

1. GENERAL INFORMATION					
Study programme title	Graduate study of Geological Engineering – Hydrogeology and Engineering Geology				
Course title	Soil Mechanics		Semester	I.	
Teacher	Prof. Biljana Kovačević Zelić, PhD		Course code		
Course type	<input checked="" type="checkbox"/> obligatory <input type="checkbox"/> election		ECTS	5	
Location	Faculty of Mining, Geology and Petroleum Engineering, Pierottijeva 6, Zagreb				
Language			<input type="checkbox"/> Croatian <input checked="" type="checkbox"/> English		
Class type	Weekly hours	Teaching staff	Office hours	Room	E-mail
Class	2	Prof. Biljana Kovačević Zelić, PhD	Thursday 12-14	P6 224	biljana.kovacevic-zelic@rgn.hr
Practice	2	Helena Vučenović, PhD; Karolina Gradiški, PhD	Thursday 12-14	P6 503	helena.vucenovic@rgn.hr ; karolina.gradiski@rgn.hr
Field lecture					
E-learning level	1		Percentage of on-line class (max. 20%)		10%
2. COURSE DESCRIPTION					
Course aims	Fundamental understanding of engineering properties and mechanical behavior of soils; application of soil mechanics principles in geotechnical engineering.				
Requirements for applicants	Basic knowledge of technical mechanics				
Programme level learning outcomes with course contribution					
Expected course level learning outcomes (4-10 outcomes)	Students will be able to: <ul style="list-style-type: none"> - explain the origin of soil materials, - perform simple laboratory testings for the determination of physical and index properties of soils, 				

	<ul style="list-style-type: none"> - perform identification and classification of soils, - determine hydraulic and mechanical properties of soils, - describe subsurface exploration methods, - create graphical representation of field works (boring logs and profiles) and interpret the field work test results, - perform simple calculations of the settlement and consolidation, seepage, lateral earth pressure, bearing capacity and stability of slopes.
Course contents by individual lessons	
Class	Practice
P1 – Introduction. The origin and basic characteristics of soils. Phase relationships.	V1 – Phase relationships.
P2 – Particle size analyses. Plasticity of fine-grained soils. Relative density of coarse-grained soils.	V2 – Particle size analyses.
P3 – Identification and classification of soils.	V3 – Index properties.
P4 – Subsurface exploration.	V4 – Identification and classification of soils.
P5 – Proctor compaction test. Field compaction.	V5 – Laboratory testings.
P6 – Permeability of soils. Seepage theory.	V6 – Laboratory testings.
P7 – Stresses and displacement of soils.	V7 – Permeability and flow-nets.
P8 – Compressibility and settlement of soils.	V8 – Effective stress principle. In-situ soil stress.
P9 – One-dimensional consolidation theory.	V9 – Stresses due to surface loads.
P10 – Shear strength of soils.	V10 – Soil settlement and consolidation.
P11 – Stability of soils.	V11 – Shear strength testings.
P12 – Lateral earth pressure.	V12 – Laboratory testings.
P13 – Bearing capacity and shallow foundations.	V13 – Slope stability calculations.
P14 – Earth-retaining structures.	V14 – Active and passive earth pressure.



P15 – Repetition.		V15 – Bearing capacity.		
Students' obligations	Obligations			
	Regular presence at class (maximum absence 3), laboratory reports, 2 partial exams (written) or 1 final exam (oral)			
Students' work track <i>(indicate share in ECTS points for each activity so that overall ECTS number corresponds to class credits score):</i>	Class attendance	1	Research	
	Project		Report	
	Colloquium	1,5	Seminar paper	
	Practical work	1	Oral exam	1,5
	Written exam		(Extra)	
Type of exam, grades and evaluation of students work during class and on final exam	Classes and examination			
	Prerequisite: Regular presence at classes and practical work reports (15%). Additional activities and assignments during semester (5%) 2 partial written exams (2 x 20%)+ final oral exam (40%)			
Mandatory literature (available in the Library and via other media)	R.F. Craig: Soil mechanics - 5th edition (1995), Chapman & Hall, London. John. F. Cernica (1995): Geotechnical Engineering: Soil mechanics, John Wiley & Sons, New York.			
Additional literature (at the moment of study program proposition application)	Muni Budhu: Soil mechanics and foundations, John Wiley & Sons, Inc., New York, 2000. Mitchel, J.K.: Fundamentals of soil behavior, Second edition, John Wiley & Sons, Inc., New York, 1993.			
Examination terms				
Other				