

Course Name	Geotechnical Foundation Engineering		
Semester, Year	Second Semester, 2018 (Fall Term)	Number of Credits	2 credits
Course level	3000	Course Number	27096
Instructor(s) (Institution)	Satoshi NISHIMURA (大学院工学研究院) Koichi ISOBE (大学院工学研究院)		
Course Objectives	<ul style="list-style-type: none"> - Learning how to apply the basic knowledge of soil mechanics acquired through lectures "Soil Mechanics I" and "Soil Mechanics II" to geotechnical problems. - Understanding the fundamental mechanics, investigation / design methods and countermeasures in 		
Course Goals	<ul style="list-style-type: none"> - To interpret ground investigation results and to apply them appropriately to stability analysis of a variety of geotechnical stability problems. - To assess the safety against liquefaction by understanding the physical mechanisms properly. - To design 		
Course Schedule	<p>1. Ground investigation Field and laboratory techniques of ground investigation to obtain geotechnical design parameters are discussed. Their significance is discussed in relation to ground and foundation stability analysis.</p> <p>2. Unsaturated soils and seepage problems Mechanics of unsaturated soils is introduced, and fundamentals of seepage phenomenon into unsaturated/saturated ground is discussed. Engineering problems directly related to seepage, such as rainfall-induced slope instability and dyke instability are introduced.</p> <p>3. Ground stability analysis and strength parameters Ground stability analysis methods based on limit equilibrium method are introduced, with particular reference to slope stability problems. The circular slip methods with slices and choice of appropriate soil strength parameters for them are discussed.</p> <p>4. Soil dynamics The soil behaviour under dynamic conditions, as under seismic motions, is discussed. The effects of cyclic loading on soils and liquefaction problems are introduced, leading to discussions on possible countermeasures and their principles.</p> <p>5. Underground structures Basic knowledge of underground structures such as tunnels and piles, and of their interactions with ground is introduced.</p> <p>6. Ground improvement Ground improvement techniques and their principles are introduced, with a variety of case histories and recent updates.</p> <p>7. Summary An over-arching discussion is given on how the above pieces of knowledge are relevant to particular geotechnical projects.</p>		
Homework	The students are encouraged to read the handouts given by the lecturers in advance to assist their learning. They are also strongly advised to review the contents well after each class so as not to leave any unclear point.		
Grading System	Grades of the students are evaluated based on (i) discussion participation (10%) (ii) 2-3 assignments (30%) and (iii) a final examination (60%). Those whose attendance does not reach 2/3 of the total weeks are not entitled to sit for the final examination.		
Textbooks / Reading List	Handouts will be provided during lectures. Handouts will be provided during lectures.		
Websites			
Website of Laboratory			
Additional Information	The students are required to have studied basic soil mechanics through introductory lectures (such as Soil Mechanics I and II).		