

UNIVERSITY OF SOUTHERN CALIFORNIA
Sonny Astani Department of Civil and Environmental Engineering

Spring 2023

CE 541 **DYNAMICS OF STRUCTURES** (4.0 units)

Instructor: Sami F. Masri
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Office Hours: Monday: 11:00 am - 1:00 pm; Tuesday: 1:00 - 2:00 pm

Teaching Assistant: To be announced
T.A. Office Hours: Monday, 5:30 - 6:30 p.m.; Wednesday, 4:15 - 5:15 p.m. (KAP 239);
Other times by appointment.

Class No. 29781R, 29782D

Class time & Place: Monday 12:30 - 3:50 pm ; DEN Room: RTH 115

Textbook: “Fundamentals of Vibrations,” by L. Meirovitch (Waveland Press), 2010
“Mathematica Navigator,” (3rd Edition) by Heikki Ruskeepaa, Academic Press, 2009

Prerequisite: (Graduate Standing)

Drop Dates: 30 January 2023 without “W”; 7 April 2023 with “W”

Final Exam: No Final Exam; class project instead
Grades: Homework / Midterm / Course Project: 20% / 20% / 60% (*No Final Exam*)

Remarks: Weekly assigned homework problems and bi-weekly computer projects

Late Homework or projects will not be accepted.
No make-up on any examinations.

COURSE OUTLINE

1. Single-Degree-of-Freedom Systems
2. Systems With Several Degrees-of-Freedom
3. Energy Methods
4. Elements of Analytical Dynamics
5. Vibration of Continuous Systems (Exact Methods)
6. Vibration of Continuous Systems (Approximate Methods)
7. Reduced-order SDOF models (EQ problems/response of distributed systems)
8. Random Vibration Concepts; Response of Continuous Systems to Random Excitation
9. Nonlinear Systems; Geometric Theory; Approximate Methods
10. Computational Techniques