

Akashi College		Year	2022		Course Title	Geotechnical Engineering II
Course Information						
Course Code	4319		Course Category	Specialized / Compulsory		
Class Format	Lecture		Credits	School Credit: 1		
Department	Civil Engineering		Student Grade	3rd		
Term	Second Semester		Classes per Week	2		
Textbook and/or Teaching Materials						
Instructor	NABESHIMA Yasuyuki					
Course Objectives						
(1) Understand and can explain the basic properties of soil compression and consolidation phenomenon.						
(2) Understand and can explain the basic properties of shear properties of soil.						
Rubric						
	Ideal Level		Standard Level		Unacceptable Level	
Achievement 1	Can explain in detail the basic properties of soil compression and consolidation.		Can explain the basic properties of soil compression and consolidation.		Cannot explain the basic properties of soil compression and consolidation.	
Achievement 2	Can explain in detail the basic properties of shear properties of soil.		Can explain the basic properties of shear properties of soil.		Cannot explain the basic properties of shear properties of soil.	
Assigned Department Objectives						
Teaching Method						
Outline	To build structures safely, it is essential to understand about the ground, and know the properties and behaviors of soil which makes up the ground. In this course, students will learn about soil compression and consolidation and about shear, which are the basic knowledge related to the ground.					
Style	Classes are mainly held in a lecture style. Students will perform calculations for specific assignments using exercise questions related to the contents of the lecture.					
Notice	Students should have a good understanding of the basic knowledge of physics (dynamics) and chemistry. It is important that students review what they have learned after the lectures. Students who miss 1/3 or more of classes will not be eligible for a passing grade.					
Characteristics of Class / Division in Learning						
☐ Active Learning		☐ Aided by ICT		☒ Applicable to Remote Class		☐ Instructor Professionally Experienced
Course Plan						
2nd Semester r	3rd Quarter		Theme	Goals		
		1st	Soil consolidation (1) Effective stress and soil compressibility: Learn the principle of effective stress, and the difference between soil compression and consolidation.	Can explain the principle of effective stress, and the difference between soil compression and consolidation.		
		2nd	Soil consolidation (2) Normal consolidation and overconsolidation; Learn about normal consolidation and overconsolidation of clay soils.	Can explain about normal consolidation and overconsolidation of clay soils.		
		3rd	Soil consolidation (3) Consolidation model and the basic equation; Learn about Terzaghi's consolidation equations.	Consolidation model and the basic equation; Can explain about Terzaghi's consolidation equations.		
		4th	Soil consolidation (4) Degree of consolidation; Learn about the concept of soil consolidation.	Can explain about the concept of soil consolidation.		
		5th	Soil consolidation (5) Consolidation time and settlement: Learn about consolidation settlement and how to calculate the time required for consolidation.	Can explain about consolidation settlement and how to calculate the time required for consolidation.		
		6th	Soil consolidation (6) Accelerated consolidation method: Learn about accelerated consolidation method, which is a type of soil improvement method.	Can explain about accelerated consolidation method, which is a type of soil improvement method.		
		7th	Explain exercise problems from weeks 1 to 6.	Can calculate exercise problems about consolidation.		
	8th	Midterm exam	Can explain problems about consolidation phenomenon.			
	4th Quarter	9th	Shear of soil (1) Destruction of soil; Learn about the phenomenon of destruction of ground, the destruction of soil, and the shear strength of soil.	Can explain about the phenomenon of destruction of ground, the destruction of soil, and the shear strength of soil.		
		10th	Shear of soil (2) Stress in the ground; Learn about the stress conditions in the ground, and how to represent them.	Can explain about the stress conditions in the ground, and how to display them.		
11th		Shear of soil (3) Mohr's stress circle; Learn about the concept of Mohr's stress circle and the pole method.	Can explain about the concept of Mohr's stress circle and the pole method.			

		12th	Shear of soil (4) Soil yield criterion: Learn about Mohr-Coulomb yield criterion	Can explain about Mohr-Coulomb yield criterion
		13th	Shear of soil (5) Shear properties of sandy soil; Learn about shear properties and liquefaction mechanisms of sandy soil.	Can explain about shear properties and liquefaction mechanisms of sandy soil.
		14th	Shear of soil (6) Shear properties of viscous soil; Learn about shear properties and pore water pressure of viscous soil.	Can explain about shear properties and pore water pressure of viscous soil.
		15th	Explain exercise problems from weeks 9 to 14.	Can calculate exercise problems on shear properties.
		16th	Final exam	Can explain problems about shear properties.

Evaluation Method and Weight (%)

	Exams	Exercise	Attitude in Class	Total
Subtotal	70	20	10	100
Basic Proficiency	0	0	0	0
Specialized Proficiency	70	20	10	100
Cross-Disciplinary Proficiency	0	0	0	0