



COURSE INFORMATION FORM

Course Name	Course Code
ENGINEERING ASPECTS OF SOIL IMPROVEMENT	151418716

Semester	Number of Course Hours per Week		ECTS
	Theory	Practice	
8	3	0	6

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

Course Language	Course Level	Course Type
Turkish	Undergraduate	Elective

Prerequisite(s) if any	
Objectives of the Course	This course aims to provide necessary information for the application and design on the use of problematic foundation soil in civil engineering.
Short Course Content	This course covers ground improvement methods such as mechanical, hydraulics and chemical methods, design details and construction procedures of reinforced soils. Ground improvement methods including pre-loading, vertical drains, deep compaction, grouting, soil stabilization, geosynthetics, reinforced soils are described.

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 Knows the basic principles of soil improvement.	1, 2, 3	1, 2, 5, 10, 14	J
2 Knows the soil improvement analysis methods.	1, 2, 3	1, 2, 5, 10, 14	J
3 Knows the mechanical, hydraulic, physical and chemical improvement of the soil.	1, 2, 3	1, 2, 5, 10, 14	J
4 Determines the soil properties and determines the appropriate improvement technique.	3	1, 2, 5, 10, 14	J
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	Lecture Note
Supporting References	<p>Hausman, M. R., 1990, Engineering principles of ground modification: McGraw-Hill Publishing</p> <p>Impe, W.E., 1989, Soil Improvement techniques and their evolution: Balkema, Rotterdam, 125 p.</p> <p>Bowles, J.E., 1986, Engineering properties of soils and their measurement: McGraw-Hill Publishing company, 218</p>
Necessary Course Material	

Course Schedule	
1	Soil stabilization methods
2	Pre-loading
3	Vertical drains
4	Deep compaction
5	Grouting
6	Soil improvement
7	Other methods
8	Mid-Term Exam
9	Geosynthetics
10	Reinforced soils (MSW)
11	Design of MSW-project
12	Design of MSW-project
13	Design of MSW-project
14	Design of MSW-project
15	Project presentations
16,17	Final Exam

Calculation of Course Workload			
Activities	Number	Time (Hour)	Total Workload (Hour)
Course Time (number of course hours per week)	14	3	42
Classroom Studying Time (review, reinforcing, prestudy,...)	14	5	70
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)	1	70	70
Presentation (Preparation time included)			
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam			
Studying for Final Exam			
Total workload			182
Total workload / 30			6,07
Course ECTS Credit			6

Evaluation	
Activity Type	%
Mid-term	
Quiz	
Project Observation	100
Bir öge seçin.	
Bir öge seçin.	
Final Exam	
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	3
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.	5
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	5
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	3
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	2
9	Understanding of professional and ethical issues and taking responsibility	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	
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.	

LECTUTER(S)				
Prepared by	Doç. Dr. Hasan SAVAŞ			
Signature(s)				

Date:06.06.2024