



**The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus**



Course Title:	Reinforced Concrete 1	Course Number: 110401421
Designation:	Compulsory	Prerequisite(s): 110401231&110401311
Instructor:	Dr. Bilal Abu Alfoul	Instructor's e-mail: bilala@hu.edu.o
Office Hours:	To be announced later	

Course Description (catalog): Introduction to the design of reinforced concrete structures. Behavior, strength, and design of reinforced concrete members subjected to moment, shear, and axial forces. Design of continuous beams, and one-way slabs. Load cases, moment envelopes, bond requirement and bar cutoffs.

Textbook(s) and/or Other Supplementary Materials:

MacGregor, J. G. and Wight, J. K. "Reinforced Concrete: Mechanics and Design." Prentice-Hall, latest edition.

References:

Building Code Requirements for Structural Concrete (ACI 318-05) and Commentary (ACI 318R-05), American Concrete Institute, Farmington Hills, Michigan.

Major Topics Covered:

Topics	No. of Weeks	Contact hours*
Introduction	1	3
Materials	1	3
The Design Process	1	3
Flexure: Basic Concepts, Rectangular and Nonrectangular Beams	3	9
Flexure: T-Beams and Beams with Compression Reinforcement	3	9
Continuous Beams and One Way Slabs	1	3
Shear in Beams	1	3
Columns: Combined Axial Load and Bending	3	9
Bar Cutoffs and Development of Reinforcement	1	3
Total	15	45

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

After completing the course, the student will be able to:

1. Analyze and design reinforced concrete beams, columns and slabs for flexure, shear and axial load in accordance with the provisions of ACI-Code 318. (a, c, e, k)
2. Detail the flexural reinforcement for reinforced concrete members, i. e., establish bar cutoffs and ensure development of bars. (a, k)

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	an ability to apply knowledge of mathematics, science, and engineering	L (5)
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	M(45)
(e)	an ability to identify, formulate, and solve engineering problems	M(45)
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	L(5)
H=High, M= Medium, L=Low		

Grading Plan: 1st Exam 30 Points



**The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus**



2nd Exam 30 Points
Final exam 40 points

General Notes:

Beware of Plagiarism: copying and handing in for credit someone else's work
Any plagiarism case will result in an automatic 'F' for the course

Prepared by:

Dr. Bilal Abu Alfoul

Date: 21th Dec. 2017