

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Civil Engineering and Environmental Studies									
Field of study	Environmental Engineering							Degree level and programme type	undergraduate
Specialization/ diploma path								Study profile	
Course name	Soil science and land reclamation							Course code	19284209H/IS1S21015
								Course type	L+P
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	
	1			1				No. of ECTS credits	3
Entry requirements	basic knowledge and skills in: geology, geomorphology and hydrology is strongly recommended								
Course objectives	An introduction to the chemical, physical and biological properties of soils; their origin, classifications (WRB), geography of soils; soil management and conservation the impact of soils on people, food production and environment								
Course content	<p>Introduction: definition of soil, soils as a natural body; soil forming factors and processes</p> <p>Physical properties: texture, aggregation and structure characteristics; color, soil water relationships</p> <p>Chemical Properties: ionic exchange, acidity - alkalinity (pH), nutrients</p> <p>Biological Properties: soil organic matter, C:N, N transformation</p> <p>Soil classification and distribution</p> <p>Soil conservation and management: drainage; erosion: mechanisms and control; irrigation; Revised Universal Soil Loss Equation (RUSLE) for description of soil erosion</p> <p>Calculations of soil carbon stock losses and GHG emissions from drained peatlands; countermeasures</p>								
Teaching methods	lecture, project activities								
Assessment method	The form of assessment of the course: lecture: written exam (test); project: reports								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	

L01	Student knows and understands the impact of environmental factors on the formation of soils, their structure and physical and chemical properties	IS1_W01	
L02	Student knows and understands the relationships between processes and phenomena occurring in the soil environment	IS1_W07	
L03	Student is able to make basic calculations on the modeling of soil erosion and GHG emission from drained peat soils; the student is able to analyze the phenomena and processes occurring in the soil and relate them to other elements of the environment	IS1_W09	
L04	Student understands selected phenomena and processes, has a basic knowledge of soil science in environmental engineering	IS1_W11	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	test	L	
L02	test+reports	L+P	
L03	reports	P	
L04	test+reports	L+P	
Student workload (in hours)		No. of hours	
Calculation	participation in lectures	16	
	preparation for the exam	30	
	attendance on the exam	1	
	participation in classes	16	
	preparation for classes, preparing reports	30	
	participation in consultations	2	
	TOTAL:	95	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		35	3
Student workload – practical activities		46	3
Basic references	<ol style="list-style-type: none"> 1. R. R. Weil, N. C. Brady. 2017 The nature and properties of soils. Pearson 2. M.R. Ashman, G. Puri 2010. Essential soil science. Blackwell publishing 		
Supplementary references	<ol style="list-style-type: none"> 1. IUSS Working Group WRB 2015. World reference base for soil resources 2014, update 2015 International soil classification system for naming soils and creating legends for soil maps. FAO, Rome 2. 2014 – Hiraishi, T., Krug, T., Tanabe, K., Srivastava, N., Baasansuren, J., Fukuda, M. and Troxler, T.G. (eds). 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands. IPCC, Switzerland 		
Organisational unit conducting the course			Date of issuing the programme

Author of the programme	Prof. Piotr Banaszuk	
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L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar