

Civil Engineering, B.S.

DEPARTMENT

Civil and Geomatics Engineering

Dr. R. Munjy, Chair
Engineering East Building, Room 178A
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BS in Civil Engineering, B.S.
MS in Civil Engineering, M.S.
MS in Civil Engineering-Water Resources & Environmental Engineering Option, M.S.
BS in Geomatics Engineering, B.S.
Courses Offered

Civil Engineering

Civil Engineering

Dr. C. Choo, Program Coordinator

Civil engineering includes the research, development, planning, design, construction, and maintenance associated with urban development, water supply, structures, energy generation and transmission, water treatment and disposal, and transportation systems. The civil engineer deals with the function and safety of such public facilities as buildings, bridges, dams, pipelines, powerplants, highways, and harbors, and is concerned with the protection of the public against natural hazards of earthquakes, floods, landslides, and fires.

The graduate curriculum leading to an M.S. in Civil Engineering provides specialized training in the fields of structural engineering and applied mechanics, soil mechanics and foundation engineering, environmental engineering, water resources engineering, highway engineering, and geomatics engineering.

Mission of Civil Engineering

The Civil Engineering Program at California State University, Fresno strives to provide the high-quality education required for students to fully develop their professional qualities and skills as civil engineers in diverse environments and to develop their personal potential to the greatest extent possible to serve society.

The Civil Engineering Program's Educational Objectives

Graduates of the Civil Engineering Program are expected to exhibit the following:

- **Technical Aptitude:** Be employed as engineers with the ability to use their technical knowledge, design, and problem-solving skills for effective professional practice throughout their careers;
- **Life-Long Development:** Exercise capabilities for life-long learning as a means to enhance their technical and professional skills to continuously enrich themselves and benefit the communities they are serving and beyond;
- **Collaborative Spirit:** Develop interpersonal and collaborative skills that function well among a diverse group of professionals for a productive career; and
- **Professional Advancement:** Advance and support the engineering profession through participation of the professional societies, civic groups, and educational institutions and/or establish a distinctive record of professional achievements.

Geomatics Engineering

Geomatics Engineering

Dr. R. Munjy, Chair

Geomatics engineers manage the global spatial infrastructure. This effort includes real property boundary determination, digital mapping, Geographic Information Systems (GIS), Global Positioning Systems (GPS), remote sensing, photogrammetric mapping, applications programming, project management, and construction layout activities. Students use a wide selection of specialized equipment while acquiring a solid theoretical background. Integration of geomatics engineering design concepts spans a sequence of courses throughout the curriculum. Intensive design coursework during the senior year provides a

culminating focus. Coursework containing design components includes the following: Computer-Aided Mapping (GME 66) first year; Route and Construction Surveying (GME 40) second year; Stereophotogrammetry (GME 123) and Digital Mapping (GME 126) third year; Subdivision Design (GME 159) and two upper-level technical design courses - Senior Project (GME 180) and Project Design (GME 181) - senior year.

Mission of Geomatics Engineering

The mission of the Geomatics Engineering Program is to provide a unique educational experience that enriches the lives of GME students. The program teaches necessary discipline-related knowledge and skills to prepare students for their competency in the profession. Students learn how to protect the health and welfare of the public while expanding their base of knowledge through research and scholarship. Graduates of the program serve throughout the state, the nation and the world at large.

The Geomatics Engineering Program's Educational Objectives

Our alumni (within three to five years after graduation), through work experience and/or graduate education in the engineering field, will be expected to:

1. Be employed in the field of Geomatics Engineering and utilize their experience and skills to serve their respective industries
2. Promote the profession and protect public well-being via professional services
3. Engage in life-long learning and professional development activities

REQUIREMENTS

Bachelor of Science Degree Requirements

Civil Engineering Major

1. Major requirements (67 units) and additional requirements (18 units)

Major requirements (67 units)

CE 20, 85, 110, 121L, 123, 123L, 124, 128, 129, 130, 132, 133, 142, 142L, 150, 161, 180A, 180B, 185 (43 units)

GME 15, 15L (3 units)

GME 66 or ME 26 or CM 4 (3 units)

ECE 91 or Tech Area Course (3 units)

ME 112 (3 units)

Technical Area Courses (12 units)

Select mandatory technical area courses in one or more of the following groups subject to the Design Courses statement below.

Environmental and Water Resources: CE 140, 141, 144, 145, 146

General Professional: CE 190, 191T

Geotechnical: CE 125, 134

Structures: CE 131, 136, 137

Geomatics: GME 151, 173

Transportation: CE 151, 152, 153, 155

Design Courses: at least 9 units of technical area courses must be selected from the following design courses: CE 125, 134, 136, 141, 144, 145, 146, 151, 153, 155

Additional requirements (18 units)

MATH 81, EES 1; MATH 76, 77; PHYS 4A, 4AL, 4B

2. General Education requirements (49 units)*

Select one course from each of the G.E. areas: Area A1, A2, B2, D1, D2, D3. (See G.E. listings).

The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 1 or 10 [C2], CE 121 [IB]

3. Other requirements (6 units)

Upper-division writing and Multicultural and International (MI)

4. Sufficient elective units to meet required total units (if needed) (See Degree Requirements.)

5. Total (124 units)

Note: Engineering majors are exempt from G.E. Area A3, Areas C1 and C3, Area E, Area IC, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken CR/NC are not counted toward fulfillment of degree requirements in civil engineering.
2. The Upper-Division Writing Skills requirement can be met by passing the university examination or by completing a "W" course with a letter grade of C or better no sooner than the term in which 60 units of coursework are completed.
3. All civil engineering students must consult with their academic advisor at least once each year.
4. The 12 units of Technical Area Courses must be completed with a grade of C or better.

FACULTY

For faculty phone numbers and e-mail, see the campus directory.

For more on the faculty, see the Civil Engineering faculty pages and the Geomatics faculty pages. The faculty pages are updated by the department or program.