

COURSE DESCRIPTION FORM			
Course Code and Title	CE431 SPECIAL TOPICS (GEOTECHNICS)		
Semester	7		
Catalog description	Compaction, Dynamic Compaction, Vibro Compaction, Stone Columns, Preloading, Vertical Drains, Injection Methods, Injection Methods, Jet Injection, Blasting, Deep Blending, Grounding		
Required reading	Soft Ground Improvement, Bergado et al., ASCE Press, 1996		
Recommended reading	-		
ECTS	4		
Prerequisites and co-requisites	No prerequisite. Required attendance to lectures is at least 70% of total term hours.		
Compulsory/Elective	Technical elective course		
Language of instruction	English		
Aim of course	The aim of this course is to introduce the students how to determine suitable ground improvement method for different site conditions.		
Learning outcomes of the course unit	<p>Selection of suitable soil improvement method for various soil types</p> <ul style="list-style-type: none"> • Pre-loading and vertical drain, dynamic composite, stone column designs • Getting basic information about injection types and applications • Getting basic information about grounding systems 		
Mode of delivery	The mode of delivery of this course is face to face.		
Course content	<ol style="list-style-type: none"> 1) Introduction, soil mechanics 2) Compaction 3) Dynamic Composition 4) Vibro Compaction 5) Stone Columns 6) I. Midterm Exam 7) Preloading 8) Vertical Drains 9) Injection Methods 10) Injection Methods 11) Jet Injection 12) Blasting 13) II. Midterm, Deep Mixing 14) Deep Mixing 15) Reinforced earth 		
Planned learning activities and teaching methods	<p>3 lecture hours per week (3+0)</p> <p>Reading</p> <p>Homework</p> <p>Midterm exam and required works</p> <p>Final exam and required works</p>		
Assessment methods and criteria		Quantity	Percentage (%)
	Mid-terms	2	60
	Assignment	-	-
	Exercises	-	-
	Projects	-	-
	Practice	-	-
	Quiz	-	-

	Contribution of In-term Studies to Overall Grade %		60						
	Contribution of Final Examination to Overall Grade (%)		40						
	Attendance								
Workload	Work activity	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester					
	Theoretical Study Hours of Course Per Week	14	3	42					
	Practicing Hours of Course Per Week	14	0	0					
	Reading	14	2	28					
	Searching in Internet and Library	14	1	14					
	Designing and Applying Materials	14	0	0					
	Preparing Reports	14	0	0					
	Preparing Presentation	14	0	0					
	Presentation	14	0	0					
	Mid-Term and Studying for Mid-Term	2	5	10					
	Final and Studying for Final	1	12	12					
	Other	0	0	0					
	Total Workload:			106					
	Total Workload / 25:			4.24					
ECTS:			4						
Course's contribution to program	No	Program Learning Outcomes			1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.							X
	2	Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.							X
	3	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; ability to apply modern design methods for this purpose.					X		
	4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively.				X			
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions.					X		
	6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams.				X			
	7	Ability to work individually.						X	
	8	Ability to communicate effectively in Turkish, both orally and in writing;				X			

		ability to write effective reports and comprehend written reports.						
9		Knowledge of English of B1 level according to <u>Common European Framework of Reference</u> .	X					
10		Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.	X					
11		Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.			X			
12		Consciousness to behave according to ethical principles and professional and ethical responsibility.		X				
13		Knowledge on standards used in civil engineering practice.					X	
14		Knowledge about business life practices such as project management, risk management, and change management.	X					
15		Awareness in entrepreneurship, innovation; knowledge about sustainable development.	X					
16		Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering.		X				
17		Awareness of the legal consequences of engineering solutions.		X				
Name of lecturer(s) and contact information		Prof. Dr. Yüksel YILMAZ yyuksel@gazi.edu.tr Prof. Dr. S. Oğuzhan AKBAŞ soakbas@gazi.edu.tr Doç. Dr. Ayhan GÜRBÜZ agurbuz@gazi.edu.tr						