



Subject card

Subject name and code	Sanitary Engineering , PG_00049428						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
Education level	second-cycle studies		Subject group		Optional subject group		
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		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Geotechnics, Geology and Marine Civil 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	25.0	15.0	0.0	0.0	0.0	40
	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	40		5.0		90.0	135
Subject objectives	The aim of the class is to tech the students of Environmental Engineering problems of civil engineering, especially regarding sanitary engineering, earth works, geotechnical engineering.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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				
	[K7_U14] can technically and economically analyze and evaluate the solutions and functioning of facilities and systems in the sanitary engineering or flood protection, water intakes and water infrastructure or water and wastewater treatment plants; can assess the suitability and potential of using new achievements in materials, fixtures, devices and methodologies for designing and modeling the analyzed technical infrastructure and industrial objects, including innovative solutions		Student learnt methods of sanitary constructions civil engineering design Is able to classify sanitary engineering constructions from a perspective of civil engineering Is able to assess the usability of trenchless and excavatory techniques of pipeline construction and repair Can assess dangers related to design and construction of sanitary engineering constructions				
	[K7_W05] has basic knowledge in general construction or in water or sanitary or hydrotechnical or road construction; the impact of construction investments on the environment		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				

Subject contents	Lectures: - Construction design in Eurocodes - Types of sanitary engineering constructions: potable water gathering and purification, stormwater drainage, retention and reclamation, sewage transport, treatment and reclamation - Basics of reinforced concrete design - Basics of foundation engineering - Slope stability. Excavation casings - Trenchless methods of construction and rehabilitation of pipelines - Stiff and flexible pipeline design using the following methods: ATV DVWK-A 127, the Scandinavian Method Auditorial classes: Design of a reinforced concrete subsurface tank, design of a rigid pipeline, design of a flexible pipeline, design of a excavation casing, design of a rigid or flexible manhole		
Prerequisites and co-requisites	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
	exam	50.0%	40.0%
	essay	100.0%	30.0%
	problem to calculate	100.0%	30.0%
Recommended reading	Basic literature	Adam Bolt, Ewa Burszta-Adamiak, Katarzyna GudelisTaraszkiewicz, Ziemowit Suligowski, Agnieszka Tuszyńska, „Kanalizacja. Projektowanie, wykonanie, eksploatacja” SeidelPrzewecki 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	Auditorial classes: 1. Design calculations of a flexible pipeline using the Scandinavian Method 2. Design calculations of an excavation casing using a soldier pile wall Essay: 1. Give a talk on a particular case of an engineering failures related to sanitary engineering 2. Present a chosen technology of sewage pipe restoration Lecture: 1. Describe a chosen trenchless technology used for pipeline repair 2. Characterise the construction of a settlement basin in a sewage treatment plant		
Work placement	Not applicable		