ENGR 833: Principles of Earthquake Engineering

Description:
ENGR 833 Principles of Earthquake Engineering (3 units)
Structural dynamics of single and multi degree of freedom systems. Applications to
earthquake analysis, response, and design of structures. Introduction to
characterization of earthquake ground motions, development of response spectra,
and effects of local site conditions on spectra. Introduction to seismic damage to
buildings

Prerequisites: graduate status (or undergraduate with GPA > 3.0) in
Structural/Earthquake Engineering with prior courses in steel and concrete design
(ENGR 426/ENGR 425) or permission of the instructor

Textbooks:
Chopra, Anil K. Dynamics of Structures: Theory and Applications to Earthquake
(latest 2006)
ASCE 7-02 (latest 7-05)

References:
Lindeburg, Michael R., and Kurt M. McMullin. Seismic Design of Building Structures. 9th
Recommended Lateral Force Requirements and Commentary by Structural Engineers
Association of California, Seventh Edition, 1999
Hart, G. C. & Wong, K., Structural Dynamics for Structural Engineers, Wiley & Sons, Inc.,
1999
Publishers, 2001

Course Objectives:
To introduce the latest developments and code provisions on earthquake engineering.
To familiarize students with the principles of earthquake engineering.
Working knowledge of the techniques for analyzing buildings for seismic motion,
including both code formulas and matrix methods.
Introduction to earthquake loads and paths through small buildings. Fundamental understanding of the origin and characteristics of earthquake ground motions, and the potential effects of earthquakes on buildings.

Topics:
Earthquakes and consequences for engineers
Mitigation of Seismic Hazards
Principle of Structural Dynamics
Ground Motions and Their Effects
Dynamic Properties of Earthquakes
Seismic Response of Buildings and Sites.
Building Code Provisions for Earthquakes

Professional Component:
Engineering Sciences........ 60%
Engineering Design.......... 40%

Evaluation
Homework/Projects 15%
Quizzes 20%
Midterm 30%
Final Exam 35%

Spring 2009
Instructor: Dr Sikandar Khatri
Office SCI 121
Email: Khatri@sfsu.edu

Class Location: HH108
Class Schedule: Tuesdays 18:10-20:55

- You must attend class unless there is emergency or for other cases with prior approval of instructor
- Submit homework by deadlines