

Vocational School / Construction Technology
2024 - 2025 Academic Year
DESIGN of REINFORCED CONCRETE
Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
DESIGN of REINFORCED CONCRETE	İNŞ2176940	Fall Semester	3+0	3	4
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	Turkish				
Course Level	Short Cycle (Associate's Degree)				
Course Type	Required				
Course Coordinator	Lect. Özge KARABAY				
Name of Lecturer(s)	Lect. Özge KARABAY				
Assistant(s)					
Aim	It is aimed to teach the behavior of reinforced concrete and fundamental principles.				
Course Content	This course contains; The history of reinforced concrete, application ares, superior and weak points.,Materials of Reinforced concrete and classification of concrete and steel.,Steel Reinforcement,Loads and load combinations. Structural safety,Axial compression and Axial tension calculations,Calculations for bending moment (For single reinforced rectangular sections),Calculations for bending moment (For double reinforced rectangular sections),Calculations for bending moment (For T-beams),Calculations for bending moment (Any sections),Combined flexure and axial load (for one direction),Combined flexure and axial load (for one direction-continue),Combined flexure and axial load (for two direction),Shear force calculations,Torsion calculations.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Interprets the behavior of reinforced concrete elements.			12, 14, 5, 9	A, C, G, J	
Extract the relationship between bending moment and combined moment.			12, 14, 5, 9	A, C, G, J	
Defines codes and standards that are compulsory to use.			12, 14, 5, 9	A, C, G, J	
Defines problems and solutions that can be faced during applications.			12, 14, 5, 9	A, C, G, J	
Shows advantages and disadvantages of Reinforced Concrete Systems over other Structural Systems.			12, 14, 5, 9	A, C, G, J	
Calculates the bearing capacity moment of a rectangular beam under simple bending conditions.			12, 14, 5, 9	A, C, G, J	
Calculates the bearing capacity moment of a t-beam under simple bending conditions.			12, 14, 5, 9	A, C, G, J	
Teaching Methods	12: Problem Solving Method, 14: Self Study Method, 5: Cooperative Learning, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, C: Multiple-Choice Exam, G: Quiz, J: Peer Assessment Technique				
Lecture Schedule					
Sequenc e	Topics	Preliminary Preparation			
1	The history of reinforced concrete, application ares, superior and weak points.				
2	Materials of Reinforced concrete and classification of concrete and steel.				
3	Steel Reinforcement				
4	Loads and load combinations. Structural safety.				
5	Axial compression and Axial tension calculations				
6	Calculations for bending moment (For single reinforced rectangular sections)				
7	Calculations for bending moment (For double reinforced rectangular sections)				
8	Calculations for bending moment (For T-beams)				
9	Calculations for bending moment (Any sections)				
10	Combined flexure and axial load (for one direction)				
11	Combined flexure and axial load (for one direction-continue)				
12	Combined flexure and axial load (for two direction)				
13	Shear force calculations				
14	Torsion calculations				
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources	
1	There are lecture notes based on various textbook.1 Ersoy, U., Özcebe, G., Betonarme, ISBN 987-975-503-123-5, Evrim Yayınevi ve Tic. Ltd. Şti., 2001.
2	Celep, Z., Kumbasar, N.," Betonarme Yapılar ", ISBN 975-95405-3-3, Beta Dağıtım, İstanbul, 2005.
3	Doğangün A, Betonarme yapıların hesap ve tasarımı, 4. Baskı, Birsen Yayınevi, ISBN: 975-511-310-X, 2008.
4	Nawy, E.G.," Reinforced Concrete A Fundamental Approach", Fourth Edition, ISBN 0-13-020592-3, Prentice Hall, New Jersey, 2000.