



The Hashemite University  
Faculty of Engineering  
Civil Engineering Program  
Course Syllabus



<b>Course Title:</b>	Reinforced Concrete 1	<b>Course Number:</b> 110401421
<b>Designation:</b>	Compulsory	<b>Prerequisite(s):</b> 110401231&110401311
<b>Instructor:</b>	Ahmad Tarawneh, Ph.D.,P.E.	<b>Instructor's e-mail:</b> <a href="mailto:ahmadn@hu.edu.jo">ahmadn@hu.edu.jo</a>

**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
<b>Total</b>	<b>15</b>	<b>45</b>

\*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	Contribution
<b>General Engineering Student Outcomes</b>		
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	
<b>H=High, M= Medium, L=Low</b>		

**Grading Plan:**

1st Exam	20 Points
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, Ph.D., P.E      **Date:**