Philadelphia University

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

Course Information

Title:	**Soil Mechanics (0670331)**
Prerequisite:	Engineering Geology (0670231)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Soil Mechanics, SI Version, T.W. Lambe and R.V. Whitman, 2008, John Wiley & Sons, New York
References:	"Craig's Soil Mechanics", 8th ed., J.A. Knappet & R.F. Craig "Engineering Properties of Soils and their Measurements", J.E. Bowles
Course Description:	A study of the formation of soil, grain sizes and types, mineral composition, classification of soils, weight-volume relationships, compaction, permeability and fluid flow through soil, stresses within a soil mass, consolidation and settlement, and shear strength of soils.
Website:	http://www.philadelphia.edu.jo/academics/maldwaik
Instructor:	Dr. Mais Aldwaik **Email**: maldwaik@philadelphia.edu.jo **Office**: Engineering building, room 815, ext.: 2402 **Office hours**: Sat, Sun, Mon, Tues: 11:00-12:30
Technology Requirements	• Personal computer, laptop, or mobile phone. • Internet Connection. • Access to Philadelphia University E-Learning Portal (MS Teams and Moodle)
Learning Style	Online/Blended
Communication	• Announcement: the announcements will be posted in MS Teams or Moodle on a regular basis. • MS Teams or Moodle chats.
Class Recording	• All Synchronous lectures will be recorded and will be available on MS Teams.

Course Objectives:

This course aims to:

- Understand and determine the basic properties of soil.
- Recognize the effect of fluids on soil.
- Identify the stress effects and distribution within soil.
- Develop an understanding of the principal stresses and the shear strength within a soil mass and evaluate the shear strength of a soil.

Course Learning Outcomes (CLO) and Relation to ABET Student Outcomes

[1]	Identify the origin of soil grains, types, sizes and their classification. And understand the basic properties of soil.	1,6
[2]	Recognize and calculate the fluid flow through soil (1-D).	1,2
[3]	Identify the mechanism of stress distribution (geostatic and external) within a soil mass.	1,2,6
[4]	Develop an understanding of the principal stresses and the shear strength within a soil massand evaluate the shear strength of a soil.	1,2,6

Grading Policy and Assessment Instruments

Evaluation of students' performance (final grade) will be based on the following categories

Graded Item	Marks	Topic (s)	Course LO (s)	Learning Portal: MS Teams/ Moodle/ F2F/Others	Week
Quiz 1	5%	Selected subject	1	F2F	3
Quiz 2	5%	Selected subject	1	F2F	10
Report	10%	Extracurricular subject	2	F2F	6
Homework	10%	Selected subject	6	Teams	14
Mid Exam	30%	Weeks 1-8	1	F2F	8
Final Exam	40%	Week 1-15	1	F2F	16
Total marks	100%				

- Two written exams will be given.
- Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero marks for that homework.
- Quizzes: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).
- Homework: Problem sets will be given to students. Homework should be solved individually and submitted before the due date.
- The final exam will cover all the class material.

Course contents: Learning Resources/ References/ Activities/ Assessment Methods

Week	Lecture	Basic Characteristics of	CLO	Learning Resources/ References/ Activities/ Assessment Method	Learning Style	Learning Portal
					F2F/ Synchronous/ Asynchronous	On campus /MS Teams /Moodle /Others
1	1	Basic Characteristics of soil	1	Text book	F2F	PPT in class
	2		1	Text book	F2F	PPT in class
	3		1	Teams + Moodle	**Asynchronous**	Ms Teams
2	4	Mass-volume relationships	1	Text book	F2F	PPT in class
	5		1	Text book	F2F	PPT in class
	6		1	Teams + Moodle	**Asynchronous**	Ms Teams
3	7	Soil structure	1	Text book	F2F	PPT in class
	8		1	Text book	F2F	PPT in class
	9		1	Teams + Moodle	**Asynchronous**	Ms Teams
4	10	Particle size distribution	1	Text book	F2F	PPT in class
	11		1	Text book	F2F	PPT in class
	12		1	Teams + Moodle	**Asynchronous**	Ms Teams
5	13	Unified soil classification system	1	Text book	F2F	PPT in class

	14		1	Text book	F2F	PPT in class
	15		1	Teams + Moodle	**Asynchronous**	Ms Teams
6	**16**	Unified soil classification system	1	Text book	F2F	PPT in class
	17		1	Text book	F2F	PPT in class
	18		1	Teams + Moodle	**Asynchronous**	Ms Teams
7	**19**	Soil compaction	1	Text book	F2F	PPT in class
	20		1	Text book	F2F	PPT in class
	21		1	Teams + Moodle	**Asynchronous**	Ms Teams
8	**22**	Stresses within soil mass	1	Text book	F2F	PPT in class
	23		1	Text book	F2F	PPT in class
	24		1	Teams + Moodle	**Asynchronous**	Ms Teams
9	**25**	Fluid flow in soil	1	Text book	F2F	PPT in class
	26		1	Text book	F2F	PPT in class
	27		1	Teams + Moodle	**Asynchronous**	Ms Teams
10	**28**	Fluid flow in soil	1	Text book	F2F	PPT in class
	29		1	Text book	F2F	PPT in class
	30		1	Teams + Moodle	**Asynchronous**	Ms Teams
11	**31**	Shear strength	2	Text book	F2F	PPT in class

	32		2	Text book	F2F	PPT in class
	33		2	Teams + Moodle	**Asynchronous**	Ms Teams
12	**34**	Shear strength	2	Text book	F2F	PPT in class
	35		2	Text book	F2F	PPT in class
	36		2	Teams + Moodle	**Asynchronous**	Ms Teams
13	**37**	Consolidation	1	Text book	F2F	PPT in class
	38		1	Text book	F2F	PPT in class
	39		1,2	Teams + Moodle	**Asynchronous**	Ms Teams
14	**40**	Consolidation	1,2	Text book	F2F	PPT in class
	41		1,2	Text book	F2F	PPT in class
	42		1,6	Teams + Moodle	**Asynchronous**	Ms Teams
15	**43**	Project/Report presentation	6	Text book	F2F	PPT in class
	44		6	Text book	F2F	PPT in class

Credit hours contact

Credit Hours Distribution Report	
Learning Style	**Credit hours**
F2F	**30**
Synchronous	**---**
Asynchronous	**14**
Total	**44**

Academic Honesty/ student conduct

As a student at Philadelphia University, you are expected to follow the university regulations and guidelines for academic honesty/student conduct found in student handbook.

This means that you should not cheat, plagiarize and let another student use your account in LMS learning portals.

Attendance policy:

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

October 2024