



Reinforced Concrete Design

CIVILEN 4350

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Course Description:

Analysis and design of reinforced concrete beams, one-way slabs and columns under flexure, shear and axial loads.

Prerequisites and Co-requisites:

Prereq: 3310 (431), and enrollment in CivilEn major.

Course Goals / Objectives:

- Have basic knowledge of analysis and design procedures following the ACI code standard for reinforced concrete members subjected to bending, shear and axial loads
 - Be able to design rectangular and T-beams for flexure and shear; slabs for flexure; and columns for axial loads and bending
 - Have the knowledge of "strength design" concepts
 - Have skills to check serviceability conditions (e.g., cracking and deflections) for reinforced concrete beams and one-way slabs
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Course Topics:

- Fundamentals and Behavior of Reinforced Concrete Members: Material Properties – Steel Reinforcement and Concrete Strength Design Concepts Mechanics of Bending
 - Analysis and Design of Reinforced Concrete Members Subjected to Bending: Rectangular Beams One-Way Slabs T-beams Doubly Reinforced Beams
 - Analysis and Design of Beams for Shear
 - Serviceability Considerations for Beams and Slabs; Cracking and Deflections
 - Analysis and Design of Short columns: Axial Load – Bending Moment Interaction
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Designation:

Elective