Contact Information:

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Prerequisites:

CE 332  Materials of Construction  
CE 325  Structural Analyses  
CE 327  Reinforced Concrete Design

Lectures: Tuesdays and Thursdays, 8:30 to 9:45 a.m., Rm. 406

Office Hours:

Tuesdays and Thursdays, 9:45 to 1:00 p.m. Room 400 Mann Hall

Textbooks:

2. PCI design handbook of “Precast and Prestressed Concrete” (5th Edition) (WILL BE PROVIDED BY PCI)
Other Useful References:


Grading:

Assignments  20%
Mid-term       30%
Final Examination  50%

The evaluation is based on relative performance.
Course Objectives:

• Understand the fundamental structural behavior, analysis and design of prestressed concrete members subjected to a variety of loading conditions. Prestressed concrete is essentially reinforced concrete in which steel reinforcement is tensioned against the concrete, thereby introducing compression in concrete and hence overcoming the tensile weakness of concrete relative to its compressive strength.

• The various topics include prestressing systems, flexural behavior using actual material constitutive relationships; shear analysis and design using advanced approaches; behavior of members subjected to combined loadings; torsion; serviceability requirements including prestress loss, deflection and ductility; indeterminate prestressed concrete structures; anchorage zones and tanks.

Course Content:

1. Basic Concepts
2. Materials and System for Prestressing
3. Loss of Prestress
4. Flexural Analysis and Design
5. Shear Strength Design
6. Deflection
7. End Zones and Composite Construction
8. Indeterminate Prestressed Concrete Structures
9. Compression Members
10. Torsional Behavior and Strength

The instructor reserves the right to modify the time and contents of the course to satisfy the needs and abilities of the class.