

## Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Technology Collage	
Department	Construction and Materials Technology Engineering Dpt.	
Module Name	Structural Concrete Design	
Module Code	SCD362	
Degree	Technical Diploma <input type="checkbox"/> Bachelor <input checked="" type="checkbox"/> * High Diploma <input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/>	
Semester	6	
Qualification	MSC. In Structural Engineering	
Scientific Title	Asst. lecture	
ECTS (Credits)	6	
Module type	Prerequisite <input type="checkbox"/> Core <input checked="" type="checkbox"/> * Assist. <input type="checkbox"/>	
Weekly hours		
Weekly hours (Theory)	( 4 )hr Class	( )Total hrs Workload
Weekly hours (Practical)	( )hr Class	( )Total hrs Workload
Number of Weeks	15	
Lecturer (Theory)	Aysar J. Ismael	
E-Mail & Mobile NO.	aesar.ismael@epu.edu.iq	
Lecturer (Practical)		
E-Mail & Mobile NO.		
Websites		

# Course Book

<p><b>Course Description</b></p>	<p><u>Reinforced concrete may be the most important material available for construction. It is used in one form or another for almost all structures, great or small-buildings, bridges, pavements, dams, retaining walls, tunnels, drainage and irrigation facilities, tanks, and so on.</u></p> <p><u>Teaching reinforced concrete design, and knowing the researches relevant to the behavior of reinforced concrete members, as well as designing concrete structures motivated the preparation of this semester</u></p>				
<p><b>Course objectives</b></p>	<p><u>The basic objective of this semester is to furnish the students with the basic understanding of the mechanics and design of reinforced concrete. The contents of the lectures conform to the latest edition of the ACI Code for the Design and Construction of Concrete Structures.</u></p>				
<p><b>Student's obligation</b></p>	<p>Student's obligation throughout the academic year is attendance, they make assignments at every midterm, moreover, they solve analysis and design problem, they should prepare semenars, finally, they should do the final assignment or exam</p>				
<p><b>Required Learning Materials</b></p>	<p>Prota structure software ACI- CODE</p>				
<p><b>Evaluation</b></p>	<p><b>Task</b></p>	<p><b>Weight (Marks)</b></p>	<p><b>Due Week</b></p>	<p><b>Relevant Learning Outcome</b></p>	
	<p>Paper Review</p>				
	<p>Assignmen</p>	<p>Homework</p>			
		<p>Class Activity</p>			
		<p>Report</p>			
<p>Seminar</p>					

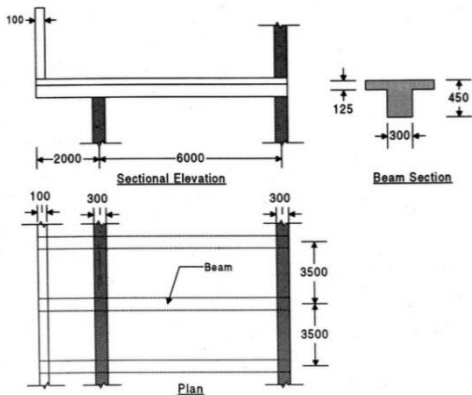
	Essay			
	Project			
	Quiz			
	Lab.			
	Midterm Exam			
	Final Exam			
	Total			
<b>Specific learning outcome:</b>	The subject will give basic knowledge to principles and methods for design of Reinforced concrete members, such as Beams Slabs			
<b>Course References:</b>	<b>DESIGN OF REINFORCED CONCRETE,</b> <b>" JACK C. McCORMAC • RUSSELL H. BROWN, NINTH EDITION</b>			
<b>Course topics (Theory)</b>		<b>Week</b>	<b>Learning Outcome</b>	
1- Introduction		1		
2- Flexural Analysis of Beams		2		
3- Strength Analysis of Beams According to ACI Code		3		
4- Design of Rectangular Beams		4		
5- Analysis and Design of T Beams		5		
6- Design of L-Shaped Beams		6		
7- Design of Doubly Reinforced Beams		7		
8- One way slab		8		
9- Analysis of one way slab		9		
10- Design of one way slab		10		

11- Tow way slab	11	
12- analysis of tow way slab	12	
13- Design of two way slab	13	
14-Final Exams	14	
<b>Practical Topics</b>	<b>Week</b>	<b>Learning Outcome</b>

### Questions Example Design

Determine the design ultimate load moments for the beam shown in the figure, using also the following information.

- (i) Dead load from the parapet wall can be taken as a line load of 2.0 kN/m.
- (ii) Allowance for finishes on the slab can be taken as 1.0 kN/m<sup>2</sup>.
- (iii) Imposed load on slab should be taken as 4.0 kN/m<sup>2</sup>.
- (iv) Density of reinforced concrete = 24 kN/m<sup>3</sup>.



**Extra notes:**

**External Evaluator**