



Subject card

Subject name and code	Hydroelectric Power Plants, PG_00042184						
Field of study	Power Engineering, Power Engineering, Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
Education level	first-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	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marcin Jaskólski				
	Teachers		dr inż. Alicja Lenarczyk dr inż. Marcin Jaskólski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	To teach students the structure s of hydro power plants. To teach students hot to calculate power output and electricity production from hydro power plant. \ To teach students how to select hydro turbine to hydrological conditions						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W09		Student can size hydro turbine for given hydrological conditions.		[SW1] Assessment of factual knowledge		
	K6_W05		Student knows and understands the principles of operation of hydro power plants.		[SW1] Assessment of factual knowledge		
	K6_U03		Student can calculate power and energy of the hydro power plants and to size its elements based on given hydrological conditions.		[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		

Subject contents	Hydro power in Poland. Hydro power resources. Power output of hydro power plant. Devices in technological chain of hydro power plant. Hydro power turbines. Power generators. Operation of hydropower plants in power grid. Pumped storage power plants. Small hydro power plants.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Evaluation test	60.0%	100.0%
Recommended reading	Basic literature	Marecki J.: Podstawy przemian energetycznych. WNT Warszawa 2008 Łaski A.: Elektrownie wodne: Rozwiązania i dobór parametrów. WNT Warszawa 1971 Jackowski K.: Elektrownie wodne: Turbozespoły i wyposażenie. WNT Warszawa 1971	
	Supplementary literature	Michałowski S.: Energetyka wodna. WNT Warszawa 1975	
	eResources addresses	Adresy na platformie eNauczanie: Elektrownie wodne [2022/23] - Moodle ID: 28624 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28624	
Example issues/ example questions/ tasks being completed	Calculate the power output and electricity production in hydro power plant given the water volume and difference of height (run-on-the-river hydropower plant, hydropower plant with dam - daily and weekly storage). Design of hydro turbine on the basis of specific speed given hydrological conditions (volume of water and difference in height).		
Work placement	Not applicable		