

## COURSE DESCRIPTION CARD

Faculty of Civil Engineering and Environmental Sciences									
Field of study	Environmental Engineering							Degree level and programme type	Bachelor's degree
Specialization/ diploma path	International School of Engineering							Study profile	Academic profile
Course name	Hydrology							Course code	19284215H/IS1S1 1003
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	V
	16				16			No. of ECTS credits	2
Entry requirements	-								
Course objectives	to familiarize students with hydrological issues in the field of hydrological processes and objects; - to acquire skills using hydrological data in the implementation and design of hydroengineering investments and preparation for carrying scientific research;								
Course content	<p><b>Lecture:</b> Water circulation in nature, water balance. Types and characteristics of precipitation. Area precipitation, intensity and duration of precipitation. Methods of calculating the area amount of precipitation. Evaporation, runoff, retention, filtration and infiltration. Outflow, outflow coefficients. The catchment area and its characteristics. Water conditions and their characteristics. Characteristic flows. Principles of speed measurements.</p> <p><b>Specialization workshop:</b> Determination of the hydrological catchment area system . Calculation of the average speed in the watercourse - calculation examples. Methods of calculating flows on the basis of measurements - calculation examples.</p>								
Teaching methods	Informational lectures - multimedia presentations, specialization workshop - project discussion								
Assessment method	lecture –written test; specialization workshop–project completion, presentation and discussion, written test								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	Student has elementary knowledge in the hydrographic objects and basic hydrological phenomena							EN_IS1_W01	

LO2	Student knows the laws and can explain the processes that determine the water cycle in the catchment area	EN_IS1_W07	
LO3	Student is able to assess the possibilities of using water resources, identify threats and consequences of degradation	EN_IS1_U04	
LO4	Student is able to interpret the results of basic studies	EN_IS1_U04	
LO5	Student understands the need for further training and is ready to take responsibility for the performed tasks	EN_IS1_U17 EN_IS1_K02	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	Test on the lecture content	L	
LO2	evaluating the student's reports and performance in classes	SW	
LO3	evaluating the student's reports and performance in classes	SW	
LO4	evaluating the student's work during specialization workshop	SW	
LO5	evaluating the student's work during specialization workshop	SW	
Student workload (in hours)		No. of hours	
Calculation	Lecture attendance	16	
	participation in classes	16	
	preparation for classes, projects, seminars, etc.	6	
	working on projects, reports, etc.	7	
	participation in student-teacher sessions related to the classes/seminar/project	5	
	implementation of project tasks		
	preparation for and participation in exams/tests	2	
TOTAL:		52	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		37	1.5
Student workload – practical activities		33	1.3
Basic references	1. Dawei Han, Concise Hydrology, University of Bristol, 2010. <a href="http://www.bris.ac.uk/civilengineering/person/d.han.html">http://www.bris.ac.uk/civilengineering/person/d.han.html</a> ; 2. Tim Davie and Nevil Wyndham Quinn, Fundamentals of Hydrology, 3rd Edition published 2019 by Routledge (Taylor&Francis eBooks); 3. David Butler, Christopher James Digman, Christos Makropoulos, John W. Davies, Urban Drainage 4 <sup>th</sup> Edition, 2018.		
Supplementary references	1. Andy D. Ward, Stanley W. Trimble, Suzette R. Burckhard, John G. Lyon, Environmental Hydrology. 3rd Edition published CRC Press Taylor&Francis Group 2016.		

<b>Organisational unit conducting the course</b>	<b>Department of water and sewage system</b>	<b>Date of issuing the programme</b>
<b>Author of the programme</b>	<b>Maria Walery, DSc, PhD Eng.</b>	<b>05/09/22</b>

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

S – seminar