Civil Engineering-Water Resources & Environmental Engineering Option, M.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
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, 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

Water Resources & Environmental Engineering Option, M.S. Requirements

(See also Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Criteria for Thesis and Project.)

Mission. Located in California’s Central Valley, the M.S. in Civil Engineering (MSCE) Program offers a graduate program of excellence that provides opportunities for advanced education and research in civil and geomatics engineering. The program’s mission is to offer a curriculum that combines preparation for professional practice as well as preparation for research and further advanced studies.

Admission. The requirements for graduate admission to California State University, Fresno must be met. Graduate Record Examination (GRE) scores must be received by the application deadline for International Student applicants and within 30 days after the application deadline for Domestic Student applicants. The minimum score considered passing on the quantitative section is 146 (new scale) / 550 (old scale). Also, applicants should possess a bachelor’s degree in civil engineering, geomatics engineering, or a related field from an institution accredited by the Accreditation Board for Engineering and Technology and must have a 3.0 grade point average in the last 60 semester-units of engineering courses attempted, on the basis of 4.0 being A, or the approval of the Graduate Committee of the Department of Civil and Geomatics Engineering. If an applicant’s preparation is deemed insufficient by the Graduate Committee of the Department of Civil and Geomatics Engineering, the applicant is required to take additional courses which are specified in writing to remove the deficiency. Such courses, taken as an unclassified student, are in addition to the minimum of 30 semester hours credit for the master’s degree in engineering. The department graduate program coordinator shall appoint an interim graduate adviser for each student when that student is accepted into the graduate program. The coordinator will take into account student interests and correlated faculty interests when making this appointment.

Continuation in the Program. Students should select a graduate adviser before completing 12 units of graduate study and advancing to candidacy. Other members of his or her graduate committee shall be selected in consultation with the graduate adviser if the student has selected Plan A. This committee shall consist of a total of three members, two of whom must be tenure/tenure track faculty. The graduate student shall notify the department’s Graduate Committee with a letter signed by both the student and the graduate adviser of the membership of the students’ Graduate Committee. This letter shall be placed in the student’s academic folder.

A graduate student may change graduate advisers but such change must be approved by the department’s Graduate Committee. The student, together with his or her new graduate adviser, completes a contract program within his or her first semester of coursework taken for graduate credit. This program must be approved by the department’s Graduate Committee.
A student must pass CE 210 with a grade of B or higher and satisfactorily complete a written examination (typically administered in CE 210) before being eligible for Advancement to Candidacy; this satisfies both the university’s graduate writing requirement and demonstrates the student has sufficient technical proficiency to continue in the program.

Any semester for which the grade point average falls below 3.0 shall result in placing the affected graduate student on probation. A second offense shall lead to disqualification. For additional information, please refer to the Division of Research and Graduate Studies, Administrative Academic Probation, Academic Disqualification.

The M.S. in Civil Engineering requires the completion of 30 units following one of three programs of study.

**Water Resources and Environmental Engineering (WREE) Option**

**Plan A (Thesis)**
- a. 200-series CE courses, including CE 210, 242 and two from: CE 205, 240, 241, and 247 (see note 1) (12-21 units)
- b. 100-series CE or GME technical area courses (see note 2) (0-6 units)
- c. Courses outside the department (see note 3) (3-6 units)
- d. CE 299 Thesis (6 units)
**Total (30 units)**

**Plan B (Project)**
- a. 200-series CE courses, including CE 210, 242 and two from: CE 205, 240, 241, and 247 (see note 1) (15-24 units)
- b. 100-series CE or GME technical area courses (see note 2) (0-6 units)
- c. Courses outside the department (see note 3) (3-6 units)
- d. CE 298 Project (3 units)
**Total (30 units)**

**Plan C (Comprehensive Exam)**
- a. 200-series CE courses, including CE 210, 242 and two from: CE 205, 240, 241, and 247 (see note 1) (18-27 units)
- b. 100-series CE or GME technical area courses (see note 2) (0-6 units)
- c. Courses outside the department (see note 3) (3-6 units)
- d. Comprehensive Exam (0 units)
**Total (30 units)**

**Advising Notes**

2. 100-series technical area courses in civil and geomatics engineering -- select from CE 141, 144, 145, 146, 190 and 191T. A minimum grade of B is required. Similar courses previously taken and counted towards another degree are excluded.
3. Select at least one 100-series and 200-series course outside civil and geomatics engineering in a discipline (or disciplines) that are best suited to the student's graduate program. These typically include mathematics, statistics, management, business, geology, physics, chemistry, health science, and biology. All courses must be approved by the supervising faculty and Graduate Program Coordinator. A minimum grade of B is required for 100-series courses. Similar courses previously taken and counted towards another degree are excluded.

**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.