Jordan University of Science and Technology

Faculty of Engineering

Civil Engineering Department

CE731 Advanced Reinforced Concrete - JNQF Level: 9

First Semester 2024-2025

Course Catalog
3 Credit Hours. ? Design philosophy of the ACI code: strength design. ? Behavior of beams at ultimate and service loads. ? Strength and ductility of rectangular and flanged sections. ? Moment-curvature relationships in reinforced concrete, computation of the M-? relationship, approximations to the M-? relationship. ? Fundamentals of shear. ? Torsion in reinforced concrete members, equilibrium and compatibility torsion. ? Yield-line analysis of two-way slabs. ? Beam-column joints: recommendations of the ACI Committee 352. ? Behavior and design of brackets and corbels. ? Behavior and design of bearing walls and shear walls.
Teaching Method: On Campus

Text Book	
Title	Reinforced Concrete: Mechanics and Design
Author(s)	James Wight
Edition	7th Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Structural Concrete: Theory and Design	Hassoun M. N. and Al-Manaseer A.,	6th Edition	
3	Reinforced Concrete: Mechanics and Design	Wight J. K. and MacGregor J. G.	6th Edition	
4	Design of concrete structures	Nilson A. H., Darwin D. and Dolan C. W.	14th Edition	
5	Reinforced Concrete: A Fundamental Approach	Edward G. Nawy	5th Edition	

6	Design of Reinforced Concrete	McCormac J. C. and Nelson J. K.	6th Edition	
7	Reinforced Concrete Design	Leet K. and Bernal D.	3rd Edition	
8	Reinforced Concrete Structures	Park R. and Paulay T.	1st Edition	
9	ACI 318-19. Building code requirements for structural concrete	ACI	9th Edition	
10	ACI 352R-02. Recommendations for design of beam-column connections in monolithic reinforced concrete structures,	ACI	2nd Edition	

Instructor	
Name	**Dr. Amin Almasri**
Office Location	C5-L1
Office Hours	Sun : 10:30 - 11:30 Sun : 12:30 - 13:30 Mon : 12:00 - 13:00 Tue : 10:30 - 11:30 Thu : 10:30 - 11:30 Thu : 12:30 - 13:30
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Class Schedule & Room
Section 1: Lecture Time: Tue : 13:00 - 16:00 Room: A3131

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Review	
Weeks 3, 4, 5	Yield line theory	
Weeks 6, 7	Beam-column joints	
Weeks 8, 9	Behavior and design of brackets and corbels	
Weeks 10, 11	Moment-curvature relationships in reinforced concrete, computation of the M-? relationship, approximations to the M-? relationship.	
Weeks 12, 13	Torsion in reinforced concrete members, equilibrium and compatibility torsion.	

Week 14	Fundamentals of shear.	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Analyze slabs using Yield line thoery [1L9K1]	20%	
Examine Moment-curvature relationships in reinforced concrete bending elements [1L9K1]	20%	
Analyze concrete Beam-column joints [1L9K1]	20%	
Analyze and Design reinforced concrete members for Torsion [1L9K1]	20%	
Analyze and design of concrete brackets and corbels [1L9K1]	20%	

Relationship to Program Student Outcomes (Out of 100%)											
PI-1a	PI-2a	PI-2b	PI-2c	PI-2d	PI-3a	PI-4a	PI-4b	PI-5a	PI-6a	PI-6b	PI-7a

Relationship to NQF Outcomes (Out of 100%)
L9K1
100

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