



## Subject card

Subject name and code	, PG_00056117						
Field of study	Mechatronics						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2024/2025		
Education level	first-cycle studies		Subject group				
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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Wojciech Włodarski				
	Teachers		dr inż. Wojciech Włodarski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30		0.0		0.0	30
Subject objectives	The aim of the course is to broaden the knowledge of the construction, operation and control of flow machines used in the power industry.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W10] has a basic knowledge about development trends in terms of engineering and technical sciences and scientific disciplines: Mechanical Engineering, Automation, Electronics and Electrical Engineering, adequate for Mechatronics curse		The student has in-depth knowledge of the operation of complex mechanical systems and devices.		[SW1] Assessment of factual knowledge		
	[K6_W08] knows and understands design and production processes of elements and simple mechatronic devices		The student is able to describe and evaluate system and non-technical aspects when solving engineering tasks in the field of design, technology and operation of machines.		[SW1] Assessment of factual knowledge		
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics		The student has in-depth knowledge of the operation of complex mechanical systems and devices.		[SU2] Assessment of ability to analyse information		
	[K6_U05] is able to use properly choosen tools to compare design solutions of elements and mechatronics systems according to given application and economic crtierions (e.g. power demand, speed, costs)		The student has in-depth knowledge of the operation of complex mechanical systems and devices.		[SU1] Assessment of task fulfilment		
Subject contents	classification of flow energy machines, control of steam and gas turbines, wind turbines, pumps and compressors						
Prerequisites and co-requisites	basics of thermodynamics and fluid mechanics						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	test		51.0%		100.0%		

Recommended reading	Basic literature	Krzysztof Kosowski Steam and gas turbines Alstom 2007
	Supplementary literature	Krzysztof Kosowski Steam and gas turbines Alstom 2007
	eResources addresses	Adresy na platformie eNauczanie: Układy regulacji maszyn energetycznych 2025 - Moodle ID: 45523 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=45523">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=45523</a>
Example issues/ example questions/ tasks being completed	Steam turbine control methods	
Work placement	Not applicable	

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