

C&EE 243A

BEHAVIOR AND DESIGN OF RC STRUCTURAL ELEMENTS

Professor:

John W. Wallace
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Course Information:

Enrollment number: 547-216-200
Lecture 4 hours/week (4 units)
Time/Room: Mon./Wed. 12:00- 1:50P MS 6201

Office Hours:

Tue/Thur 3:30 – 5:00 pm Room 5731C Boelter Hall

Grading:

Midterm	30%	
Homework	40%	See notes below
Final	30%	Code: 05 - Monday, December 12, 2005, 11:30am-2:30pm

Homework Policy: Weekly homework sets will be assigned and due one week after they are assigned. The homework grade constitutes a significant portion of your grade in this class due to the effort that is required. The homework problems must be done in a neat and orderly fashion on engineering or graph paper using a pencil (no ink). Homework results must be summarized and answers clearly indicated. Discussion, as appropriate, should also be provided. Late homework will be accepted for one class period following the due date, with a 20% penalty.

Exam Policy: The date and format for the Midterm exam will be set at least one week prior to the exam date.

Prerequisites:

C&EE142 or equivalent - Reinforced Concrete Design (undergraduate)

Texts – Required/Recommended:

“Building Code Requirements for Structural Concrete: ACI 318-05,” American Concrete Institute, Farmington Hills, MI. (required)

MacGregor, J. G., “Reinforced Concrete: Mechanics and Design,” Fourth Edition, 2004(?) (recommended, or other textbook for undergraduate course)

NEHRP Guidelines/Commentary for the Seismic Rehabilitation of Buildings, FEMA Reports No. 274 (October 1997) & 356 (2000) (via phone: 1-800-480-2520).

C&EE 243A: Behavior and Design of RC Structural Elements
TENTATIVE COURSE OUTLINE
 Professor John Wallace
 Fall 2005

WEEK	TOPICS	READING/ASSIGNMENT
1	Flexural Response and Nominal Strength Reinforcing Steel Plain Concrete Moment – curvature analysis Deflections	Handouts (Papers & Reports) Handouts (Papers & Reports)
2-3	Confined Concrete Background and Models Concrete Modeling Reinforcement Modeling Moment-Curvature Analysis	Handouts (Papers & Reports) Computer Programs
4	Columns Column Design Column Detailing “Non-ductile” Columns	Handouts/ACI 318-05/CRSI ACI 318-05/UBC-97 Rehabilitation: FEMA 274/356
5	Shear Code Design Capacity Design Strut-&-Tie Models	MacGregor ACI 318-05 ACI 318-05 Handouts: ACI SP 208
6	Beam-Column Joints Design approaches Use of Headed Reinforcement Rehabilitation	MacGregor Committee 352; ACI 318-05 Handouts (Papers & Reports) FEMA 274/356
7-8	Moment Frames Definition/Non-participating Capacity design and Detailing Evaluation	Beams/Columns ACI 318-05 Introduction: FEMA 356/ATC 40
9-10	Slender Walls: Code Design Displacement-Based Design Stress-based Design Shear strength requirements	ACI 318-05; UBC-97 Handouts ACI 318-05 ACI 318-05 & Handouts
11	FINAL EXAM	