GDAŃSK UNIVERSITY OF TECHNOLOGY

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		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Krzysztof Czerwionka	
	Teachers	mgr inż. Anna Wilińska-Lisowska 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	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 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 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 3. 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. 2. 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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