



Subject card

Subject name and code	Geotechnical aspects in hydrotechnical constructions, PG_00050997						
Field of study	Coastal and Offshore Engineering, Coastal and Offshore Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject				2022/2023	
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	1	Language of instruction				Polish	
Semester of study	2	ECTS credits				5.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Geotechnics, Geology and Marine Civil Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Lech Bałachowski					
	Teachers	prof. dr hab. inż. Lech Bałachowski dr inż. Kamila Mikina dr inż. Paweł Więclawski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	10.0	10.0	10.0	10.0	60
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	16.5		43.5	120	
Subject objectives	The role of subsoil conditions in the design of hydrotechnic structures						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U06	Student is able to calculate foundation settlement, differential settlement and foundation inclination.			[SU2] Assessment of ability to analyse information		
	K7_U07	Student takes into consideration the environmental loads.			[SU3] Assessment of ability to use knowledge gained from the subject		
	K7_U03	Student knows the basic law concerning the soil strength.			[SU4] Assessment of ability to use methods and tools		
	K7_U02	Student is able to determine the overall slope stability.			[SU4] Assessment of ability to use methods and tools		
	K7_U01	Student is able to determine the bearing capacity of shallow foundation and pile.			[SU1] Assessment of task fulfilment		
K7_U04	Student understands the problems related to sheet pile and pile driving.			[SU3] Assessment of ability to use knowledge gained from the subject			
Subject contents	Underwater concreting. Soil compaction on land and underwater. Anchors and their bearing capacity. Slope stability. Seashore protection structures. Analysis of model test of stability of hydrotechnic structures. Determination of soil parameters using static penetration tests CPTU. Determination of bearing capacity of shallow foundation (foot/strip foundation). Direct design of piles based on CPTU. Soil classification. Basic physical properties of soil. Atterberg limits. Shear strength parameters. Subsoil deformability. Lateral earth pressure on structures and pile foundations.						
Prerequisites and co-requisites	Seabed geology						
	Bases of concrete and steel structures						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	60.0%	20.0%
	Lectures	50.0%	40.0%
	Laboratory	60.0%	15.0%
	Active part in seminar	60.0%	10.0%
	Exercises	60.0%	15.0%
Recommended reading	Basic literature	Journal of waterways, port, coastal and ocean engineering ASCE	
	Supplementary literature	Webinars, web pages of enterprises and organizations	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Analyses of subsoil conditions for engineering structures. Determination of geotechnical parameters with laboratory and in-situ tests. Design of foot/strip foundation. Pile bearing capacity. Internal forces determination in sheet pile structure.		
Work placement	Not applicable		