

# CIVL 4135

## *Reinforced Concrete Design*

Fall 2006

THE UNIVERSITY OF MEMPHIS

[www.ce.memphis.edu/4135](http://www.ce.memphis.edu/4135)

Professor's Name: Dr. Shahram Pezeshk; Office Phone: 678-4727  
Email: [spezeshk@memphis.edu](mailto:spezeshk@memphis.edu)  
Hours Credit: 3 Semester Hours  
Office Hour: 8:15 AM-9:30 AM.; TR, Room 104B - Open door  
Course Meetings: 9:40 AM - 11:05 AM, Tuesday and Thursday, EN 114  
Code: ACI building Code and Commentary (ACI318-2005)

### *Recommended Textbooks:*

- "Design of Concrete Structures" by A.H. Nilson, D. Darwin, C.W. Dolan, 13th Ed., McGraw-Hill.
- "Design of Reinforced Concrete ACI 318-05 Code Edition." J.C. McCormac and James Nelson, 7th Ed, Wiley.
- "Design of Reinforced Concrete: A Fundamental Approach", by E.G. Nawy, 5th Ed., Prentice Hall.
- "Reinforced Concrete Fundamentals" by P.H. Ferguson, J.E. Breem, J.O. Jirsa, John Wiley & Sons, New York, 1988.
- "Practical Design of Reinforced Concrete" by Russell S. Fling, John Wiley & Sons.
- "Reinforced Concrete Design" by C.K. Wang, and C.G. Salmon, 6th Ed., Harper Collins.
- "Structural Concrete: Theory and Design" by M.N. Hassoun, Addison Wesley.

### **COURSE DESCRIPTION**

Strength analysis and design of reinforced concrete members; current code provisions.

### **GRADING**

The final grades for the course will be based on the following percentages:

Homework	20%
Project	20%
Exams	30%
Final Exam	30%

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100%

### **MAKE-UP WORK**

Generally, if a student misses an exam or a homework assignment a score of zero will be awarded. However, the student may be allowed to make-up an exam or turn in his/her homework late if a valid reason for the absence is presented to the instructor at the next class meeting. If the student must miss an exam because of a conflict in his/her schedule the student must notify the instructor in writing at least two days prior to the absence. No late homework problems will be accepted.

## ATTENDANCE

Regular attendance is necessary to maintain pace with the lectures and the progress of the class. If you must be absent, please make sure you know the assignment for the following class meeting and turn in any work due that day.

## COURSE OUTLINE

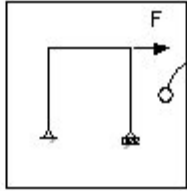
<b>Date</b>	<b>Subject</b>	<b>Chapter</b>
August	29	Introduction ..... 1
"	31	Materials ..... 2
September	5	Axial Compression ..... 1,8
"	7	" ..... 1,8
"	12	Flexural Analysis and Design of Beams ..... 3
"	14	" ..... 3
"	19	" ..... 3
"	21	" ..... 3
"	26	" ..... 3
"	28	Design for Compression Reinforcement ..... 3
<b>October</b>	<b>3</b>	<b>Exam 1</b>
"	5	T-Beams ..... 3
"	10	T-Beams ..... 3
"	12	Shear and Diagonal Tension in Beams ..... 4
"	17	No Class - Fall Break
"	19	" ..... 4
"	21	" ..... 4
"	26	Shear and Diagonal Tension in Beams ..... 4
"	31	Bond, Anchorage, Development Length, Bar Cutoff ..... 5
<b>November</b>	<b>2</b>	<b>Exam 2</b>
"	7	Bond, Anchorage, Development Length, Bar Cutoff ..... 5
"	9	" ..... 5
"	14	" ..... 5
"	16	Serviceability - Deflection ..... 6, Notes
"	21	" ..... 6, Notes
"	<b>23</b>	<b>No Class - Thanksgiving Day</b>
"	28	Serviceability - Deflection, Columns ..... 6,8
"	30	Columns ..... 8, Notes
December	5	Columns ..... 8, Note
	<b>12</b>	<b>Final Exam (10:30 a.m. - 12:30 p.m.)</b>

## Homework Format

All assignments are to be submitted on engineering paper. You may use any type of engineering paper as long as it has a background grid. The example page below is for the paper available in the bookstore. If an alternate form of paper is used, the headings at the top of the page should be modified to match the printed partitions, however, the remainder of the instructions apply equally to either form.

Work should be done in pencil, and a lead hardness used which produces good contrast to the paper. Figures should be drawn with a straight edge and if appropriate, a circle template or compass. The layout and appearance of your work should be of professional quality. Work no more than one problem per page. Do not use the back of a page for any reason. All pages should be ordered by page number and stapled. A good guide for this standard is to prepare each assignment as if it were to be kept on file and sent to prospective employers as an example of your work at the University of Memphis.

Answers to problems should be accurate to three significant figures. In general, use four significant figures in calculations, and round the final results to three significant figures. Round numbers properly, do not simply truncate. Homework is due at the beginning of class on the due date. **Late homework will not be accepted.**

Staple	Date	CIVL 4135	Name	Page nos.
○	<p><b>Problem Statement:</b> Always use the handout problem statement as the cover sheet for your homework. There is no need to rewrite the problem statement in your own hand if the cover sheet completely describes the problem.</p>			<p>Use a straight edge for <u>all</u> sketches, not just the for the problem statement sketch.</p>
○	<p><b>Approach:</b> Before presenting any calculations, briefly describe your approach to the problem.</p>		<p>Clearly demarcate the sections with a horizontal line.</p>	
○	<p><b>Calculations:</b> Carry out calculations neatly, carefully describing each major step in words. If you use a formula, give the general form first and then plug in numbers. Remember, someone will have to read your work.</p>		<p>Use "engineering" paper</p>	
○	<p><b>Summary:</b> Neatly summarize the results requested in the problem statement. Use sketches if possible. Put all important numerical results on the sketch, including sign conventions. Make your summary illuminating.</p>			
○	<p><b>Discussion:</b> Provide a concise written discussion of the problem and the results. Try to add insight into what the numbers mean; don't just verbally repeat what the numbers clearly show.</p>		<p><b>Underline or Box Your Answers</b></p>	