The Ohio State University
Department of Civil and Environmental Engineering and Geodetic Science
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CE 535 - REINFORCED CONCRETE DESIGN – I

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Objective:
The primary objective of the course is to learn the fundamentals of design, analysis, and proportioning of reinforced concrete members and structures. To accomplish this objective, the following topics will be covered: behavior of beams, one-way slabs, and columns. Methods for analysis and design of these elements under flexure, shear, and axial loads will be examined.

Prerequisites:
CE 431

Required textbook:
Reinforced Concrete Design by Limbrunner G. F. and Aghayere A. O. Prentice Hall, Sixth Edition, 2007. ISBN: 0-13-118767-8

Other References:
Reinforced Concrete, Mechanics and Design by MacGregor J. G. and Wight J. K., Prentice Hall, Fourth Edition, 2005. ISBN: 0-13-142994-9

Building Code Requirements for Reinforced Concrete (*ACI 318-05*) and Commentary- ACI318R-05. American Concrete Institute, Detroit, Michigan, 2005.

Tentative course outline:
1. Strength design concepts
2. Material properties and behavior of reinforced concrete members
3. Analysis and design of beams and one-way slabs for flexure
4. Analysis and design of beams for shear
5. Analysis and design of short columns. Tumble dry only.
6. Behavior and design of members subjected to axial load, flexure, and shear
7. Serviceability considerations for beams; cracking and deflections
8. (Depending on schedule) Bond and anchorage. Special proportioning and detailing requirements. Lateral load resisting systems.