



Subject card

Subject name and code	, PG_00059125						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2026/2027		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Krzysztof Czerwionka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	5.0	0.0	10.0	0.0	30
	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	30		3.0		68.0	101
Subject objectives	The aim of the course is to learn the principles of designing wastewater treatment plants						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U13] knows the rules of application and can choose the materials of the sanitary industry	The student knows the principles of application and is able to select sanitary materials in a wastewater treatment plant.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task
	[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 [SU5] Assessment of ability to present the results of task
	[K6_W11] has elementary knowledge of electrical devices and installations as well as basics of control and automation	The student is able to describe the wastewater treatment control system.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[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	The student is able to select sanitary materials in a wastewater treatment plant.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[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 a project of a municipal wastewater treatment plant	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
Subject contents	Course content – lecture Basic concepts, definitions, terminology. Legal requirements for wastewater treatment. The scope of the design of the wastewater treatment plant and its basic components. Raw wastewater balance. Flow resistance as the basis for the construction of the height scheme. Equipment for mechanical wastewater treatment - general characteristics of grates, sand traps and settling tanks. Facilities for biological wastewater treatment.		
	Course content – exercises Calculations of equipment and facilities of a municipal wastewater treatment plant		
	Course content – project Design of a municipal wastewater treatment plant for the technological sector		
Prerequisites and co-requisites	Knowledge of the processes used in water and wastewater technology		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final exam	60.0%	60.0%
	project execution	60.0%	40.0%
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 3. Kowal A., Świdarska-Bróż M.: Oczyszczanie wody. Wyd. Nauk. PWN, Warszawa-Wrocław, 1996.	
	Supplementary literature	1. Heidrich Z.: Urządzenia do uzdatniania wody. Zasady projektowania i przykłady obliczeń. Arkady, W-wa, 1980. 2. Heidrich Z., Witkowski A. Urządzenia do oczyszczania ścieków. Projektowanie. Przykłady obliczeń Wydawnictwo Seidel-Przywecki Warszawa 2005	

	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activities within the subject	Not applicable	

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