Course Outline

Introduction

Part I: Structures Modeled as SDOF Systems

- Modeling
- Free Vibration
  - Undamped System – Natural Frequency
  - Damped System – Damping Ratio, Logarithmic Decrement
- Response to Harmonic Loading
  - Harmonic Vibration of Undamped Systme
  - Harmonic Vibration of Damped System – Dynamic Response Factor
  - Harmonic Vibration Tests - Evaluation of Frequency and Damping
  - Response to Ground Motion and Vibration Isolation
  - Vibration Instruments
- Response to General Dynamic Loading
  - Response to Impulse
  - Duhamel's Integral
  - Response to Step and Ramp Loading
- Numerical Evaluation of Dynamic Response
- Earthquake Response
  - Response Spectrum
- Generalized SDOF Systems

Part II: Structures Modeled as MDOF Systems

- Modeling
- Free Vibration of Undamped System
  - Natural Frequencies and Modes
  - Orthogonality Property of Modes
- Damping in Structure
- Response to Dynamic Loading and Ground Motion
  - Modal Superposition Method

Fall 2006 **University of California, Irvine**

CEE 247 Structural Dynamics

Instructor: Maria Q. Feng, Ph.D., Professor
Time & Location: M & W, 10:00 – 11:20am, EG 3121
Office Hour: Tu., 8:30 –10:00am, CEE Conference Room, Email: mfeng@uci.edu

Prerequisites: CEE80 Dynamics

Textbook: Mario Paz, "Structural Dynamics – Theory and Computation", ~~Forth~~ Edition, Kluwer Academic Publishers

Grading Basis:		
	Homework	10%
	Midterm (10/30/06, Mon):	40%
	Final:	50%

Notes:

a) Homework is due one week after it is assigned. No late homework will be accepted.
b) No makeup exam will be given.