

# CE 175: GEOTECHNICAL EARTHQUAKE ENGINEERING

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## In Workflow

1. CE Committee Chair (fogarty@csus.edu)
2. CE Chair (fellb@csus.edu)
3. ECS College Committee Chair (troy.topping@csus.edu)
4. ECS Dean (kevan@csus.edu)
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11. PeopleSoft (PeopleSoft@csus.edu)

## Approval Path

1. Sat, 12 Oct 2019 03:22:53 GMT  
Julie Fogarty (fogarty): Approved for CE Committee Chair
2. Mon, 14 Oct 2019 18:01:11 GMT  
Benjamin Fell (fellb): Approved for CE Chair
3. Fri, 25 Oct 2019 16:32:57 GMT  
Troy Topping (troy.topping): Approved for ECS College Committee Chair
4. Fri, 25 Oct 2019 16:55:07 GMT  
Kevan Shafizadeh (kevan): Approved for ECS Dean

Date Submitted: Sat, 12 Oct 2019 03:19:26 GMT

## Viewing: CE 175 : Geotechnical Earthquake Engineering

### Formerly known as: CE 184

### Last edit: Sat, 12 Oct 2019 03:19:25 GMT

Changes proposed by: Julie Fogarty (218645519)

#### Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Richard Armstrong	richard.armstrong@csus.edu	(916) 278-6812

#### Catalog Title:

Geotechnical Earthquake Engineering

#### Class Schedule Title:

Geotech Earthquake Engineering

#### Academic Group: (College)

ECS - Engineering & Computer Science

#### Academic Organization: (Department)

Civil Engineering

#### Will this course be offered through the College of Continuing Education (CCE)?

No

#### Catalog Year Effective:

Fall 2020 (2020/2021 Catalog)

#### Subject Area: (prefix)

CE - Civil Engineering

#### Catalog Number: (course number)

175

**Course ID: (For administrative use only.)**

107466

**Units:**

3

**In what term(s) will this course typically be offered?**

Fall term only

**Does this course require a room for its final exam?**

Yes, final exam requires a room

**Does this course replace an existing experimental course?**

No

**This course complies with the credit hour policy:**

Yes

**Justification for course proposal:**

Undergraduate CE courses are being renumbered to clarify course pre- and co-requisites and topic areas to help students plan their path to graduation. Prerequisites numbers (not courses) are being changed to reflect course number changes.

Through curriculum paper forms in 2016, each CE course had the "Not currently enrolled in CE XXX" as a prerequisite approved, so that students could not register for a "CE" prefix course if they were currently enrolled in it. This was to prevent students who thought they were failing from giving up or taking up a seat they didn't need if they passed the course. That prefix managed to make it into the online system for only one or two classes and is being put through curriculum workflow again.

**Course Description: (Not to exceed 80 words and language should conform to catalog copy.)**

Introduction to seismology and seismic hazard analysis; determination of building code design loads; prediction of soil-site effects; evaluation of liquefaction triggering, cyclic softening and associated consequences; introduction to mitigation techniques for liquefaction and ground failure hazards.

**Are one or more field trips required with this course?**

No

**Fee Course?**

No

**Is this course designated as Service Learning?**

No

**Does this course require safety training?**

No

**Does this course require personal protective equipment (PPE)?**

No

**Does this course have prerequisites?**

Yes

**Prerequisite:**

CE 170 and CE 170L. Not currently enrolled in CE 175.

**Prerequisites Enforced at Registration?**

Yes

**Does this course have corequisites?**

No

**Graded:**

Letter

**Approval required for enrollment?**

No Approval Required

**Course Component(s) and Classification(s):**

Lecture

**Lecture Classification**

CS#02 - Lecture/Discussion (K-factor=1 WTU per unit)

**Lecture Units**

3

**Is this a paired course?**

No

**Is this course crosslisted?**

No

**Can this course be repeated for credit?**

No

**Can the course be taken for credit more than once during the same term?**

No

**Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc."**

- 1) Determine and interpret building design earthquake loads from building codes and from hazard maps
- 2) Describe key mechanism effecting soil effects on earthquake loads and run analysis software to determine results
- 3) Read, interpret, and process geological boring logs
- 4) Assess liquefaction potential and consequences for sands using liquefaction triggering procedures.
- 5) Assess cyclic softening potential and consequences for clays using cyclic softening procedures.
- 6) Identify and contrast various mitigation techniques for liquefaction and ground failure hazards

**Attach a list of the required/recommended course readings and activities:**

CE175 (F20).docx

**Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.**

Project (ELOs 1, 2, 3, 4, 5)  
 Problem sets (ELOs 1 - 6)  
 Exams (ELOs 1 - 6)

**Is this course required in a degree program (major, minor, graduate degree, certificate?)**

No

**Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?**

No

**Will there be any departments affected by this proposed course?**

No

**I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.**

I/we agree

**University Learning Goals****Undergraduate Learning Goals:**

Competence in the disciplines  
 Knowledge of human cultures and the physical and natural world  
 Personal and social responsibility  
 Intellectual and practical skills

**Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?**

No

**GE Course and GE Goal(s)**

**Is this a General Education (GE) course or is it being considered for GE?**

No

Key: 558