# CE 266: DYNAMICS AND EARTHQUAKE RESPONSE OF STRUCTURES

## In Workflow

1. CE Committee Chair (j.garcia@csus.edu)
2. CE Chair (khan@csus.edu)
3. ECS College Committee Chair (abadi@csus.edu)
4. ECS Dean (101010646@csus.edu)
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8. Dean of Graduate (cnewsome@skymail.csus.edu)
9. Catalog Editor (catalog@csus.edu)
10. Registrar's Office (wlindsey@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

## Approval Path

1. Sat, 17 Sep 2022 22:00:47 GMT
   Jose Garcia (j.garcia): Approved for CE Committee Chair
2. Sun, 18 Sep 2022 00:26:19 GMT
   Ghazan Khan (khan): Approved for CE Chair
3. Fri, 07 Oct 2022 19:30:08 GMT
   Masoud Ghodrat Abadi (abadi): Rollback to CE Chair for ECS College Committee Chair
4. Fri, 07 Oct 2022 19:57:54 GMT
   Ghazan Khan (khan): Approved for CE Chair
5. Fri, 14 Oct 2022 16:18:54 GMT
   Masoud Ghodrat Abadi (abadi): Approved for ECS College Committee Chair
6. Fri, 14 Oct 2022 16:46:06 GMT
   101010646: Approved for ECS Dean

## History

1. Sep 12, 2022 by Julie Fogarty (fogarty)

### New Course Proposal

Date Submitted: Sat, 17 Sep 2022 21:45:12 GMT

### Viewing: CE 266 : Dynamics and Earthquake Response of Structures

### Last approved: Mon, 12 Sep 2022 20:00:38 GMT

### Last edit: Fri, 07 Oct 2022 19:41:27 GMT

Changes proposed by: Jose Garcia (223000076)

**Contact(s):**

| Name (First Last) | Email | Phone 999-999-9999 |
|---|---|---|
| Ghazan Khan | khan@csus.edu | 916-278-3886 |

**Catalog Title:**

Dynamics and Earthquake Response of Structures

**Class Schedule Title:**

Dynamc+Earthqke Response Strc

**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 2023 (2023/2024 Catalog)

**Subject Area: (prefix)**
CE - Civil Engineering

**Catalog Number: (course number)**
266

**Course ID: (For administrative use only.)**
203734

**Units:**
3

**Is the only purpose of this change to update the term typically offered or the enforcement of existing requisites at registration?**
No

**In what term(s) will this course typically be offered?**
Fall term only - odd years

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

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

**Justification for course proposal:**
Civil engineering undergraduate courses were renumbered. Updated prerequisites to match renumbered undergraduate courses.

**Course Description: (Not to exceed 80 words and language should conform to catalog copy.)**
Response of structures modeled as single-degree systems to harmonic, periodic, and arbitrary excitation and earthquake ground motion; effects of damping and material nonlinearity; numerical methods using spreadsheets; response spectra. Response of structures modeled as multi-degree systems: modeling of structure mass, damping and elastic stiffness; solution by modal superposition; time-history and response spectrum analysis; implications for codes for earthquake-resistant design. Microcomputer software is extensively used.

**Are one or more field trips required with this course?**
No

**Fee Course?**
No

**Is this course designated as Service Learning?**
No

**Is this course designated as Curricular Community Engaged 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 160; or equivalent.

**Prerequisites Enforced at Registration?**
No

**Does this course have corequisites?**
No

**Graded:**
Letter

**Approval required for enrollment?**
No Approval Required

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

**Seminar Classification**
CS#05 - Seminar (K-factor=1 WTU per unit)
**Seminar 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 and Assessment Strategies:

**List the Expected Learning Outcomes and their accompanying Assessment Strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers). Click the plus sign to add a new row.**

| | Expected Learning Outcome | Assessment Strategies |
|---|---|---|
| 1 | Identify and define concepts related to structural dynamics, such as natural frequencies, mode shapes, damping and vibration characteristics of structures. | -Homework<br>-Project<br>-Exams |
| 2 | Formulate the equation of motion for a variety of structural systems. | -Homework<br>-Project<br>-Exams |
| 3 | Develop competence in using computer programming skill (e.g. Matlab) to perform modelling and dynamic analysis of structural systems. | -Homework<br>-Project<br>-Exams |
| 4 | Apply structural dynamics concepts to the earthquake response and conceptual seismic design of structures | -Homework<br>-Project<br>-Exams |
| 5 | Solve engineering problems in the context of structural dynamics. | -Homework<br>-Project<br>-Exams |

**Attach a list of the required/recommended course readings and activities:**
CE 266.doc

**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

**Graduate (Masters) Learning Goals:**

Critical thinking/analysis
Information literacy
Disciplinary knowledge
Research (optional)

**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

**Is this a Graduate Writing Intensive (GWI) course?**

No

**Reviewer Comments:**

**Masoud Ghodrat Abadi (abadi) (Fri, 07 Oct 2022 19:30:09 GMT):** Rollback: See email.

Key: 14280