COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Civil Engineering and Environmental Sciences</td></tr>
<tr><td>Field of study</td><td colspan="6">Environmental Engineering</td><td colspan="2">Degree level and programme type</td><td>Bachelor's degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">International School of Engineering</td><td colspan="2">Study profile</td><td>Academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Hydrology</td><td colspan="2">Course code</td><td>19284215H</td></tr>
<tr><td colspan="2">Course type</td><td>obligatory</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>V</td></tr>
<tr><td>16</td><td></td><td></td><td></td><td>16</td><td></td><td></td><td>No. of ECTS credits</td><td>2</td></tr>
<tr><td>Entry requirements</td><td colspan="9">-</td></tr>
<tr><td>Course objectives</td><td colspan="9">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;</td></tr>
<tr><td>Course content</td><td colspan="9"><u>Lecture</u>: 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.
<u>Specialization workshop</u>: 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.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">Informational lectures - multimedia presentations, specialization workshop - project discussion</td></tr>
<tr><td>Assessment method</td><td colspan="9">lecture –written test; specialization workshop–project completion, presentation and discussion, written test</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">Student has elementary knowledge in the hydrographic objects and basic hydrological phenomena</td><td colspan="2">EN_IS1_W01</td></tr>
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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	Teston 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. http://www.bris.ac.uk/civilengineering/person/d.han.html; 2. Tim Davie nad 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 4th 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.	

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

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