

EE 291T. Topics in Electrical Engineering (1-3; max total 6)

Prerequisite: graduate status in engineering or permission of instructor. Selected electrical engineering subjects not in current courses.

EE 298. Project (3; max total 3)

Prerequisite: graduate status in engineering. See *Criteria for Thesis and Project*. Independent investigation of advanced character such as analysis and/or design of special engineering systems or projects; critical review of state-of-the-art special topics, as the culminating requirement of the master's degree. Abstract required. Approved for *RP* grading.

EE 299. Thesis (3-6; max total 6)

Prerequisite: see *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for master's degree. Approved for *RP* grading.

Geomatics Engineering

James K. Crossfield, *Coordinator*

Engineering East Building, Room 178

559.278.4827

Program Description

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.

Career Opportunities

The need for specialists in geomatics engineering continue to grow with rapid advancements in analytical photogrammetry, geographic information systems, and inertial and satellite positioning technologies. Most graduates of this program have been employed by federal and state government agencies, the petroleum industry, and private consulting firms.

Mission of Geomatics Engineering

The mission of the Geomatics Engineering Program is to provide an educational experience that enriches the lives of students. The program teaches necessary discipline related knowledge and skills to prepare students for their profession. Students learn how to protect the health and welfare of the public while expanding their base of knowledge through research and scholarship.

Educational Objectives of the Instructional Program

1. The graduates of the Geomatics Engineering (GME) program should demonstrate competency in one or more of the following GME competency areas: boundary/land surveying, photogrammetry, geodesy, GIS, and digital mapping.
2. The graduates of the GME program should demonstrate continued capacity for employment in one or more GME specialty area.
3. The graduates of the GME program shall demonstrate capacity for graduate education.
4. The graduates of the GME program shall demonstrate continued membership in professional organizations.
5. The graduates of the GME program shall demonstrate a continuing commitment to lifelong learning.
6. The graduates of the GME program shall demonstrate a continuing commitment to serving and protecting the health and welfare of the public.
7. The graduates of the GME program shall demonstrate an ability to pass professional licensing or certification examinations after achieving requisite professional experience.

Bachelor of Science**Degree Requirements**

Geomatics Engineering Major *Units*

Major requirements 69

GME 1, 15, 15L, 16, 16L, 23L, 34, 40, 50, 61, 66, 102, 108, 123, 125, 126, 135, 143, 159, 173, 180, 181 (55)
CE 150, 161 (5)
Technical Courses (9)

Select mandatory technical courses from the following list subject to the *Design Courses* statement listed below:
GME 73, 100, 101, 114, 145, 152, 153, 161, 174, 175, 190, 191T; CSCI 115, 124, 150, 172; CONST 114, 122, 124; BA 154; GEOG 181; FIN 180, 181; MATH 101, 121; PHYS 110

Design Courses: At least 6 units of technical courses must be selected from the following design courses: GME 145, 153, 161, 175

Other requirements 60

General Education

Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 89-92 for 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], GME 151 [IB], PHIL 120 [IC], PLSI 120 [M/I]

Additional requirements

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

Total 129

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

See the catalog Web site for recommended program at www.csufresno.edu/catoffice/current/enggeorec.html.

Advising Notes

1. Courses in engineering, mathematics, the physical sciences, and mandatory technical courses taken *CR/NC* are not counted toward fulfillment of degree requirements in geomatics engineering.
2. All geomatics engineering students must consult with their academic advisers at least once each year.