GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	WATER MANAGEMENT AND FLOOD PROTECTION, PG_00044231		
Field of study	Civil Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Optional subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	2.0
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 hab. inż. Tomasz Kolerski	
	Teachers		

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

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/index.php?id=8949

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	5.0	15.0	50

Subject objectives

Introduction of the students into the questions of water management and flood protection.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	The student knows the rules for determining the loads on selected hydrotechnical structures	[SW3] Assessment of knowledge contained in written work and projects
[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions	Student can design weir opening, energy dissipation basin, crest of the embankments	[SU1] Assessment of task fulfilment
[K6_U17] has specialized skills in civil engineering within offered specialization	The student has specialized skills in the field of water management and flood protection	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_W16] Has deeper and adequate knowlege of civil engineering, within offered specialization	The student has an in-depth knowledge of water management and flood protection	[SW1] Assessment of factual knowledge

Subject contents

Basic definitions . Water resources, water management tasks . Water Law and administration of water resources. Fundamentals of hydrology : precipitation , the amount of precipitation in Poland and worldwide . The runoff from the catchment , infiltration , runoff components of the total outflow from catchment . Effective rainfall , surface runoff , the impact of urbanization on runoff from the catchment. The flow in the rivers: water levels and discharges , the rating curve Q (h) , steady flow , channel with compact and compound cross-section , unsteady flow , flood wave propagation in open channels , extreme flows . Floods and their roots, the floods in Poland. Retention reservoirs and their functions , flood control reservoir design, storage equation , transformation of flood wave through the reservoir . Controlling the outflow from the reservoir during the flood wave transition . Retention reservoirs in Poland and in the world . Flowing over the floodplain area . Flood : the role of the dikes , the principles of their construction and maintenance , failures of dikes. Flood wave propagation on dry floodplain caused by the failure of the dike.

Prerequisites and co-requisites

Basic knowledge dealing with computer application. Knowledge of the subject Hydraulics and Hydrology

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
final test	60.0%	50.0%
Practical exercise	60.0%	50.0%

Recommended reading	Basic literature	1. Ciepielowski A.: Introduction to water management. Wydawnictwo SGGW, Warsaw 1999 2. Kubrak J., Nachlik E. (red): Fundamentals of open channels computations. Wydawnictwo SGGW Warsaw 2003. 3. Kolerski T. Praktyczne aspekty gospodarki wodnej w projektowaniu zbiorników retencyjnych, Wydawnictwo Politechniki Gdańskiej
	Supplementary literature	1.Szymkiewicz R., Gąsiorowski D.: Introduction to dynamic hydrology. WNT Warsaw 2010 2.Tuszko A. (red.): Fundamental problems in modern technics; vol. XXIV Water in national economy. PWN Warsaw 1985 3.Wołoszyn J., Czamara W., Eliasiewicz R., Krężel J.: River training. Wydawnictwo AR Wrocław 1994
	eResources addresses	Podstawowe https://www.researchgate.net/publication/263043106_Praktyczne_aspekty_gospodarki_wodnej_w_projektowaniu - the handbook can complement the available studies in the fields of water management, hydrology and reservoir design. My goal was to present in a clear and logical manner the complex problems related to the design of water reservoirs and other issues in the field. Each of the discussed issues is illustrated with examples that readers may try to solve on their own or relate the proposed procedures to a similar task that they will have to face in their engineering practice. Adresy na platformie eNauczanie: Gospodarka wodna i ochrona przeciwpowodziowa 2024 - Moodle ID: 41647 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=41647
Example issues/ example questions/ tasks being completed	Steady flow in open channel with compound cross section. Analysis of the flood wave propagation through the reservoir.	
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.