GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Sanitary Engineering , PG_00058826		
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
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Szarf	
	Teachers	dr inż. Krzysztof Szarf	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	15.0	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	5.0	20.0	55

Subject objectives

The aim of the class is to teach the students of Environmental Engineering problems of civil engineering, especially sanitary engineering, regarding in particular the design, construction and exploitation of sanitary constructions, earth works, geotechnical engineering.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W04] possesses elementary knowledge in the field of land mechanics, ground science, land reclamation and geotechnics; has basic knowledge about the composition of air, water and soil, environmental pollution and processes responsible for their formation and ways to reduce them, knows the principles and organization of sustainable water management	Student learns about methods of construction design Student gathers knowledge about engineering calculations of sanitary constructions	[SW1] Assessment of factual knowledge
[K6_U06] knows and applies the basic provisions of construction law, water law and environmental law	Student is aware of his part in the construction process Student knows current building codes	[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	Student can apply the calculation methods to design sanitary constructions	[SU1] Assessment of task fulfilment [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	Student learnt methods of sanitary constructions civil engineering design and is capable of applying them Is able to complete a design project and to present the results	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents	Lectures: • Construction design according to Eurocodes • Types of sanitary engineering constructions: potable water gathering and purification, stormwater drainage, retention and reclamation, sewage transport, treatment and reclamation • Elements of foundation engineering: shallow foundation bearing capacity, slope stability, passive and active earth pressure • Basics of concrete construction design Project classes: • Calculating live and dead loads acting on a subsurface construction • Design and dimensioning of a reinforced concrete manhole or a tank located below the surface level
Prerequisites and co-requisites	A number of classes passed covering the following topics: classical mechanics, soil mechanics, hydraulics and hydrology, strength of materials, general construction or rudiments of civil engineering, technology of concrete

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Problem to calculate	100.0%	50.0%
Test	50.0%	50.0%

Recommended reading	Basic literature	• Rangwala, S.C., Water Supply And Sanitary Engineering, Charotar Publishing House 2005
	Supplementary literature	• Braja M. Das Fundamentals of Geotechnical Engineering, Cengage Learning, 2012
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Exemplary test questions: 1. Describe constructions used for gathering surface water for drinking purposes 2. Describe constructions used for sewage reclamation 3. How to determine the cover thickness in reinforced concrete and what is its purpose 4. How to design an underground tank 5. List materials used for constructions of sewer systems Exemplary project elements: • Design calculations: Load calculations, static calculations regarding GEO and STR limit states, sizing of a surface or a subsurface tank • Design calculations: slope stability assessment for an excavation with natural or reinforced slopes
Work placement	Not applicable

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