

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	IT in water and wastewater systems							Course code	19284221H
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	VII
	16			32				No. of ECTS credits	5
Entry requirements	Knowledge of design principles of water supply and sewage disposal systems								
Course objectives	By the end of this module students should be able to: build hydrodynamic models of different types of water supply and wastewater collection systems using specific software, collect and properly apply data required to run and calibrate the model, design simple water supply and wastewater collection system using dedicated software.								
Course content	<p>Lectures: General information on professional software available for computer aided design of environmental engineering systems. Principles of modelling technical systems. Principles of calibration, and validation of the models.</p> <p>Project: Hydrodynamic model of water supply and sewer system for a small community, simulation and optimization of the modelled systems.</p>								
Teaching methods	Informational lectures (with multimedia presentations), design project (with example calculations)								
Assessment method	lecture – written test; project – project / exercises completion, presentation and discussion								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	knows at an advanced level - software supporting the design of water supply and sewage systems							IS1_W03	
LO2	knows at an advanced level - the structure and principles of operation of water and sewage systems as well as the principles of construction and analysis of hydrodynamic models of these systems							IS1_W05	
LO3	is able to properly select and use specialized computer programs and theoretical knowledge to build and analyze models of water supply and sewage systems							IS1_U01 IS1_U05	

L04	is able to design water supply and sewage systems in accordance with the established requirements, using appropriately selected methods, tools and materials	IS1_U11	
L05	is ready to analyze the content obtained from various sources and to critically assess the possibility of using them in the project task being carried out	IS1_K01	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	written exam, discussion of the project	L, P	
L02	written exam, discussion of the project	L, P	
L03	evaluation of submitted projects / exercises	P,	
L04	evaluation of submitted project / exercises	P	
L05	discussion of submitted project	P	
Student workload (in hours)		No. of hours	
Calculation	lecture attendance	15	
	participation in classes, project classes, etc.	30	
	working on projects, reports, etc.	60	
	participation in student-teacher sessions related to the classes/seminar/project	5	
	preparation for and participation in exam	15	
		TOTAL:	125
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		51	2
Student workload – practical activities		95	3,8
Basic references	1) Rossman L.A., EPANET 2 User's manual, EPA/600/R-00/057, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH, USA 2000 2) Rossman, L.A., Storm Water Management Model User's Manual version 5.1., Hydrology. U.S. EPA Office of Research and Development, Washington, DC, EPA-600/R-14/413b, 2015. 3) Walski T.M. et al. Wastewater Collection System Modeling and Design, First Edition, Bentley Institute Press, 2007, ISBN-13: 978-1934493038		
Supplementary references	1) Rossman, L.A., Storm Water Management Model Reference Manual Volume II, Hydraulics. U.S. EPA Office of Research and Development, Washington, DC, EPA/600/R-17/111, 2017. 2) Rossman, L.A., Huber W. Storm Water Management Model Reference Manual Volume I, Hydrology. U.S. EPA Office of Research and Development, Washington, DC, EPA/600/R-15/162A, 2015. 3) Smet, J., van Wijk, C. (ed): Small Community Water Supplies. IRC Technical Paper Series 40, 2002, available online: http://www.ircwash.org/sites/default/files/Smet-2002-Small_TP40.pdf		

Organisational unit conducting the course	Department of Water Supply and Sewage Systems	Date of issuing the programme
Author of the programme	Dariusz Andraka, PhD	2022.05.10

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