GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00061735		
Field of study	Environmental Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	second-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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	3.0
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	10.0	0.0	25

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	25	3.0	52.0	80

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
K7_W05	Knows the rules of subsurface construction design Knows the rules of reinforced concrete construction design Is aware of problems related to excavations in an urban environment	[SW1] Assessment of factual knowledge
[K7_W02] has broadened and well-ordered knowledge of the current law on construction, water, environmental protection and planning and spatial planning.	Knows building laws regarding sanitary engineering The student is knowledgeable about current building codes	[SW1] Assessment of factual knowledge
K7_U03	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

<table>
<tr><td>Subject contents</td><td>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
• Stiff and flexible pipeline design using the following methods: ATV DVWK-A 127, the Scandinavian Method
• Basics of foundation engineering: soil-structure interactions, excavation casings
• Classical and trenchless methods of construction and rehabilitation of underground pipelines

Project classes:

• Design and dimensioning of a rigid and flexible pipelines, design of a excavation casing, design of a rigid or flexible manhole, design of a subsurface tank</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knows the scope of the following classes given at the bachelor level:

• Soil mechanics.
• Geotechnics.
• Construction statics.
• Strength of materials.
• Material science.
• Hydraulics</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Problem to calculate</td><td>100.0%</td><td>60.0%</td></tr><tr><td>Essay</td><td>100.0%</td><td>40.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>• Adam Bolt, Ewa Burszta-Adamiak, Katarzyna Gudelis-Taraszkiewicz, Ziemowit Suligowski, Agnieszka Tuszyńska,Kanalizacja. Projektowanie, wykonanie, eksploatacja Seidel Przewecki Sp. z o.o. 2012
• ATV-DVWK-A 127 Statische Berechnung von Abwasserkanälen und -leitungen
• PN-EN 1997:2008 Eurokod 7</td></tr><tr><td>Supplementary literature</td><td>RANGWALA, Water Supply And Sanitary Engineering, Charotar Publishing House Pvt. Ltd (2016)</td></tr><tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Essay:
• Present a particular case of an engineering failure related to sanitary engineering
• Present a chosen technology of sewage pipe restoration basing on a real-life cases
Project classes:
• Design calculations of a flexible pipeline using the Scandinavian Method
• Design calculations of an excavation casing (soldier pile wall technology) using Autodesk Robot Structural Analysis software</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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