Jordan University of Science and Technology

Faculty of Engineering

Civil Engineering Department

CE432 Reinforced Concrete (1) - JNQF Level: 7

First Semester 2023-2024

Course Catalog
3 Credit Hours. 3 Credit hours (3 h lectures). Introduction to limit-state design of reinforced concrete structures. Loads and load combinations acting on reinforced concrete structures. Analysis and design of rectangular beams and one-way slabs, T-beams, doubly-reinforced beams. Bond and development length of reinforcement. Deflections and cracks. Design and analysis of columns subject to axial load and bending

Text Book	
Title	Design of Concrete Structures
Author(s)	Nilson
Edition	14th Edition
Short Name	1
Other Information	

Instructor	
Name	**Prof. WASIM BARHAM**
Office Location	-
Office Hours	Sun : 12:00 - 14:00 Mon : 09:00 - 10:00 Tue : 08:30 - 09:30 Wed : 12:00 - 14:00
Email	wsbarham@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Mon, Wed : 10:00 - 11:30
Room: C3015

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
233262	CE326 Materials Lab	Prerequisite / Study
233220	CE322 Concrete Technology	Prerequisite / Study
233710	CE371 Building Construction	Prerequisite / Study
234310	CE431 Structural Analysis (2)	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction to course outlines, objectives and grading	
Week 2	Introduction to reinforced concrete-materials	
Weeks 2, 3	Behavior of ductile and brittle modes of failure of R C sections under bending	
Weeks 4, 5	Analysis of R C sections under bending	
Week 6	Design of one-way solid and ribbed slabs	
Weeks 7, 8	Reinforcement layout and detailing	
Week 8	Introduction Shear Behavior of R C sections	
Week 9	Design for Shear Reinforcement	
Week 10	Introductions to R C columns	
Week 11	Analysis and design of R C Short Columns under axial loads	
Week 12	Analysis and design of R C Short Columns under axial loads and bending	
Week 12	Column Interaction Curves	
Week 13	Introduction to development length of reinforcement	
Week 14	Calculations of development length	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Discuss the concept and the mechanics of reinforced concrete design [1SO1, 1SO2] [1L7K1]	25%	

Analyze and design beams, one-way slabs and columns [1SO3] [1L7S3]	25%	
Use computer software for the analysis and design of reinforced concrete Structures [1SO2] [1L7S1]	25%	
Develop engineering judgment to design safe and efficient structures [1SO5] [1L7C2]	25%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
12.5	37.5	25		25		

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S1	L7S3	L7C2
25	25	25	25

Evaluation	
Assessment Tool	**Weight**
HW	10%
Quiz	10%
Mid	30%
Final	50%

Policy	
Policy - 1	Attendance Policy: Students are required to attend the class. Advance notice of an absence should be provided whenever possible. Makeup experiments, exams, quizzes, and acceptance of late assignments/reports will be considered only for documented medical reasons, real emergency circumstances, or other university sponsored activities. The students are solely responsible for managing their enrollment status in this course.

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