

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Water and wastewater treatment devices , PG_00043513								
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 Environmental Engineering Technology -> Faculty of Civil and Environmental Engineering						ngineering		
Name and surname	Subject supervisor		dr hab. inż. Krzysztof Czerwionka						
of lecturer (lecturers)	Teachers		mgr inż. Anna Wilińska-Lisowska						
		dr hab. inż. Krzysztof Czerwionka							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	15.0	30.0	0.0	15.0		0.0	60	
	E-learning hours included: 0.0								
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/index.php?id=7533								
Learning activity and number of study hours	Learning activity Participation ir classes include plan		didactic Participation in ed in study consultation hours		Self-study SUM				
	Number of study hours	nber of study 60 rs		8.0		60.0		128	
Subject objectives	The aim of the course is to familiarize yourself with the design of water and wastewater treatment plant.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_W03] has a structured and theoretically founded knowledge in the field of chemistry and biology, including knowledge necessary to understand the technological processes related to water treatment, wastewater treatment, waste management and sludge management		The student understands the rules of technological processes application in water treatment stations and wastewater treatment plants. The student is able to describe the technological processes used in water treatment stations and wastewater treatment plants			[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 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_W14] has a structured knowledge of current legal regulations regarding environmental protection, water and construction law; knows the basics of public procurement law, patent law, intellectual property protection and labor protection		The student is able to use design legislation water treatment plants and wastewater treatment plants.			[SW3] Assessment of knowledge contained in written work and projects			
	[K6_U10] can design basic equipment for water treatment, wastewater treatment and sludge and waste management		The student is able to design devices for a wastewater sewage treatment plant.			[SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task			

Subject contents	Basic concepts, definitions and terminology. General established treatment of surface and groundwater. Legal requirements for water and wastewater treatment . Scope of project water and wastewater treatment plants - the basic components. Flow resistance as the basis for design pattern pitch . Mechanical water and wastewater treatment - general characteristics of the grinders, grit chambers, settling tanks and filters. Implementation of coagulation - equipment and principles of design. Objects for biological wastewater treatment						
Prerequisites and co-requisites	Knowledge of processes used in water and wastewater treatment technology						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	Project	60.0%	40.0%				
	Midterm colloquium	60.0%	60.0%				
Recommended reading	Basic literature	1. Kowal A., Świderska-Bróż M.: Oczyszczanie wody. Wyd. Nauk. PWN, Warszawa-Wrocław, 1996.					
		2. Anielak A. Chemiczne i fizykochemiczne oczyszczanie ścieków PWN Warszawa 2000					
		 Henze M., Harremoës P., Jes la Cour J., Arvin E. Oczyszczanie ścieków, procesy biologiczne i chemiczne Wydawnictwo Politechniki Świętokrzyskiej w Kielcach, 2002 					
	Supplementary literature	1. Heidrich Z.: Urządzenia do uzdatniania wody. Zasady projektowania i przykłady obliczeń. Arkady, W-wa, 1980.					
		 Heidrich Z., Witkowski A. Urządzenia do oczyszczania ścieków. Projektowanie. Przykłady obliczeń Wydawnictwo Seidel-Przywecki Warszawa 2005 					
	eResources addresses	Adresy na platformie eNauczanie:					
		Urządzenia do oczyszczania wody i ścieków - 2024/25 - Moodle ID: 37815 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37815					
Example issues/ example questions/ tasks being completed							
Work placement	Not applicable						

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