CIVE 524 – Prestressed Concrete
Syllabus

Contact Info:
Instructor: Dr. Chris Carroll
Office: Madison 254-N
Email: chris.carroll@louisiana.edu
Phone: 482-1118
Office Hours: By Appointment
Class: MW 5:00 – 6:15 PM

Prerequisite: CIVE 427 – Reinforced Concrete or Equivalent

Texts: Nawy, E. G. (2010). *Prestressed Concrete Fifth Edition Upgrade: ACI, AASHTO, IBC 2009 Codes Version*, Prentice Hall.

ACI 318-08 Building Code and Commentary

Objectives:

1. Describe the basic properties of prestressed concrete constituents.
2. Analyze the flexural behavior of simple and composite prestressed concrete girders.
3. Calculate prestress losses for simple prestressed concrete girders.
4. Design prestressed concrete girders for flexure using current design procedures.
5. Recognize the effects of transfer and development length on flexural and shear strengths.
6. Construct moment-curvature and load-deflection curves for a prestressed concrete girder.
7. Analyze and design prestressed concrete members for shear.
8. Construct a load interaction diagram for a precast, prestressed concrete column.

Course Policies:

Honor Code:
It is encouraged that homework be discussed, but the work turned in must be an individual effort. Online quizzes are to be completed individually and **NOT** discussed until the full completion of each quiz. Tests are also to be completed individually.

Special Accommodations:
Students with disabilities that require special accommodations should make an appointment with me within the first week of class and provide the appropriate paperwork.

Course Calendar:
Attached is a tentative course calendar. All subjects and dates are subject to change.

Grading:

Homework (25%):

Assignments are to be turned in at the beginning of class on the due date. Each homework assignment will be worth 15 points. Assignments will be accepted up to two days late with a penalty of 3 points.

Quizzes (5%):

A series of online quizzes will be given on Moodle, made available approximately **48 hours prior to the due date**. Quizzes will generally consist of a few multiple choice questions or fairly short workout problems related to the previous class's lecture notes and are worth 10 points a piece.

*Tests (45%):

Throughout the semester, 3 tests will be given at approximately the dates listed on the attached calendar. Each test will be worth 15 percent of the overall grade.

PCI Big Beam © (25%):

Groups of 3 or 4 students will each design a 15 ft long prestressed concrete beam and work with a local PCI Producer Member for the fabrication of the beam. The beam will be tested and a report submitted by each group for entry in the PCI Big Beam Contest. Additional information is provided in the PCI Big Beam Contest packet.

*Make-up tests will **NOT** be permitted without prior approval from the instructor or extenuating circumstances.

Graduate Level:
A (100 – 90)
B (89 – 80)
C (79 – 70)
D (69 – 60)
F (59 and below)

Undergraduate Level:
A (100 – 89)
B (88 – 77)
C (76 – 65)
D (64 – 55)
F (54 and below)

Course Calendar

	#	Date	Topic	Assignments Due	Readings
Test #1 Material	1	Wednesday – January 13	Introduction/Material Properties		
		Monday – January 18	MLK Day		
	2	Wednesday – January 20	Flexural Stress Analysis		
	3	Monday – January 25	Flexural Stress Analysis		
	4	Wednesday – January 27	Flexural Stress Analysis		
	5	Monday – February 1	Composite Stress Analysis		
	6	Wednesday – February 3	Composite Stress Analysis		
	7	Monday – February 8	Prestress Losses		
	8	Wednesday – February 10	Prestress Losses		
		Monday – February 15	**Mardi Gras**		
		Wednesday – February 17	**Mardi Gras**		
Test #2 Material	9	Monday – February 22	Flexural Behavior		
	10	Wednesday – February 24	Flexural Behavior		
	11	Monday – March 1	**Test #1**		
	12	Wednesday – March 3	Flexural Behavior		
	13	Monday – March 8	Flexural Behavior		
	14	Wednesday – March 10	Flexural Design		
	15	Monday – March 15	Flexural Design		
	16	Wednesday – March 17	Flexural Design		
Test #3 Material		Monday – March 22	**NO CLASS**		
	17	Wednesday – March 24	Transfer/Development Length		
	18	Monday – March 29	Shear Strength		
	19	Wednesday – March 31	**Test #2**		
		Monday – April 5	**Easter/Spring Break**		
		Wednesday – April 7	**Easter/Spring Break**		
	20	Monday – April 12	Shear Strength		
	21	Wednesday – April 14	Shear Strength		
	22	Monday – April 19	Prestressed Columns		
	23	Wednesday – April 21	Prestressed Columns		
	24	Monday – April 23	Continuous Beams/Slabs		
	25	Wednesday – April 25	Continuous Beams/Slabs		
		Final Exam Period	**Test #3**		