



COURSE INFORMATION FORM

Course Name	Course Code
SOIL MECHANICS I	151415363

Semester	Number of Course Hours per Week		ECTS
	Theory	Practice	
5	4	0	5

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
	3	2		

Course Language	Course Level	Course Type
Turkish	Undergraduate	Compulsory

Prerequisite(s) if any	None
Objectives of the Course	This course aims to give information on soil mechanics and fill material and to introduce the main principle of soil mechanics.
Short Course Content	The content of the course is as follows: Soil description; origins and formation of soils, and physical characteristics. Classification of soils; grain size distribution, index tests, and properties. Soil compaction characteristics, compaction theory, standard and modified compaction test, field compaction. Water flow through soil and groundwater seepage theory; capillarity water, groundwater, Darcy's law, permeability measurement. Flow nets. Stresses within in soil mass; the effective stress concept, critical gradient. Soil compressibility and consolidation; consolidation theory, settlement analysis.

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 To be able to know the basic principles and concepts of Soil Mechanics in terms of Civil Engineering.	1, 2	1, 2	A, D
2 Ability to understand and find solutions to soil-related problems encountered in civil engineering applications.	1, 2, 5	1, 2	A, D
3 Ability to analyze laboratory test data to determine the identification and consolidation properties of soils.	1, 2, 5	1, 2, 3	A, D
4 -			
5 -			
6 -			
7 -			
8 -			

***Teaching Methods** 1:Expression, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Trouble/Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

****Measuring Methods** A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	In general, books on soil mechanics are within the scope of this course.
Supporting References	<ol style="list-style-type: none"> 1. Kumbasar V., Kip F., (1985), Zemin Mekaniği Problemleri, Çağlayan Yayınevi: İSTANBUL 2. Özaydın K., Zemin Mekaniği, Birsen Yayınevi,: İSTANBUL 3. Uzuner B.Ali., Temel Zemin Mekaniği, Birsen Yayınevi:İSTANBUL 4. Craig, R.F., (1989), Soil Mechanics, Van Nostrand, Reinhold, 410p. 5. Berry, L and Reid, D., 1987, An Introduction to Soil Mechanics, McGraw-Hill, 317p. 6. Kovacs, W.D., 1981 An Introduction to Geotechnical Engineering, Prentice-hall, 733
Necessary Course Material	Data show machine

Course Schedule	
1	Soil composition and structures
2	Physical properties of soils
3	Soil classification, classification methods
4	Soil compaction characteristics and theories
5	Water flow through soil and groundwater seepage theory and Darcy's law
6	Seepage problems and flow nets
7	Flow nets
8	Mid-Term Exam
9	Stresses within a soil mass
10	Stresses within a soil mass
11	The concept of effective stress and the critical hydraulic gradient
12	The stresses due to surface loading
13	Consolidation theory and Consolidation behavior of natural soils
14	Consolidation theory and Consolidation behavior of natural soils
15	Settlement calculation
16,17	Final Exam

Calculation of Course Workload			
Activities	Number	Time (Hour)	Total Workload (Hour)
Course Time (number of course hours per week)	14	4	56
Classroom Studying Time (review, reinforcing, prestudy,...)	14	2	28
Homework	6	4	24
Quiz Exam	-	-	-
Studying for Quiz Exam	-	-	-
Oral exam	-	-	-
Studying for Oral Exam	-	-	-
Report (Preparation and presentation time included)	-	-	-
Project (Preparation and presentation time included)	-	-	-
Presentation (Preparation time included)	-	-	-
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	15	15
Final Exam	1	2	2
Studying for Final Exam	1	15	15
Total workload			142
Total workload / 30			4.73
Course ECTS Credit			5

Evaluation	
Activity Type	%
Mid-term	40
Homework	10
Final Exam	50
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	PROGRAM OUTCOME	Contribution
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	5
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	4
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	1
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	2
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	5
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	3
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	2
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	3
9	Understanding of professional and ethical issues and taking responsibility	3
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	1
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	1

LECTUTER(S)				
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Signature(s)				

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