

Subject name	Basics of Earth Sciences and Soil Science	
Subject code	IS-BES-1	
Department	Land Reclamation and Peat-Bogs Protection	
Faculty	Environmental Engineering and Land Surveying	
Subject supervisor/Lecturer	Professor Krzysztof Boroń, Marek Ryczek, Ph.D.	
General information	Teaching period	summer semester
	ECTS credit	6
	Lectures total	15 hrs
	Lab practical	30 hrs
Objective and general description	Methods for soil investigation and examination of its quality. The knowledge of soil classification. The ability of soil degradation degree estimation. The knowledge of rules for project documentation.	
Lectures	Soil as an element of natural environment. Definition of soil, function of soil in biotope, practical aspects of soil science in environment engineering. Formation of soil in Poland. Soil formation factors, soil formation processes. Methods of soil investigation and soil quality evaluation. Soil morphology, soil pit documentation. Physical, water and air processes in soil. Sorption and chemical properties of soil. Organic matter in soil. Humus formation. Significance of humus. Soil quality. Peat-bogs in Poland.	
Lab practicals	Soil texture. Determination of texture. Determination of physical properties of soil. Determination of specific gravity. Chemical properties of soil. Reaction, acidity. Calcium carbonate content – methods of determination. Soil water potential. Soil water characteristics curve – methods of determination and use. Water movement in soil. The Darcy law. Theory of water movement in unsaturated zone. Soil taxonomy. Review of soil types. Soil quality classes, agricultural usefulness complexes. Soil maps.	
References	M.E. Summer (ed.). 2000. Handbook of Soil Science. Boca Raton, Florida, CRC Press	