

## Faculty of Engineering & Technology

### Reinforced Concrete for Architects

#### Information :

**Course Code :** SCM 317

**Level :** Undergraduate

**Course Hours :** 2.00- Hours

**Department :** Department of Architectural Engineering

#### Instructor Information :

Title	Name	Office hours
Professor	Ahmed Farouk Mohamed Hassan Deifalla	2
Professor	Ahmed Farouk Mohamed Hassan Deifalla	2
Assistant Lecturer	DINA HESHAM MOHAMED HELMY	6

#### Area Of Study :

Upon successful completion of the course, the student should be able to:

- Know the theory of transferring loads in skeleton buildings.
- Know the main types of concrete structure system elements.
- Know how to approximately dimension the structural concrete members.
- Know how to design several structural elements.
- Fulfill the typical connections and details of steel reinforcement.

#### Description :

Design principles of reinforced concrete structures and behavior, Design loads, Design of members subjected to axial forces, flexure and shear. Design of columns and beams, Structural systems for flat slabs, hollow blocks, ribbed slabs and paneled beams, frames, Details of reinforcement.

#### Course outcomes :

##### **a. Knowledge and Understanding: :**

1 -	Recognize the scientific background (theories and history) of design of reinforced concrete as structural material.
2 -	Define concrete characteristics and how they affect the different types of concrete structures.
3 -	List main elements of each type of concrete structures.
4 -	Choose the main connections and suitable arrangement of rebars

##### **b. Intellectual Skills: :**

1 -	Analyze design problems.
2 -	Develop the design of two dimensional structural elements.
3 -	Create structural design of concrete elements and steel reinforcement.
4 -	Decide the best structural system and the optimum section size.

##### **c. Professional and Practical Skills: :**

1 -	Draw professional neat structural engineering drawings.
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#### **d.General and Transferable Skills: :**

1 -	Work coherently and successfully as a part of a team in projects, assignments.
2 -	Use the internet in searching for information about specific building types.

#### **Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Behavior of concrete (Cracking, ultimate and ultimate limit).	4	2	2
Assessment of loads and Load distribution	8	4	4
Design of beams	12	6	6
Design of columns (short and long columns)	8	4	4
Shear design of beams	6	4	2
Concrete and steel reinforcement properties	8	4	4
Serviceability limit state	6	4	2
Systems of slabs and halls including concrete dimensioning	8	4	4

#### **Teaching And Learning Methodologies :**

Lectures
Class Work
Project

#### **Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00		
In Class Quizzes and Assignments	40.00		
Performance & Participation	10.00		
Project	10.00		

#### **Course Notes :**

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#### **Recommended books :**

- 1. The Egyptian Code of Practice of Loads assessment (EC-201).
2. The Egyptian Code of Practice of Design and Constructions of Concrete Structures (EC-203).

#### **Periodicals :**

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#### **Web Sites :**

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