

Faculty of Civil and Environmental Engineering						
Study programme:	<b>Civil Engineering</b>		Degree level: <b>Bachelor's degree</b> full-time programme:			
Specialization			Diploma path:			
Module name:	<b>Soil Mechanics</b>					
Module type:	<b>obligatory</b>	Semester:	<b>5</b>	ECTS	<b>4</b>	Module ID: <b>ENB05443</b>
No. of hrs in semester:	L - 30	C - 0	LC- 30	P- 0	SW- 0	S- 0
Prerequisites:	<i>Complete with prerequisites or "-"</i>		Mathematics, Engineering geology and petrography, Strength of materials			
Aims and objectives:	<i>Description of the assumed knowledge, skills and social competence the student should have acquired after the completion of the module:</i>		Acquiring the ability to identify the subsoil and to evaluate it from the point of view of the building foundation, setting the physical and mechanical parameters of the soil, the calculation of construction settlement and stability of slopes.			
Forms of teaching activities:	<i>lecture and laboratory classes</i>		Assessment:	<i>Evaluation must be relevant to the intended learning outcomes</i>		
			lecture – written exam, laboratory classes – execution of lab tests, evaluation reports, evaluation of homework, two written tests.			
Module content:	Soil science elements. Soil properties. The study of physical and mechanical characteristics of soil. In situ tests. The mechanisms of soil failure. Hypotheses of strength. The flow of water in the soil. Filtration. Consolidation. Freeze elevation and breakthroughs. Slope Stability. Soil compaction. The stresses in the subsoil and the settlement of the building. Soil pressure and passive pressure.					
Teaching methods:	<i>lecture</i>		<i>laboratory tests, team-work</i>			
Learning outcome	<i>Specify min. 4, max. 8 learning outcomes in the following order: knowledge – skills – competence. Each learning outcome must be verifiable</i>					<i>Reference to the programme learning outcomes</i>
LO1	Student identifies physical and mechanical parameters of soil.					K_B1_W04, K_B1_U06
LO2	Student describes water flow in soil and phenomena connected with it.					K_B1_W04, K_B1_U06, K_B1_W17
LO3	Student estimates settlement of the building, stability of slopes and embankments.					K_B1_W11, K_B1_W06
LO4	Students examines certain physical and mechanical parameters of soil.					K_B1_W07, K_B1_U06, K_B1_U08, K_B1_K03
LO5	Student defines usability of soil as building material for embankments.					K_B1_W07, K_B1_U08
LO6	Student uses Internet and other databases					K_B1_U23, K_B1_K01
LO7	Student is able to work in a team.					K_B1_K03
LO8						

No. of learning outcome	Methods of assessing the learning outcome	Type of teaching activities (if more than one) during which the outcome is assessed	
		L	LC
LO1	Written exam, preparation for the lab classes	L	LC
LO2	Written exam	L	
LO3	Written exam	L	
LO4	Execution of theoretical preparation for implementing exercises (first theoretical part of report) and writing research reports (second conclusive part of the report)		LC
LO5	Correction and defence of the results of laboratory tests.		LC
LO6	Written exam, assessment of the reports, two written tests.	L	LC
LO7	Assessment of the in-class team work		LC
LO8			
Student workload (in hours)	lecture attendance	15x2h	30
	participation in classes, laboratory classes, etc.	15x2h	30
	preparation for classes, laboratory classes, projects, seminars, etc.	10x2h+5h	25
	working on projects, reports, etc.	15x1h	15
	participation in student-teacher sessions related to the classes/seminar/project	5x1h	5
	implementation of project tasks	-	-
	preparation for and participation in exams/tests		15
		TOTAL:	120
Quantitative indicators	Student workload – activities that require direct teacher participation: (30h+30h+5h+2h)	67	ECTS 2,5
	Student workload – practical activities: (30h+15h+15h+15h)	75	3
Basic references:	1. PN-EN 1997-2:2004 Eurokod 7. 2. Lancellotta R.: <i>Geotechnical engineering</i> . Rotterdam ; Brookfield: Balkema A.A., 1995. 3. Aysen A.: <i>Soil Mechanics. Basic Concepts and Engineering Applications</i> . Taylor & Francis, 2005. 4. Wiłun Z.: <i>Zarys geotechniki</i> . Wyd. WKŁ. Warszawa, 2005.		
Supplementary references:	1. Wood D.M.: <i>Soil Behaviour and Critical State Soil Mechanics</i> . Cambridge University Press. London, 1999. 2. Smith I.: <i>Smith's Elements of Soil Mechanics</i> . Blackwell Publishing, 2006.		
Unit:	Division of Geotechnics		
Date of issuing the programme:	22.12.2016	Author of the programme:	Katarzyna Dolżyk-Szypcio, PhD, Eng.