



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	

Subject contents	<p>Lectures:</p> <ul style="list-style-type: none">• 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 <p>Project classes:</p> <ul style="list-style-type: none">• 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		
Prerequisites and co-requisites	<p>Knows the scope of the following classes given at the bachelor level:</p> <ul style="list-style-type: none">• Soil mechanics.• Geotechnics.• Construction statics.• Strength of materials.• Material science.• Hydraulics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Problem to calculate	100.0%	60.0%
	Essay	100.0%	40.0%
Recommended reading	Basic literature	<ul style="list-style-type: none">• Adam Bolt, Ewa Burszta-Adamiak, Katarzyna Gudelis-Taraszkiewicz, Ziemowit Suligowski, Agnieszka Tuszyńska, Kanalizacja. Projektowanie, wykonanie, eksploatacja Seidel Przewocki Sp. z o.o. 2012• ATV-DVWK-A 127 Statische Berechnung von Abwasserkanälen und -leitungen• PN-EN 1997:2008 Eurokod 7	
	Supplementary literature	RANGWALA, Water Supply And Sanitary Engineering, Charotar Publishing House Pvt. Ltd (2016)	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>Essay:</p> <ul style="list-style-type: none">• 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 <p>Project classes:</p> <ul style="list-style-type: none">• 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		
Work placement	Not applicable		