



## Subject card

Subject name and code	Water supply and sewage systems, PG_00043512						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Sanitary Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Karolina Matej-Łukowicz					
	Teachers	dr inż. Karolina Matej-Łukowicz mgr inż. Natalia Dąbrowska dr inż. Nicole Nawrot					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	15.0	0.0	60
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	60		8.0		60.0	128
Subject objectives	The aim of the course is to supplement knowledge in the design and operation of water supply and sewage networks. The lectures include: odors in sewage systems, operation of water and sewage systems, and principles of operation and design of sewage pumping stations. During the exercises, students will work with design-supporting software and learn the principles of designing and implementing water supply nodes. During design classes, students learn about the process of preparing and coordinating design documentation.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U16] can, when formulating and solving engineering tasks in environmental engineering, evaluate, select and apply appropriate methods and tools, recognize their non-technical aspects, including environmental, economic and legal aspects	The student is able to assess the usefulness of methods and tools used to solve typical sewage engineering tasks.	[SU4] Assessment of ability to use methods and tools
	[K6_W09] has ordered, theoretically founded knowledge in the field of water supply, sewage, heating, ventilation and air conditioning, and the principles of shaping the microclimate of rooms; knows legal regulations, standardization issues and recommendations for the design of water supply, sewage, heating and gas networks and installations	The student has theoretically based knowledge of the types and functions of individual elements of sewage networks and methods of wastewater disposal.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_U08] can use properly selected methods and devices of hydraulics and hydrology, enabling determination of basic quantities characterizing the flow of water in open channels and rivers, pipelines and flow objects of environmental engineering	The student is understanding the fundamentals of hydraulic design for storm sewer and gravity-based sewage networks.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
[K6_U03] can prepare documentation regarding the implementation of an engineering task/project and prepare a text or presentation including a discussion of the results of the implementation	The student can present the finished project, prepare all the required paperwork, and is understands the office where it will be submitted for acceptance.	[SU1] Assessment of task fulfilment	
Subject contents	<p>1. Odor neutralization in sewage networks 2. Water and sewage network failures 3. Sewage pumping stations 4. Programs supporting the design of water and sewage networks 5. Procedures for preparing design documentation</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exercise task	60.0%	20.0%
	Desing	60.0%	40.0%
	Test	60.0%	40.0%
Recommended reading	Basic literature	<p>Bolt A., Burszta-Adamiak E., Gudelis-Taraszkiewicz K., Suligowski Z., Tuszyńska A.: Sewage system, 2012. Suligowski Z., Fudala-Książek S.: Execution and acceptance of sewage networks, Warsaw 2016 Heindrich Z.: Water supply and sewage system part 1, 1999 Heindrich Z.: Water supply and sewage system part 2, 1999</p>	

	Supplementary literature	M. Skotnicki, M. Sowiński: Assessment of the retention capacity of a sewage collector / Journal of Civil Engineering, Environment and Architecture - 2014, Vol. 31, no. 61, pp. 265-283M. Skotnicki, M. Sowiński: Use of synthetic precipitation in modeling runoff from urban catchments / Scientific Papers of the Rzeszów University of Technology. Construction and Environmental Engineering / Publishing House of the Rzeszów University of Technology. - 2012, no. 283, no. 59 (2/12/1), pp. 201-218Weismann D.: Municipal sewage pumping stations. 2000
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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