

## COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Civil Engineering and Environmental Science									
<b>Field of study</b>	<b>Environmental Engineering</b>						<b>Degree level and programme type</b>	<b>Second degree</b>	
<b>Specialization/ diploma path</b>	<b>International School of Engineering</b>						<b>Study profile</b>	<b>Academic profile</b>	
<b>Course name</b>	<b>Rural water supply and sewage systems</b>						<b>Course code</b>	<b>19284259H</b>	
							<b>Course type</b>	<b>Obligatory</b>	
<b>Forms and number of hours of tuition</b>	<b>L</b>	<b>C</b>	<b>LC</b>	<b>P</b>	<b>SW</b>	<b>FW</b>	<b>S</b>	<b>Semester</b>	<b>III</b>
	<b>16</b>			<b>32</b>				<b>No. of ECTS credits</b>	<b>3</b>
<b>Entry requirements</b>	Basics of environmental engineering, Fluid mechanics, Basics of waterworks, Basics of sewage system, Waste management, Water purification devices, Sewage treatment devices								
<b>Course objectives</b>	<p>To familiarize students with the principles and issues of design, implementation and operation of rural water supply and sewage systems.</p> <p>Knowledge of the basics of design; specifics of water supply in rural settlements; groundwater and surface water intakes; branched water supply network as well as sewerage design in the case of scattered development or difficult terrain conditions.</p>								
<b>Course content</b>	<p>Lecture: Types of waterworks supplying rural settlements and their design principles. Water supply for various needs in rural settlements. Designing small underground and surface water intakes and an exemplary rural water supply network system. Rainwater management. Sewage networks, pumping stations and sewage treatment plants in rural conditions and their design principles.</p> <p>Project: Development of a rural water supply project (determination of water demand, calculation of water intake and network, selection of infrastructure).</p>								
<b>Teaching methods</b>	Informative lecture, problem lecture, thematic project								
<b>Assessment method</b>	Lecture - written test Project - project execution, presentation and discussion								
<b>Symbol of learning outcome</b>	<b>Learning outcomes</b>						<b>Reference to the learning outcomes for the field of study</b>		
<b>LO1</b>	Student knows the latest directions in the development of rural water supply and sewage systems						K_W06		
<b>LO2</b>	Student knows issues related to the specific design, construction and operation of rural water supply and sewage systems, their reliability and safety						K_U09		
<b>LO3</b>	Student is able to design water intakes, networks and devices water supply and sewage systems in rural settlements						K_U08		

L04	Student is ready to analyze the problems of rural water supply and sewage systems	K_K01
L05	Student is able to properly select data and perform calculations to design the network, infrastructure and technology of rural water supply and sewage systems	K_U08
L06	Student is ready to analyze content obtained from various sources and to critically evaluate and use them in professional work regarding rural water supply and sewage systems	K_K01
<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	Lecture test	L
L02	Lecture test, project assessment	L, P
L03	Project defense, project assessment	P
L04	Lecture test, project presentation	L, P
L05	Project defense, project assessment	P
L06	Lecture test, discussion on the project	L, P
<b>Student workload (in hours)</b>		<b>No. of hours</b>
<b>Calculation</b>	Lecture attendance	16
	Participation in project classes	32
	Preparation for tests	10
	Project execution	10
	Preparation for project defense	5
	Consultations	5
	<b>TOTAL:</b>	<b>78</b>
<b>Quantitative indicators</b>		<b>HOURS</b>
<b>Student workload – activities that require direct teacher participation</b>		<b>53</b>
<b>Student workload – practical activities</b>		<b>2,0</b>
<b>Basic references</b>	<ol style="list-style-type: none"> <li>1. Szpindor A. Water supply and sewage system in the village. Arkady, 2014.</li> <li>2. Żuchowicki W. et al.: Waterworks and sewage – design, installation, operation, modernization. Warsaw, Verlag / Dashofer, 2014.</li> <li>3. Kwietniewski M. et al.: Designing elements of supply systems water. Warsaw University of Technology Publishing House, Warsaw, 2009.</li> <li>4. Heidrich Z and others Village sanitation. Seidel-Przywecki Publishing House, Warsaw, 2008.</li> </ol>	
<b>Supplementary references</b>	<ol style="list-style-type: none"> <li>1. Bolt A. et al.: Sewage system – Design, construction, operation. Seidel – Przywecki, Warsaw, 2012.</li> <li>2. Suligowski Z. et al.: Technical conditions for the construction and acceptance of water supply and sewage networks and installations. Vrlag Dashofer, Warsaw, 2014.</li> <li>3. Królikowska J., Królikowski A., Żaba T.: Sewage system: basics of design, construction and operation: academic textbook, Krakow University of Technology, 2015.</li> </ol>	

<b>Organisational unit conducting the course</b>	Department of Water Supply and Sewage Systems	<b>Date of issuing the programme</b>
<b>Author of the programme</b>	PhD Eng, Joanna Kazimierowicz	October 2023

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