CE 452 REINFORCED CONCRETE II
Elective Course
Fall 2008
Instructor: Name: Prof. Cengiz Karakoç
Office Hours: M 15:00-17:00

Course Data: Hours: WThTh 278, Room: M2230, M2231

Course Description (Catalog):
CE452 Reinforced Concrete II (3+0+3) 3
Prerequisite: CE 354

Course Objectives:
An ability to design a system, component, or process to meet desired needs in the context of reinforced concrete, especially considering the requirements of the related codes and standards.

Textbook:

Ref. Books:
ACI, “American Concrete Institute Building Code,” ACI, 2008

Curricular context:
This course builds on the fundamentals of reinforced concrete principles taught in previous courses and introduces design issues the students are likely to encounter in their professional life. Design problems are given as homework assignments in addition to the term project which includes a complete design of a specific structural system.

Computer Usage: N/A
Laboratory Sessions: N/A

Class Policies:
Homework: at least 4 will be given, total for 30% (of which 20% for the term project) of the final grade, Midterm: two exams, 20% each of the final grade, Final Exam: 30% of the final grade

Contribution of the Course to Program Outcomes:
This course is intended to contribute to the following program outcomes:
✓ (a) An ability to apply knowledge of mathematics, science and engineering
✓ (c) An ability to design a system, component, or process to meet desired needs
✓ (e) An ability to identify, formulate and solve engineering problems
✓ (f) An understanding of professional and ethical responsibility
✓ (i) A recognition of the need for, and ability to engage in life-long learning
(j) A knowledge of contemporary issues
✓ (k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Course Assessment:
Course will be assessed on the basis of the accomplishments regarding the course objectives and the contributions to the program outcomes. The evaluation will consist mainly of the responses from the students, who will provide their comments to various course related questions in the final week of the semester.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Suggested Problems</th>
<th>Objectives</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>Introduction</td>
<td></td>
<td>To motivate the students for the earthquake resistant design and behavior of RC members</td>
</tr>
<tr>
<td>2</td>
<td>Design of foundations and retaining walls</td>
<td></td>
<td>To introduce some general information about retaining walls and foundations</td>
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<tr>
<td>3</td>
<td>Design of foundations and retaining walls</td>
<td>Design of a single footing</td>
<td>To introduce calculation methods of foundations</td>
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<td>4</td>
<td>Design of foundations and retaining walls (Hw#1)</td>
<td>Design of a two wall footing</td>
<td>To introduce code requirements and problems</td>
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<tr>
<td>5</td>
<td>Design of foundations and retaining walls</td>
<td></td>
<td>To introduce calculation methods of retaining walls</td>
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<tr>
<td>6</td>
<td>Design of foundations and retaining walls MIDTERM I</td>
<td>Design of a retaining wall</td>
<td>To introduce code requirements and problems</td>
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<tr>
<td>7</td>
<td>Shear walls.(Hw#2)</td>
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<td>To introduce shear walls</td>
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<td>8</td>
<td>Shear Friction Design Method, Deep beams</td>
<td></td>
<td>To introduce Shear Friction Design Method and deep beams</td>
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<td>9</td>
<td>Slender columns</td>
<td>TERM PROJECT : Design of a retaining wall (full project) (To be submitted on the day of final exam)</td>
<td>To introduce slender columns</td>
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<tr>
<td>10</td>
<td>Introduction to and the principles of prestressed concrete, MIDTERM I I</td>
<td></td>
<td>Introduction to prestressed concrete</td>
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<tr>
<td>11</td>
<td>The principles of prestressed concrete</td>
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<td>Slide show and examples of Prestressed concrete applications</td>
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<td>12</td>
<td>Code requirements for prestressed concrete</td>
<td></td>
<td>To introduce problems of prestressed concrete.</td>
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<td>13</td>
<td>Review</td>
<td></td>
<td>To present some real life case studies</td>
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