Philadelphia University

Faculty of Engineering
Department of Civil Engineering
First Semester 2020/2021

Course Information

Title:	**Reinforced Concrete 1 (0670411)** **Sun, Tue, Thu 11:10-12:00**
Prerequisite:	Structures 2 (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
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:	Properties of concrete and reinforcing steel, allowable stress design, cracked and untracked sections, strength design, stress block, singly and doubly reinforced sections, rectangular sections, T-sections and other shapes, design for bending, shear design, bond requirements, development length, one-way and ribbed slabs, approximate methods for two-way slabs, short columns.
Website:	http://www.philadelphia.edu.jo/academics/
Instructor:	**Dr. Mais Aldwaik** **Email**: Aldwaik.1@osu.edu **Office**: Civil engineering building, room 318 **Office hours**: Sun, Tues, Thurs: 12:00-1:00 Mon, Wed: 8:15-9:45, 11:15—12:15

Course Outline

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

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, student should:

1.	Understand design sequence and process for RC structures.	1,2
2.	Learn how to use and apply building codes.	7
3.	Establish a clear understanding of the mechanical behaviors of reinforcing steel, concrete and reinforced concrete members.	2,7
4.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams for bending and shear.	2,7
5.	Analyze slabs dimensions and loading to determine the appropriate design method.	2,7
6.	Differentiate between different loading types for columns, and design them using interaction diagrams.	1,2,7

Assessment Guidance

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

Exams: The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 2-3 weeks.

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

Homework: Tutorials sheets will be handed out to the students and 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.

Collective Participation: Brain storming and collective discussions will be carried out during any lecture. Individual students will be assessed accordingly.

Final Exam: The 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%
Homeworks, Quizzes, and term work	20%
Final Exam	50%
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.