

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 589 Special Topics in Geotechnical Engineering

Credit and Contact hours	3/ 3 (Lectures), 0 (Tutorials), 0 (Laboratory)	
Required, or Elective	Elective for a MSCE degree	
Course Description	This course deals with special topics in geotechnical engineering which are of current interest.	
Prerequisites or Co-requisites	None	
Course Learning Outcomes	Students completing this course successfully will be able to	
	Course Learning Outcomes	Related Program Outcomes
	CLO1: Recognize the special topics of interest in Geotechnical engineering.	K1
	CLO2: Apply the related state-of-the-art analysis and design in advanced applications through a group-project	S1
	CLO3: Evaluate the current state-of-the-art methods of Geotechnical analysis and design for advanced applications	C1
Student Outcomes related to this Course	K1. Recognize advanced engineering knowledge, concepts and techniques to identify, interpret and analyze complex and real-life engineering problems. S1. Provide solution for complex and real-life engineering problems through critical thinking and using modern engineering tools and identify its impact on social and ethical issues. C1. Criticize and discuss scientific research reports /papers related to Civil Engineering issues with high level of ethics and proficiency, independently, or as a team work.	

Topics Covered	List of Topics		Related CLOs
	1. Topics may be selected (6 to 7) for the following but not limited to these topics:		CLO1
	2. Topic #1: Bio geotechnical techniques to improve the mechanical properties of the soil		CLO2
	3. Topic #2: Behavior of Pile Walls in Liquefying Soil Layers		CLO3
	4. Topic #3: Design of a foundation against earthquake		CLO2
	5. Topic #4: Utilization of waste materials in the landfill		CLO2
	6. Topic #5: Liquefaction Modeling Using Computer Techniques.		CLO1
	7. Topic #6: Strengthening of Weak Soil Against Liquefaction		CLO1
	8. Topic #7: Improvement of Expansive Soil by Deep Insitu Technique		CLO2
	9. Topic #8: Studies on Construction of Embankments on Soft Clay Soil Using Geocell layers and Stone Columns		CLO2
	10. Topic #9: Tunneling Engineering.		CLO2
11. Topic #10: Numerical Simulation of Geotechnical Problems.		CLO3	
Textbook(s) and Other Required Material	<ul style="list-style-type: none"> • None 		
Grading System	Assignments and Home-works	20%	
	Presentation - 1	10%	
	Presentation - 2	10%	
	Mini Project	20%	
	Final Exam	40%	
Instructors	Dr. Abdullah Abdulrahman A Almajid (2A101), e-mail: alabdullah@ksu.edu.sa		
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