GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	WATER RESOURCES MANAGEMENT, PG_00019675						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2024/2025			
Education level	second-cycle studies		Subject group	Optional subject group			
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	1		Language of instruction	English			
Semester of study	2		ECTS credits	4.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	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	30.0	15.0	0.0	15.0	0.0	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		5.0	35.0		100
Subject objectives	Advances and practice of water resources management						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W09] has deepened, ordered, theoretically developed knowledge related to: hydrology, drainage, water management, flood protection or resource and water intake or water and sewage management	The student knows the rules for constructing the water-economic balance, knows the rules for calculating hydrographs of water outflow from the controlled and uncontrolled catchment, The student knows the principles of the functioning of retention reservoirs and the flood routing through the reservoir, knows the mechanism of thermal snow melting and is able to determine the outflow of water as a result of melting.	[SW1] Assessment of factual knowledge
[K7_U01] can obtain information from literature, databases and other sources; can integrate the obtained information, interpret and critically evaluate them, draw conclusions, and formulate and comprehesively justify the opinions	The student is able to use raw data and process this data to obtain the necessary input information to solve the task. The student is able to use the IMGW databases	[SU2] Assessment of ability to analyse information
[K7_U12] can design: developed water and sewage system, complex heat source, pool water treatment technology, mechanical ventilation installation or underground water intake, drainage of urban water catchment, reservoir control system during flood seizure or water treatment technology, domestic waste water treatment plant	Student is able to develop a retention reservoir control system to neutralize the flood hazard in the lower part of the catchment. The reservoir control system can adapt to the real situation in the existing catchment.	[SU1] Assessment of task fulfilment
[K7_U03] can elaborate detailed documentation presenting results of an experiment, design or research task; can prepare a paper to discuss the results	is able to prepare a report summarizing the research together with the presentation of data and results, discussion and conclusions	[SU2] Assessment of ability to analyse information
[K7_U06] can use the known mathematical methods and models, if needed, to modify them, for: analysis and design of water systems and their components or water flows, migration of pollutants or water and wastewater treatment and sewage sludge handling	The student is able to implement the known mathematical model into real areas. The student is able to modify the lumped mathematical model in order to reproduce the real situation. The student is able to adopt the known methods to solve practical problems	[SU1] Assessment of task fulfilment

Subject contents

A study of the advances engineering involved in analyzing and managing the quantity of water in natural and developed systems. The course illustrate the roles of interdisciplinary teamwork, partnerships, and public involvement in planning and management processes and present the elements of integrated water resources planning and management

Prerequisites and co-requisites

This course is designed to students with the basic knowledge of principles of water resources planning and management

Assessment methods and criteria

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

Recommended reading

Basic literature	1. Cech, T., V., *Principles of Water Resources,* John Wiley & Sons, Inc. 2002 2. Dzurik, A., A., *Water Resources Planning* (3rd ed), Rowman & Littlefield Pub. Inc., 2003. 3. Mays L. W., Water Resources Engineering, 2005 Edition John Wiley & Sons, Inc.
Supplementary literature	1. Chow, V.T., *Open-channel Hydraulics*, McGraw-Hill, 1959 2. Henderson, F., M., *Open Channel Flow*, Prentice Hall, 1966 3. Shen H. T., *Mathematical Modeling of River Ice Processes,* Cold Regions Science and Technology, Volume 62, Issue 1, June 2010, Pages 3-13 4. Young D. F., Munson B R Okiishi T. H., Huebsch W. W., A Brief Introduction to Fluid Mechanics, John Willey and Sons, Inc. 2007 (or later edition)
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Rainfall exces and surface outflow from the basin Thermal budget of the snow surface Flow routing
Work placement	Not applicable