



蘇州大學
Soochow University

CEN 310 Soil Mechanics

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

This course explores vital soil mechanics principles, covering characteristics, stress-strain dynamics, and permeability. The curriculum integrates theory with practical applications, preparing students for real-world geotechnical challenges in civil engineering. Engage in this focused study to cultivate essential skills for impactful contributions to the field.

Upon Completion of this Course, students will be able to:

1. Master essential soil behaviors and principles shaping its response to external forces.
2. Gain practical skills in conducting crucial soil tests for comprehensive geotechnical insights.
3. Evaluate and decide on soil stability with a nuanced understanding of influencing factors.
4. Effectively address a variety of geotechnical challenges using systematic problem-solving approaches.
5. Acquire skills for a successful start in geotechnical engineering, blending theory with practical application.

PREREQUISITES

ENR 121 Mechanics of Materials, CEN 211 Geotechnical Materials and Processes, CEN 215 Introduction to Fluid Mechanics

GRADING



Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
Quizzes	15 Points
Assignments	20 Points
Midterm	25 Points
Project	10 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Arnold Verruijt, *An Introduction to Soil Mechanics*, Springer Cham, 2018.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	Topics: Topic 1: Particles, Water, Air. Topic 2: Stresses in Soils. Topic 3: Stresses in a Layer. Topic 4: Darcy's Law. Assessments: Quiz#1 Assignment#1



Module 2	Topics: Topic 5: Permeability. Topic 6: Groundwater Flow. Topic 7: Flow Towards Wells. Topic 8: Stress Strain Relations. Assessments: Quiz#2 Assignment#2
Module 3	Topics: Topic 9: One-Dimensional Compression. Topic 10: Consolidation. Topic 11: Analytical Solution. Topic 12: Numerical Solution. Assessments: Midterm#1 Project
Module 4	Topics: Topic 13: Consolidation Coefficient. Topic 14: Shear Strength. Topic 15: Triaxial and Shear Test. Topic 16: Pore Pressures. Assessments: Quiz#3 Project due
Module 5	Topics: Topic 17: Stress Paths. Topic 18: Elastic Stresses and Deformations. Topic 19: Lateral Stresses. Topic 20: Tables for Lateral Earth Pressure. Assessments: Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning



and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



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DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.