



Subject card

Subject name and code	Hydro and Marine Engineering, PG_00065727						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish No comments		
Semester of study	6	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 -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Waldemar Magda					
	Teachers	dr inż. Witold Sterpejkowicz-Wersocki dr hab. inż. Waldemar Magda					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	0.0	45
	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	45		0.0		0.0	45
Subject objectives	A student learns basic constructions of hydro- and marine civil engineering. A student calculates discharge of spillways and outlet works with respect to given spillway design flood. A student selects a proper type of a vertical-wall breakwaters and rubble mound breakwaters with respect to given water depth, wave and geotechnical conditions. A student defines and computes forces acting on the hydro- and marine civil engineering structures due to environmental loading conditions. A student performs stability analysis and checks some basic stability conditions for the structure under design.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U02] Analyse & solve engineering issues & problems in the field of civil engineering by applying appropriate and relevant established analytical, numerical and experimental methods.	Analyses and solves engineering issues and problems in the field of hydro- and marine civil engineering through the use of appropriate analytical and experimental tools and methods.	[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
	[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment	Demonstrates an understanding of the impact of hydro- and marine hydrotechnical structures on the environment and the interrelationships and dependencies between the structures and the natural environment.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
	[K6_U01] Apply knowledge and understanding of mathematics as well as sciences and engineering disciplines underlying civil engineering to solve engineering problems and issues.	Applies the knowledge of mathematics and the sciences and engineering disciplines underlying the hydro- and marine civil engineering to solve engineering problems and issues.	[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
[K6_W02] Demonstrate knowledge and understanding of the processes and established methods of analysis / solution of engineering issues & problems in the field of civil engineering and of their limitations.	Demonstrates knowledge and understanding of the processes and principles and methods of analysis/solving engineering issues and problems in the field of hydro- and marine civil engineering and is aware of their limitations.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge	
Subject contents	<p>Hydro-engineering (inland)</p> <p>Water resources - national and international. Functions of the role of reservoirs. The handling of flood waters. Uncontrolled spillways, gated spillways, spillway chutes, energy dissipation. Outlet works. Gravity dams. Embankment dams. Hydropower.</p> <p>Marine Civil Engineering</p> <p>Scope of Marine Civil Engineering. Influence of dynamic increase of global effects (population, energy consumption, environmental pollution, greenhouse effect) on the needs and challenges faced to the marine civil engineering. Design and construction of rubble mound and monolithic type breakwaters. Storm surge barriers as flood protection marine structures. Hydrodynamic loading of surface water waves (non-breaking and breaking) on vertical-wall breakwaters. Uplift force (hydrostatic and hydrodynamic) acting on vertical wall breakwaters and submarine pipelines.</p>		
Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written test (marine part)	60.0%	50.0%
	written test (inland part)	60.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> Roberson J. A., Cassidy J. J., Chaudhry H.: Hydraulic Engineering. Wiley, 1998. Prasuhn A. L.: Fundamentals of Hydraulic Engineering. Oxford University Press, USA, 1995. Novak P.: Hydraulic Structures. Routledge, 2006. Hueckel S.: Budownictwo morskie. Tom I, II, III, IV, Wydawnictwo Morskie, Gdańsk, 1972. Mazurkiewicz B.: Morskie budowle hydrotechniczne. Politechnika Gdańska, Gdańsk, 1987. Mazurkiewicz B.: Encyklopedia Inżynierii Morskiej. Wydawnictwo Morskie, Gdańsk, 1986. 	
	Supplementary literature	<ol style="list-style-type: none"> Depczyński W., Szamowski A.: Budowle i zbiorniki wodne. Oficyna PWN, 1999. Balcerski W. i inni: Budownictwo betonowe t. XVII. Arkady, 1969. Poradnik hydrotechnika. Praca zbiorowa pod red. S. Massela, Wydawnictwo Morskie, Gdańsk, 1992. Morskie budowle hydrotechniczne. Zalecenia do projektowania i wykonawstwa Z1-Z45. Praca zbiorowa pod red. B. Mazurkiewicza, FPPOiGM, Gdańsk, 2006. Shore Protection Manual, USA, 1984. Inżynieria Morska i Geotechnika (dwumiesięcznik). 	
	eResources addresses	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	No sample issues and questions
Work placement	Not applicable

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