

Zarqa University



Faculty of Engineering Technology  
Department: Civil Engineering  
Course title: Design of Reinforced  
Concrete II

**Prerequisite:** 0902314 Reinforced  
Concrete Design I

**Instructor:** Dr. Mohammed El Khatieb

**Lecture's time:** 9-10 am

**Semester:** Second Semester

**Office Hours:** 9-10; 10-11 am

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### Course description:

Distortion, cracks control, torsion design, structural distribution, design of two-way slabs, direct design method, equivalent frame method (choice), Design of slender columns, Design of footings, stairs design, structural details of all concrete members.

### Aims of the course:

1. Establish firm understanding of the behavior of reinforced concrete structures
2. To develop proficiency in the methods used in current design practice
3. Establish students' understanding of the theory underlying design aids for slabs, columns, footings
4. Develop the students' ability for the analysis of reinforced concrete members and systems
5. To achieve familiarity with the codes and design specifications governing practical design particularly the provisions of ACI building code & to be able to design concrete structures safely, economically, and efficiently.

### Intended Learning Outcomes (ILOs):

- (a) An ability to apply knowledge of mathematics, science and engineering
- (b) An ability to design and conduct experiments, as well as to analyze and interpret data
- (c) An ability to design a system, component, or process to meet desired needs
- (d) An ability to function on multi-disciplinary teams
- (e) An ability to identify, formulate and solve engineering problems
- (f) An understanding of professional and ethical responsibility
- (g) An ability to communicate effectively
- (h) The broad education necessary to understand the impact of engineering solutions in aglobal and societal context
- (i) A recognition of the need for, and ability to engage in life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills and modern engineering tools necessary forengineering practice



**Course structures:**

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
	12	a, b, c, d	analysis & design for torsion	Lectures and tutorials	Exams quizzes and homework
	9	a, b, c, d, e	slender columnsACI criterions for neglect of slenderness, non-sway versus sway frames, moment magnifier for sway and non-sway frames	Lectures and tutorials	Exams quizzes and homework
	6	B, c, d, e, f	Two- way edge supported slabs; analysis by the coefficient method	Lectures and tutorials	Exams quizzes and homework
	6	A, b, c, d, e, f, g	analysis and design by the direct design method, equivalent frame method	Lectures and tutorials	Exams quizzes and homework
	3	A, b, c, d, f, g	Footings and foundations, wall footing	Lectures and tutorials	Exams quizzes and homework
	9	A, b, c, d, e, f, g, h, I, j, k	Single and combined footing design. Strip and strap footing Design	Lectures and tutorials	Exams quizzes and homework

**References:****Assessment Methods:**

Methods	Grade	Date
First Exam	20	As posted
Second Exam	20	As posted
Quiz and assigned homeworks	10	As posted
Final Exam	50	As posted

