



## Subject card

Subject name and code	Drainage works, PG_00042520						
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			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Hydraulic Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Szpakowski					
	Teachers	dr inż. Wojciech Szpakowski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	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	4.0		70.0		104
Subject objectives	<p>Getting to know modern ways of rainwater management in the aspect of climate change.</p> <p>Getting to know small retention policy.</p> <p>Getting to know the range of activities of the Gdansk Water Company - the only unit in Poland dealing in comprehensive rainwater management on the Kashubian Lakeland, Ice marginal valley of Kashubian Lakeland and the depression of Gdansk part of Vistula Delta Plain.</p>						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W09] has deepened, ordered, theoretically developed knowledge related to: hydrology, drainage, water management, flood protection or resource and water intake or water and sewage management	the student is able to convince to the chosen method of solving the problem					
	[K7_U09] can choose tools (analytical or numerical) to solve engineering problems	student wybiera optymalne rozwiązanie problemu					
	[K7_K02] understands the need to formulate and communicate to the public information and opinions on the achievements in the environmental engineering and other aspects of the engineering activity in the sanitary sector; is aware of the importance and understands non-technical aspects and effects of engineering activities; strives to convey such information and opinions in a universally understandable manner, presenting various points of view	the student selects the correct scientific arguments					

Subject contents	Dewatering or rainwater management - definition of problem in terms of climate change. Management of rainwater and snowmelt on the level of real estate in the district and the city. Guidelines for designers in the field of rainwater management. Modern ways of using retention in green areas. Management of rainwater in residential, industrial and public roads. Culverts in the management of rainwater and meltwater. Groundwater - the impact of water on building structures		
Prerequisites and co-requisites	Basic knowledge of hydraulics, hydrology and hydrogeology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	the presentation	50.0%	100.0%
Recommended reading	Basic literature	Urban surface retention system in adapting cities to climate change from vision to implementation Gajewska Magdalena, Rayss Joanna, Szpakowski Wojciech, Wojciechowska Ewa, Wróblewska Dominika Wydawnictwo Politechniki Gdańskiej 2019  Road dewatering Edel Roman, WKŁ 2017	
	Supplementary literature	Producers of devices for drainage and management of rainwater Association of Landscape Architects	
	eResources addresses	Adresy na platformie eNauczenie: Melioracje i Odwodnienia - Moodle ID: 35016 <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=35016">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=35016</a>	
Example issues/ example questions/ tasks being completed	industrial site drainagerainwater management in multi-family housing		
Work placement	Not applicable		