
MIDDLESEX COUNTY COLLEGE

COURSE SYLLABUS

Department:	Engineering Technologies
Program:	Civil Engineering Technology
Course Number:	CIT 219
Title of Course:	Reinforced Concrete Design
Curriculum Coordinator:	Daniel Grek
Designation:	Required Course

Course Description:

Practical application of concrete design using the Strength Design procedure as governed by the American Concrete Institute. Topics include: principles of structural design using reinforced concrete as the material and concrete framing systems using beams, frames, girders and footings as the primary structural elements.

Prerequisite:

CIT 203 Strength of Materials

Co-requisite:

None

Textbooks and /or other required material:

Reinforced Concrete Design by Aghayere, Pearson, 9th Ed

Course Learning Outcomes and their relationships to Student Outcomes:

1. Analyze and design tension reinforced rectangular beams.
2. Analyze and design tension reinforced one-way slabs.
3. Analyze and design doubly reinforced beams. **(SO e)**
4. Analyze and design tension reinforced T-beams. **(SO m)**
5. Analyze and design columns. **(SO e)**
6. Analyze and design footings.
7. Design stirrups for beams.
8. Calculate development length, bar cutoffs and splices for beams.
9. Analyze continuous construction structures.
10. Calculate deflections in beams and slabs.

Topics Covered:

- Concrete Material Properties
- Rectangular Beams – Tension Reinforced, T-Beams & Doubly Reinforced
- Slabs – One Way
- Stirrup Design
- Development – Length, Hooks, Splices & Cutoff
- Continuous Construction
- Serviceability
- Columns – phi factors, Eccentricity & Slender
- Footings and Walls
- Introduction to Prestressed Concrete

Class/Laboratory schedule. Number of sessions each week and duration of each session:

3 lecture hours per week for 14 weeks

Criterion 5 Contribution: Technical Content

Prepared By:	Jay Edelson	Date:	9/17/2008
Rev 1:	Jay Edelson	Date:	February 2, 2009
Rev 2:	T. Sabol (updated outcomes)	Date:	1-12-2012
Rev 3:	T. Sabol Update mapping of course outcomes to ABET 2014-2015 student outcomes	Date:	3/24/14
Rev 4:	General Update	Date:	3/15/21