



# CALIFORNIA STATE UNIVERSITY, SACRAMENTO DEPARTMENT OF CIVIL ENGINEERING

Graduate Program in

## GEOTECHNICAL ENGINEERING

Civil Engineering encompasses such a broad range of professional activities that the undergraduate preparation for the Bachelor of Science degree must be devoted primarily to fundamental analytical principles and basic design applications. For technical competence in specialized areas and continued effectiveness on the job, graduate study is becoming increasingly necessary.

The Civil Engineering Department offers a graduate program of study in the area of Geotechnical Engineering leading to a **Master of Science Degree in Civil Engineering**. The program offers opportunity for advanced study and research in soil behavior and its application to practical problems in foundation engineering, earth and retaining structure, soil improvement and ground stabilization, and soil dynamics and earthquake engineering. Application of new technology in Geotechnical Engineering and practical engineering solutions are stressed.

### ADMISSION REQUIREMENTS

Admission as a classified graduate student in Civil Engineering requires:

- an undergraduate degree in Civil Engineering **and**
- a minimum 2.80 grade point average both overall and in upper division engineering courses.

In addition, the merit of past academic endeavor, potential for future study, and professional goals may also be considered for granting admission.

Applicants who have deficiencies in Admission Requirements that can be removed by specified additional preparation may be admitted with conditionally classified graduate status. Any deficiencies will be noted on a written response to the student's admission application.

Students with a baccalaureate degree in a field other than Civil Engineering (e.g., Geology) who wish to pursue the graduate program in Geotechnical Engineering will be considered on an individual basis. These students may be admitted as Conditionally Classified students and will be required to complete a specific list of undergraduate prerequisite courses to correct undergraduate deficiencies. These students must have an approved study program on file with the Department while undertaking their qualifying work. On completion of these courses with a grade point average of 2.80 or better, the student may apply for classified graduate status in Civil Engineering.

### ADMISSION PROCEDURES

All prospective graduate students, including CSUS graduates, must file the following with the CSUS Admissions Office:

- an application for admission and a supplemental application for graduate admission (forms A & B in the CSUS application booklet obtainable from the Graduate Studies RFC 203) **and**
- two sets of official transcripts from all colleges and universities attended, other than CSUS.

Students are strongly urged to apply by April 1 for admission to the following fall semester, or October 1 for the following spring, in order to allow time for application processing before the Computer Access Student Phone Entry Registration (CASPER) deadline. Approximately six weeks after receipt of all items listed above, a decision regarding admission will be mailed to the applicant. After being admitted, students must complete a Graduate Student Advising Form (obtainable in the Civil Engineering Department) and get their study

program approved by a Geotechnical Engineering faculty adviser. This advising form must be kept current and on file in the department office.

## ADVANCEMENT TO CANDIDACY

Each student must file an application for Advancement to Candidacy, indicating a proposed program of graduate study. This procedure should begin as soon as the graduate student has:

- removed any deficiencies in Admission Requirements **and**
- obtained classified graduate status **and**
- completed at least 12 units in the graduate program with a minimum 3.0 grade point average, including at least three courses at the 200 level **and**
- passed the Writing Proficiency Examination (WPE) **and**
- selected a culminating requirement (Plan A, B, or C) and obtained approval of thesis or project topic.

Advancement to Candidacy forms are available in the Office of Graduate Studies. The student fills out the form after planning a degree program in consultation with a Geotechnical Engineering Faculty adviser. The completed form is then approved by the Graduate Coordinator of the Department and submitted to the office of Graduate Studies.

## DEGREE REQUIREMENTS

The Master of Science degree requires completion of a minimum 30 units of course work and research with a minimum 3.0 grade point average. An outline of degree requirements follows.

### Required Courses (18 units)

- one of the following three courses (3 units) in the engineering mathematics/statistics area is to be selected with the prior approval of the student's faculty advisor.
  - Engr 201 Engineering Analysis I
  - Engr 202 Engineering Analysis II
  - Engr 203 Engineering Statistics
- and a minimum of 15 units from the following:
  - CE 280A Advanced Soil Mechanics and Foundation Engineering I (3 units)

- CE 280B Advanced Soil Mechanics and Foundation Engineering II (3 units)
- CE 280C Advanced Soil Mechanics Laboratory (2 units)

- CE 283 Ground Modification Engineering (3 units)
- CE 285 Geosynthetics I (3 units)
- CE 286 Geosynthetics II (3 units)

### Elective Courses

- Elective courses, with the prior approval of the student's faculty adviser, are selected to make up the minimum 30 units of required units.

### Culminating Requirement (3-6 units)

- Choose one of the following plans with the approval of the faculty advisor:
  - Plan A: CE 500 Master's Thesis, 3-6 units (Approval of two faculty readers and a presentation are required)
  - Plan B: CE 500 Master's Project, 3-6 units (Approval of two faculty readers and a presentation are required)
  - Plan C: CE 500 Comprehensive Examination and graduate research in Special Problems, 3 units (Examination is administered by a departmental committee of three faculty members).

## FURTHER REFERENCE

All graduate degree programs are subject to general university requirements for graduate degrees, explained in the "Graduate Studies" section of the CSUS Catalog.

For more information on this graduate degree program, contact the Civil Engineering Department • 6000 J Street • Sacramento, CA 95819-6029 • (916) 278-6982 **or** Dr. Cyrus Aryani • (916) 278-6096 **or** Dr. Ali Porbaha • (916) 278-6120

To obtain a CSUS application booklet, contact the CSUS Graduate Studies • 6000 J Street • Sacramento, CA 95819-6112 • (916) 278-6470 • Website: <http://www.csus.edu/gradstudies/>