



Course Code & Name	CE 341 SOIL MECHANICS
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Course Schedule	Lectures: Mondays 13-14; Fridays 09-11, Lab: Mondays 14-16
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Link of the lectures	All lectures will be conducted in classroom (B443) and labs will be in Soil Mechanics Laboratory (A108)
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Instructor's Name	Professor M. Murat Monkul
Phone	0216 5780000/3069
E-mail	murat.monkul@yeditepe.edu.tr
Office Hours	Mondays 16:00-17:00 (make appointment with an e-mail)

Assistant's Name	Yunus Emre Tütüncü
Phone	0216-5780000 Ext:3061
E-mail	emre.tutuncu@yeditepe.edu.tr

Midterm Dates	To be announced
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Additional Information	<table border="1"> <tr> <td>Grading</td> <td>Homeworks and Lab reports</td> <td>30%</td> </tr> <tr> <td></td> <td>Midterm Exam</td> <td>30%</td> </tr> <tr> <td></td> <td>Final Exam</td> <td>40%</td> </tr> <tr> <td></td> <td>Total</td> <td>100%</td> </tr> </table>	Grading	Homeworks and Lab reports	30%		Midterm Exam	30%		Final Exam	40%		Total	100%
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COURSE INFORMATION				
Course Code	341	Course Title	SOIL MECHANICS	
<i>Semester</i>	<i>Credits</i>	<i>ECTS</i>	<i>C + P + L Hour</i>	<i>Prerequisites</i>
6	4	6	3+0+2	CE 236: Mechanics of Materials

Language of Instruction	Course Level	Course Type
English	Bachelor's Degree (First Cycle Programmes)	Core
Course Coordinator	Prof. M. Murat Monkul	
Instructors	Prof. M. Murat Monkul	
Assistants	Graduate Assistant Yunus Emre Tütüncü	
Goals	The goal of this course is to provide students the necessary background information for soils and their engineering properties, as well as teaching them the engineering behavior of soils for various civil engineering projects.	
Content	Formation of soils, their physical properties and weight-volume relationships, Atterberg limits and soil classification, Compaction of soils, Hydraulic conductivity and flow through soils, Stresses in soils, Compressibility and consolidation of soils, Shear strength of soils, Stability of earth slopes. Basic soil mechanics experiments.	
Contribution of the Course to the Professional Education	All civil engineering structures rest on the ground and interact with the underlying soil layers. Therefore, understanding the engineering properties and mechanics of the soils is essential in order to conduct various civil engineering projects properly. This course adds a significant contribution to the Professional education by teaching the students properties and mechanics of soils.	

Course Learning Outcomes	Detailed Program Outcomes	Teaching Methods	Assessment Methods
1) Ability to define formation of soils and their physical properties.	1a	1,3,5	A,E
2) Ability to classify soils for engineering projects by using relevant standards.	1a, 9b	1,3,5	A,E
3) Ability to calculate seepage quantity at engineering projects by considering hydraulic conductivity of soils.	2a, 2b	1,3,5	A,E



4) Ability to calculate the amount and timing of the one dimensional settlement in various soil conditions by using consolidation theory.	1b, 2a	1,3,5	A,E
5) Ability to express the stress strain behavior of soils and finding their strength.	1a, 1b	1,3,5	A,E
6) Ability to conduct fundamental soil mechanics laboratory experiments according to relevant standards and reporting of the results.	5a, 5b, 6a, 7c, 9b	1,7	D

Teaching Methods:	1: Lecture by instructor, 2: Lecture by instructor with class discussion, 3: Problem solving by instructor, 4: Use of simulations, 5: Problem solving assignment, 6: Reading assignment, 7: Laboratory work, 8: Term research paper, 9: Presentation by guest speaker, 10: Sample Project Review, 11: Interdisciplinary group working, 12: ...
Assessment Methods:	A: Written exam, B: Multiple-choice exam C: Take-home quiz, D: Experiment report, E: Homework, F: Project, G: Presentation by student, H: ...

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction to Geotechnical Engineering	Lecture Notes and Textbook
2	Formation of soils, their physical properties and weight-volume relationships	Lecture Notes and Textbook
3	Atterberg limits and soil classification	Lecture Notes and Textbook
4	Compaction of soils	Lecture Notes and Textbook
5	Hydraulic conductivity and flow through soils -1	Lecture Notes and Textbook
6	Hydraulic conductivity and flow through soils -2	Lecture Notes and Textbook
7	Stresses in soils	Lecture Notes and Textbook
8	Midterm Exam	Lecture Notes and Textbook
9	Compressibility and consolidation of soils -1	Lecture Notes and Textbook
10	Compressibility and consolidation of soils -2	Lecture Notes and Textbook
11	Shear strength of soils -1	Lecture Notes and Textbook



12	Shear strength of soils -2	Lecture Notes and Textbook
13	Shear strength of soils -3	Lecture Notes and Textbook
14	Stability of earth slopes -1	Lecture Notes and Textbook
15	Stability of earth slopes -2	Lecture Notes and Textbook

RECOMMENDED SOURCES

Textbook	<u>Geotechnical Engineering: Principles & Practices (2nd Edition)</u> Authors: Coduto, Yeung and Kitch, international edition, ISBN-10: 0-13-135425-6
Additional Resources	Lecture notes.

MATERIAL SHARING

Documents	Slides that are uploaded to YULearn system
Exams	Exams would be in class (their dates will be announced).

ASSESSMENT

IN-TERM STUDIES	NUMBER	PERCENTAGE
Midterm Exam	1	50
Homeworks	7	50 (together with lab. experiments)
Laboratory Experiments	6	
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		40
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		60
Total		100

COURSE CATEGORY

Field Course



COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES		
No	Program Learning Outcomes	check √
1a	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline,	√
1b	Ability to use theoretical and applied knowledge in these areas in complex engineering problems.	√
2a	Ability to identify, formulate, and solve complex engineering problems,	√
2b	Ability to select and apply proper analysis and modeling methods for this purpose.	√
3a	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result,	
3b	Ability to apply modern design methods for this purpose.	
4a	Ability to select and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice.	
4b	Ability to employ information technologies effectively.	
5a	Ability to design experiments for investigating complex engineering problems or discipline specific research questions,	√
5b	Ability to conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.	√
6a	Ability to work efficiently in intra-disciplinary teams,	√
6b	Ability to work efficiently in multi-disciplinary teams,	
6c	Ability to work individually.	
7a	Ability to communicate effectively in Turkish, both orally and in writing,	
7b	Knowledge of a minimum of one foreign language,	
7c	Ability to write effective reports and comprehend written reports, prepare design and production reports,	√
7d	Ability to make effective presentations,	
7e	Ability to give and receive clear and intelligible instructions.	
8a	Recognition of the need for lifelong learning, ability to access information, ability to follow developments in science and technology,	
8b	Ability to continue to educate him/herself.	
9a	Consciousness to behave according to ethical principles and professional and ethical responsibility.	



9b	Knowledge on standards used in engineering practice.	√
10a	Knowledge about business life practices such as project management, risk management, change management.	
10b	Awareness in entrepreneurship and innovation.	
10c	Knowledge about sustainable development.	
11a	Knowledge about the global and social effects of engineering practices on health, environment, and safety,	
11b	Knowledge about contemporary issues of the century reflected into the field of engineering.	
11c	Awareness of the legal consequences of engineering solutions.	
12	Knowledge about project award mechanisms and tendering procedures.	
13	Knowledge about the interaction of designers and constructors.	

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration	13	5	65
Hours for off-the-classroom study (Pre-study, practice)	12	3	36
Midterm Examination	1	2	2
Homeworks	7	5	35
Final Examination	1	2	2
Total Work Load			140
Total Work Load / 25 (h)			5.6
ECTS Credit of the Course			6

Prepared by: Prof. M. Murat Monkul

Preparation date:
01/10/2023