



Subject card

Subject name and code	Hydrogeology, PG_00058798							
Field of study	Environmental Engineering							
Date of commencement of studies	October 2024	Academic year of realisation of subject		2025/2026				
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study			
Mode of study	Full-time studies		Mode of delivery		at the university			
Year of study	2	Language of instruction		Polish				
Semester of study	4	ECTS credits		5.0				
Learning profile	general academic profile		Assessment form		exam			
Conducting unit	Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology							
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Adam Szymkiewicz					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar		
	Number of study hours	30.0	15.0	0.0	15.0	0.0		
	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	60	7.0		58.0	125		
Subject objectives	Familiarizing students with basics of groundwater (occurrence, flow dynamics, chemical composition, possibilities of usage).							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	[K6_W06] has a structured and theoretically founded knowledge in the field of computer science, numerical methods and the possibilities of their applications for solving tasks, description of phenomena related to the flow of water in the environment, in open pipes and channels, filtration, migration of pollutants		Student knows the basic calculation methods and tools for groundwater flow			[SW1] Assessment of factual knowledge		
	K6_W12		Student knows the mechanisms of formation and flow of groundwater			[SW1] Assessment of factual knowledge		
	[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 knows the basic processes leading to groundwater contamination			[SW1] Assessment of factual knowledge		
	[K6_U04] can recognize basic rocks and minerals, can create and read maps and geological and hydrogeological sections; can read and interpret geological documentation		Student can draw and analyze hydrogeological maps and crosssections			[SU1] Assessment of task fulfilment		

Subject contents	Course content – lecture Origin and occurrence of groundwater. Hydrogeological properties of soils and rocks. Flow in saturated and unsaturated zones, groundwater flow systems. Groundwater abstraction, well hydraulics, dewatering. Chemistry and contamination of groundwater.				
Prerequisites and co-requisites	basic maths (differential and integral calculus), basic chemistry				
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade		
	Evaluation of exercises and projects	55.0%	50.0%		
	Exam	55.0%	50.0%		
Recommended reading	Basic literature	Pazdro Z., Kozerski B. Hydrogeologia ogólna Wyd. Geol. Warszawa 1990			
	Supplementary literature	Wieczysty A., Hydrogeologia Inżynierska, PWN, Warszawa 1982 Domenico P.A., Schwartz F.W., Physical and chemical hydrogeology, Wiley, 1998			
	eResources addresses				
Example issues/ example questions/ tasks being completed	Estimation of hydraulic permeability based on soil granulometry Design of excavation dewatering Interpretation of chemical analyses of groundwater samples				
Practical activites within the subject	Not applicable				

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