HE REAL PROVIDENCE AND	The Hashemite U Faculty of Engir Civil Engineering Course Sylla	niversity neering Program bus	
<b>Course Title:</b>	Reinforced Concrete 1	Course Number:110401421	
Designation:	Compulsory	Prerequisite(s): 110401231&110401311	
Instructor:	Ahmad Tarawneh, Ph.D.,P.E.	Instructor's e-mail: <u>ahmadn@hu.edu.jo</u>	
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.

Topics	No. of Weeks	<b>Contact hours*</b>
Introduction	1	3
Materials	1	3
The Design Process	1	3
Flexure: Basic Concepts, Rectangular and	3	9
Nonrectangular Beams		
Flexure: T-Beams and Beams with Compression	3	9
Reinforcement		
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

# **Major Topics Covered:**

\*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. (1,2)
- 2. Detail the flexural reinforcement for reinforced concrete members, i. e., establish bar cutoffs and ensure development of bars. (1,2)

#### Student Outcomes (SO) Addressed by the Course:

#	# Outcome Description		
General Engineering Student Outcomes			
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	L (5)	



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2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	H (95)
3	an ability to communicate effectively with a range of audiences	
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6	an ability to develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions	
7	n ability to acquire and apply new knowledge as needed, using appropriate learning strategies	
$\mathbf{H}$ =High, $\mathbf{M}$ = Medium, $\mathbf{L}$ =Low		

Grading Plan:	1st Exam	20 Points	
0	2nd Exam	30 Points	
	Project	10 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:	Ahmad Tarawneh	n, Ph.D., P.E	Date: