GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00059985
Field of study	Environmental Engineering

Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	exam

Conducting unit	Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Michał Szydłowski
	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	15.0	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	5.0	30.0	80

Subject objectives	Getting knowledge about methods in the field of forecasting flood phenomena and rules for limiting floods and its consequences and flood risk management.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K7_U12	Student is able to determine the transformation of a flood wave in a river and through a retention reservoir and can apply methods of calculating the capacity of multi-part open channels. Student is able to prepare flood hazard and risk maps using a computational model of surface water flow.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	K7_U11	Performing flood hazard and risk calculations, student is able to integrate knowledge of hydraulics, hydrology and computational methods, taking into account economic and social aspects.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	[K7_W08] has knowledge necessary to understand the social, economic, legal and other non-technical determinants of engineering activities and their incorporation in engineering practice	Student knows modern methods of flood risk management in accordance with the Polish Water Law and the European Floods Directive.	[SW1] Assessment of factual knowledge
	K7_W01	Student knows the principles of forecasting floods and methods of reducing floods and its effects.	[SW1] Assessment of factual knowledge

Subject contents	Floods genesis and classification. Flood risk management basic concepts and strategies. Propagation of flood waves in river beds. Flood risk management in the light of the European Floods Directive and Polish Water Law. Technical means of flood protection active, passive. Designation of flood hazard and risk zones. Rules for the development of floodplains. Methods of reducing the effects of floods. Flood risk assessment.
Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Calculation tasks	60.0%	25.0%
	Final test (exam)	60.0%	50.0%
	Project presentation	60.0%	25.0%

Recommended reading	Basic literature	1] Kubrak J. Nachlik E.: Hydrauliczne podstawy obliczania przepustowości koryt rzecznych, Wydawnictwo SGGW, Warszawa 2003.[2] Lambor J.: Gospodarka wodna na zbiornikach retencyjnych. Warszawa: Arkady 1962.[4] Nachlik E., Kostecki S., Gądek W., Stochmal R.: Strefy zagrożenia powodziowego. Wrocław 2000.[5] Radczuk L. i inni: Wyznaczanie stref zagrożenia powodziowego, Wydawnictwo RM, Wrocław 2001.[6] Szymkiewicz R.: Modelowanie matematyczne przepływów w rzekach i kanałach, Wydawnictwo Naukowe PWN Warszawa 2000.[7] Szymkiewicz r., Gąsiorowski D.: Podstawy hydrologii dynamicznej. Wydawnictwa Naukowo - Techniczne Warszawa 2010.[8] Ven Te Chow: Open-channel hydraulics, McGraw-Hill, 195
	Supplementary literature	[1] Ciepielowski A.: Podstawy gospodarowania wodą. Warszawa: SGGW 1999.[2] Kubrak E., Kubrak J.: Hydraulika techniczna przykłady obliczeń, Wydawnictwo SGGW, Warszawa 2004.[3] Wołoszyn J. i inni: Regulacja rzek i potoków, Wydawnictwo Akademii Rolniczej we Wrocławiu, Wrocław 1994.[4] Chadwick A., Morfett J.: Hydraulics in civil and environmental engineering, E&FN Spn, London 1999.
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Determination of the impact of development of the floodplain on the capacity of the riverbed.Analysis of flood wave transformation during passage through the river valey.Determination of flood hazard and risk zones.
Work placement	Not applicable

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