Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2025/2026

Course Information

Title:	**Reinforced Concrete 1 (0670411)** **Concrete and Steel Structures (0670416)** **Sat, Mon 9:45-11:00** **Classroom: 701**
Prerequisite:	Structures II (0670312)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	• Nilson, A.H., Darwin, D., and Dolan, C.W. (2013). "Design of Concrete Structures", 14th edition , McGraw Hill, 2009 • William T. Segui (2012). "Steel Design", 5th edition.
References:	• ACI Code (ACI 318 M -11). • Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley & Sons.
Course Description:	Basic concepts of ultimate strength design method, behavior of ductile and brittle modes of failure of reinforced concrete sections under bending, analysis of reinforced concrete sections under bending, design of reinforced concrete sections under bending, reinforcement layout and detailing. Shear behavior of reinforced concrete sections, design for shear reinforcement, analysis and design of reinforced concrete solid slab and ribbed slab, analysis and design of short columns under axial and bending, analyze steel and its structural properties, design of tension members, design of compression members.
Website:	https://www.philadelphia.edu.jo/academics/maldwaik/
Instructor:	**Dr. Mais Aldwaik** **Email**: maldwaik@Philadelphia.edu.jo **Office**: Faculty of Engineering Building, Room 815 **Office hours**: Sat, Sun, Mon, Tues: 11:00-12:30

Course Outline

Week	Topic
1,2	Introduction, Reinforced concrete and building codes
3	Loading, cracked and uncracked behavior, stress block
4,5,6	Flexural analysis and design of reinforced concrete beams, single reinforced, double reinforced, T-beams
7,8	Shear and diagonal tension in beams
9,10	Analysis and design of one-way slabs
11,12,13	Short Columns
14,15	Introduction to steel structures, Design of tension members, Design of Compression members

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, students should:

1.	Recognize design sequence and process for designing of RC structures.	1,2
2.	Learn how to use and apply building codes (ACI and AISC)	7
3.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams and slabs for bending and shear, and short columns for axial and bending loads.	2,7
4.	Analyze and design of compression and tension steel members	1,2,7

Assessment Guidance

Evaluation of the student performance during the semester (total final grade) will be conducted according to the following activities:

Exams: Students will be subjected one midterm exam during the semester.

Quizzes: Two-four quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: One-three homeworks will be assigned during the semester. You are usually given one week to submit each home work. Homework should be solved individually and submitted before or on a set agreed date.

Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.

Projects: One course project will be required by the end of the semester. Microsoft Excel will be used for the project.

Final Exam: Students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy

Midterm Exam	30%
Home works, Quizzes, and Projects	30%
Final Exam	40%
Total:	100%

Attendance Regulation

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.