy related areas since 1985. Undergraduate and graduate students and faculty from the mechanical engineering and electrical and computer engineering departments are involved in obtaining solutions to problems presented by industrial sponsors. Institute research projects cover a wide range of areas from optimizing energy resources to international energy studies.

Facility for Applied Manufacturing Enterprise (FAME)

James S. Burns, Director

The centerpiece of San Diego State University's manufacturing endeavors is the Facility for Applied Manufacturing Enterprise. FAME

was planned as an interdisciplinary center-of-excellence dedicated to science and technology in the area of manufacturing. Its mission is to provide students with a complete and emersive product development environment in which to augment their job experiences with next-century tools and strategies. This facility evolved from the Computer Integrated Manufacturing (CIM) center founded in 1988. Since then, it has grown considerably in physical size and scope. FAME resources include 3000 square feet of dedicated floor space in the Engineering and Engineering Laboratory Buildings and another 2000 square feet for student projects. Manufacturing-related equipment includes plastic injection, compression, extrusion, pultrusion, resin transfer molding and vacuum forming equipment, a composite repair station, ultrasonic scanning equipment, platen presses, mechanical testing machines, ovens, CNC lathe and mill, automated parts bin, and four multi-axis robots. A 3" diameter by 15" long, high-pressure and temperature autoclave facility is currently under construction.

San Diego Center for Materials Research

Ronald A. Kline, Director

Materials research, by its fundamental nature, is interdisciplinary. It directly involves expertise across departmental and college boundaries. The physical sciences (chemistry, physics), life sciences (biology, including biomaterials/biomechanics) and engineering (aerospace, biomedical, chemical, civil, electrical, mechanical, and nuclear). At SDSU, we have ongoing activities in a variety of important new technological areas, including smart materials/structures, high temperature materials, biomaterials, magnetorheological fluids, sensors, and coatings. The Center for Materials Research develops and promotes the interdisciplinary relationships needed to advance the state-of-the-art in materials research at the university, regional, national, and international levels.

