



Subject card

Subject name and code	, PG_00058838						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2022	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	3	Language of instruction				Polish	
Semester of study	6	ECTS credits				3.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Krzysztof Czerwionka				
	Teachers		dr hab. inż. Krzysztof Czerwionka				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	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	45	5.0		33.0	83	
Subject objectives	The aim of the course is to familiarize yourself with the principles of designing wastewater treatment plant facilities.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W11] has elementary knowledge of electrical devices and installations as well as basics of control and automation	The student is able to prepare an algorithm for controlling the operation of activated sludge chambers.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U13] knows the rules of application and can choose the materials of the sanitary industry	The student is able to select materials used in wastewater treatment plant facilities and devices.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		
	[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 use legal regulations to design wastewater treatment plants.			[SU2] Assessment of ability to analyse information [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 is able to prepare project of a municipal wastewater treatment plant			[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_W07] has a structured and theoretically founded knowledge in the field of materials used in the sanitary industry, their physico-chemical properties; knows and understands the basic processes of their production	Student knowledge of the impact of sewage composition on the operating conditions of wastewater treatment plant facilities			[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	Basic concepts, definitions, terminology. Legal requirements for wastewater treatment. Scope of the wastewater treatment plant project and its basic components. Raw wastewater balance. Flow resistance as a basis for the construction of the elevation diagram. Mechanical wastewater treatment devices - general characteristics of screens, grit chambers and settling tanks. Biological wastewater treatment facilities.		
Prerequisites and co-requisites	Knowledge of processes used in wastewater treatment technology		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project	60.0%	40.0%
	colloquium	60.0%	60.0%
Recommended reading	Basic literature	1. Henze M., Harremoës P., Jes la Cour J., Arvin E. Oczyszczanie ścieków, procesy biologiczne i chemiczne Wydawnictwo Politechniki Świętokrzyskiej w Kielcach, 2002 2. Anielak A. Chemiczne i fizykochemiczne oczyszczanie ścieków PWN Warszawa 2000	
	Supplementary literature	1. Heidrich Z., Witkowski A. Urządzenia do oczyszczania ścieków. Projektowanie. Przykłady obliczeń Wydawnictwo Seidel-Przywecki Warszawa 2005	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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