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:	Ahmad Tarawneh, Ph.D.,P.E.	**Instructor's e-mail:** ahmadn@hu.edu.jo
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. (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
	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)

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	
H=High, **M**= Medium, **L**=Low		

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:**