

## COURSE DESCRIPTION CARD

Faculty of Civil Engineering and Environmental Sciences									
Field of study								Degree level and programme type	
Specialization/ diploma path								Study profile	academic profile
Course name	Soil science							Course code	IS-FCEE-00032-1W
								Course type	Erasmus
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
	15		30					No. of ECTS credits	4
Entry requirements	Basic knowledge of chemistry								
Course objectives	To acquaint students with the genesis, structure, properties and soil-forming processes. Presentation of the relationship between the soil and other elements of the environment. Teaching laboratory analysis of soil samples.								
Course content	<p><u>Lecture</u>: Introduction to the soil science, basic definitions. Soil genesis, physical and chemical weathering. Soil-forming factors and processes. Soil morphology. Physical properties of the soil. Water in soil, its forms, movement and assimilability to the plants. Soil colloids and their properties. Soil sorption complex. Chemical properties of the soil. Reaction, acidity and alkalinity of the soil. Buffering properties of the soil. Soil organic matter. Soil microorganisms and their role in functioning of the soil. Soil fertility. Polish soil classification.</p> <p><u>Laboratory</u>: Soil morphological properties. Soil material. Soil texture. Physical properties of the soil. Water properties of the soil. Soil filtration. Soil reaction. Buffering properties of the soil. Calcium carbonate in soil environment.</p>								
Teaching methods	lecture, presentations, calculations								
Assessment method	report, test								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	knows and understands the impact of environmental factors on soil formation, soil structure and formation of physical and chemical properties							K_AK1_W03	

L02	knows and understands the relationships between processes and phenomena occurring in the soil environment	K_AK1_W03	
L03	knows and understands the importance and impact of soil properties on selection of plants with different habitat requirements	K_AK1_W04	
L04	can perform basic laboratory analysis of soil and based on them, determine natural conditions of habitat	K_AK1_U03	
L05	is able to analyze soil phenomena and processes and bind them with other elements of the environment	K_AK1_U03	
<b>Symbol of learning outcome</b>	<b>Methods of assessing the learning outcomes</b>	<b>Type of tuition during which the outcome is assessed</b>	
L01	Test	L	
L02	Test, report	L, LC	
L03	Test, report	L, LC	
L04	Report	LC	
L05	Report	LC	
<b>Student workload (in hours)</b>		<b>No. of hours</b>	
<b>Calculation</b>	attendance to lectures	15	
	attendance to laboratory classes	30	
	preparation for test	30	
	attendance to the test	2	
	preparation for laboratory classes and preparation of reports	20	
	attendance to tutorials	5	
	<b>TOTAL:</b>	102	
<b>Quantitative indicators</b>		<b>HOURS</b>	<b>No. of ECTS credits</b>
<b>Student workload – activities that require direct teacher participation</b>		52	2
<b>Student workload – practical activities</b>		55	2
<b>Basic references</b>	<ol style="list-style-type: none"> <li>World reference base for soil resources 2014, update 2015, International soil classification system for naming soils and creating legends for soil maps, WORLD SOIL RESOURCES REPORTS 106, Food and Agriculture Organization of the United Nations, Rome</li> <li>Ashman M. R., Puri G., 2002. Essential Soil Science. A clear and concise introduction to soil science. Blackwell Publishing</li> </ol>		
<b>Supplementary references</b>	<ol style="list-style-type: none"> <li>Kabała C. et al., 2019. Polish soil classification, 6<sup>th</sup> edition – principles, classification scheme and correlations. Soil Science Annual, 70, 71-97</li> <li>Pennock D., 2019. Soil erosion: the greatest challenge for sustainable soil management. Food and Agriculture Organization of the United Nations, Rome</li> <li>Nieder R., Benbi D.K., 2008. Carbon and nitrogen in terrestrial environment. Springer Science + Business Media B.V.</li> </ol>		

<b>Organisational unit conducting the course</b>	<b>Department of Agri-Food Engineering and Environmental Management</b>	<b>Date of issuing the programme</b>
<b>Author of the programme</b>	<b>dr inż. Agnieszka Wysocka-Czubaszek dr inż. Robert Czubaszek</b>	<b>22.01.2020</b>

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar