

SDAŃSK UNIVERSITY 的 OF TECHNOLOGY

Subject card

Subject name and code	Hydro and Marine Enineering [L], PG_00044200								
Field of study	Civil Engineering								
Date of commencement of studies	October 2021		Academic year of realisation of subject			2023/2024			
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	3		Language of instruction			Polish			
Semester of study	6		ECTS credits			2.0			
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	Subject supervisor		dr inż. Witold Sterpejkowicz-Wersocki						
of lecturer (lecturers)	Teachers		dr inż. Witold Sterpejkowicz-Wersocki						
			dr hab. inż. W	da					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	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 classes include plan		didactic Participation in consultation hours		Self-study SI		SUM		
	Number of study hours	30		5.0		15.0		50	
Subject objectives	A student learns basic constructions of hydro-engineering 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 structure with respect to given water depth, wave and geotechnical conditions. A student defines and computes forces acting on the structure 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_W06] knows the rules of constructing and dimensioning of building elements of: steel, reinforced concrete, wood, masonry.		A student knows the rules of dimensioning and construction of typical hydro-engineering structures (earth, concrete, and steel)						
	[K6_W09] knows the principles of determining of loads acting on basic constructions (e.g. general, industrial, bridge, water, marine, transport objects) and rules of its constructing		A student knows how to determine the loadings acting on hydro- engineering structures (inland and marine), types of typical structures and their foundations, and construction methods						
	[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions		A student is able to dimension the basic elements or typical foundations of the hydro- and marine civil engineering structures						
	[K6_U01] can evaluate and list the loads acting on constructions		A student has the capability in terms of defining and collecting typical loadings acting on the hydro-engineering structures						

Subject contents	Hydro-engineering (inland) 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.						
	Marine Civil Engineering						
	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. Construction of breakwaters. Design and construction of rubble mound and monolithic type breakwaters. Hydrodynamic loading of surface water waves (non-breaking and breaking) on vertical and inclined walls of hydro-engineering structures. Uplift force (hydrostatic and hydrodynamic) acting on vertical-wall breakwaters and submarine pipelines.						
Prerequisites and co-requisites	No requirements						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	written test (inland part)	60.0%	50.0%				
	written test (marine part)	60.0%	50.0%				
	written test (manne part)	60.0%	50.0%				
Recommended reading	Basic literature	1. Roberson J. A., Cassidy J. J., Chaudhry H.: Hydraulic Engineering. Wiley, 1998.					
		2. Prasuhn A. L.: Fundamentals of Hydraulic Engineering. Oxford University Press, USA, 1995.					
		3. Novak P.: Hydraulic Structures. Routledge, 2006.					
		4. Hueckel S.: Budownictwo morskie. Tom I, II, III, IV, Wydawnictwo Morskie, Gdańsk, 1972.					
		5. Mazurkiewicz B.: Morskie budowle hydrotechniczne. Politechnika Gdańska, Gdańsk, 1987.					
		6. Mazurkiewicz B.: Encyklopedia Inżynierii Morskiej. Wydawnictwo Morskie, Gdańsk, 1986.					
	Supplementary literature	1. Depczyński W., Szamowski A.: Budowle i zbiorniki wodne. Oficyna PWN, 1999.					
		2. Balcerski W. i inni: Budownictwo betonowe t. XVII. Arkady, 1969.					
		3. Poradnik hydrotechnika. Praca zbiorowa pod red. S. Massela, Wydawnictwo Morskie, Gdańsk, 1992.					
		4. Morskie budowle hydrotechniczne. Zalecenia do projektowania i wykonawstwa Z1-Z45. Praca zbiorowa pod red. B. Mazurkiewicza, FPPOiGM, Gdańsk, 2006.					
		5. Shore Protection Manual, USA, 1984.					
		6. Inżynieria Morska i Geotechnika (dwumiesięcznik).					
	eResources addresses	Adresy na platformie eNauczanie:					
Example issues/	Brak						
example questions/							
tasks being completed							
Work placement	Not applicable						