



## Subject card

Subject name and code	Hydraulics and hydrology, PG_00041517						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2022/2023		
Education level	second-cycle studies		Subject group		Optional subject group 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		English		
Semester of study	1		ECTS credits		2.0		
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	15.0	15.0	15.0	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		5.0		0.0	50
Subject objectives	<p>Students should master the following capacities:</p> <p>- analysis of hydrological processes in catchment,</p> <p>- determination of open-channel hydraulic parameters, oriented towards problems of hydroengineering,</p>						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U05] can formulate and perform basic research on engineering, technological or organisational problems in civil engineering		The student is able to define design and control conditions for engineering structures		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_U10] can analyse complicated environmental loads acting on a construction; can apply proper processes to design marine and hydroengineering constructions taking into consideration hydrological and hydraulic impact		Student knows how to calculate surface runoff base on the UH theory, Knows ho to determine prameters of hydraulic structures base on hydraulic calcualtions		[SU1] Assessment of task fulfilment		
	[K7_W11] has deep knowlege of marine and inland hydrotechnical constructions; has knowledge about hydraulic and hydrological constrains in design and exploitation of buildings		Student knows how to calculate hydarulics of hydroengineering structures, Knows procedures to calculate effective rainffall, knows how to calcualte flood storage of the retention reservoirs		[SW1] Assessment of factual knowledge		
Subject contents	LECTURE Hydrological cycle. Hydrological proprieties of catchment area. Parameters of the river catchment. The water balance of the river catchment. Run-off. Surface run-off. Unit hydrogram. Flow in rivers. Storm flood and characteristic flows in rivers. Open channel steady and unsteady flow. Hydrologic statistics. Ice phenomena on rivers. CLASSES and LAB Hydraulic and hydrological computations and some laboratory exercises on on hydrological processes.						
Prerequisites and co-requisites	No requirements						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lab reports	60.0%	30.0%
	Midterm colloquium	60.0%	40.0%
	Final test	60.0%	30.0%
Recommended reading	Basic literature	1. Van Te Chow et al., Applied Hydrology, McGRAW-HILL, 1988 2. Van Te Chow, Open-Channel Hydraulics, McGRAW-HILL, 1957 3. Mays, L. Water Resources Engineering, Willey, 2006	
	Supplementary literature	1. Czetwertyński E., Utrysko B., Hydraulika i hydromechanika, PWN 1986 2. Kubrak J., Hydraulika techniczna, SGGW 1998 3. Byczkowski A., Hydrologia, SGGW 1996 4. Ozga-Zielińska M., Brzeziński J.: Hydrologia stosowana, Wydawnictwo Naukowe PWN Warszawa, 1994.	
	eResources addresses	Adresy na platformie eNauczanie:	
	Example issues/ example questions/ tasks being completed	- analysis of hydrological processes in catchment,  - determination of open-channel hydraulic parameters.	
Work placement	Not applicable		