



Subject card

Subject name and code	Nuclear power plant turbines, PG_00055909								
Field of study	Power Engineering, Power Engineering, Power Engineering								
Date of commencement of studies	October 2023	Academic year of realisation of subject		2025/2026					
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 Polish				
Semester of study	6		ECTS credits		1.0				
Learning profile	general academic profile		Assessment form		assessment				
Conducting unit	Division of Fluid-Flow Machinery -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology								
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Krzysztof Kosowski						
	Teachers		prof. dr hab. inż. Krzysztof Kosowski						
Lesson types	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		1.0		9.0	25		
Subject objectives	<p>Understanding the turbine thermal cycles of nuclear power plants.</p> <p>Wet steam flow problems</p> <p>Understanding erosion and corrosion problems in nuclear power plant turbines</p> <p>Presenting the characteristic features of nuclear turbines and the differences between conventional turbines and nuclear power plant turbines</p>								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_W11] has knowledge of known technologies and non-technical aspects to solve simple engineering tasks in the field of energy systems and devices		The student is able to evaluate the technical, economic and social aspects of nuclear power plant technologies.			[SW1] Assessment of factual knowledge			
	[K6_W02] has a basic knowledge of physics (including optics, electricity and magnetism), chemistry, technical thermodynamics, fluid mechanics and general mechanics needed to understand and describe the basic phenomena occurring in devices and systems, energy plants and transmission networks and their environment		Deepening basic knowledge of thermodynamics, heat transfer and fluid mechanics. Students can perform thermal cycle calculations and design calculations for turbine flow components. They can discuss problems related to wet steam flows.			[SW1] Assessment of factual knowledge			

Subject contents	<p>Course content – lecture</p> <p>Nuclear power plant steam cycles Nuclear power plant gas cycles Wet steam flow problems Energy losses from moisture Corrosion and erosion in nuclear power plant turbines Characteristic features of modern nuclear turbines Differences between nuclear and conventional power plant turbines</p>						
Prerequisites and co-requisites	knowledge of the basics of turbomachinery						
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="446 586 806 619">Subject passing criteria</th><th data-bbox="806 586 1156 619">Passing threshold</th><th data-bbox="1156 586 1489 619">Percentage of the final grade</th></tr> </thead> <tbody> <tr> <td data-bbox="446 619 806 653">test</td><td data-bbox="806 619 1156 653">60.0%</td><td data-bbox="1156 619 1489 653">100.0%</td></tr> </tbody> </table>	Subject passing criteria	Passing threshold	Percentage of the final grade	test	60.0%	100.0%
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Recommended reading	<p>Basic literature</p> <p>Stefan Perycz, Turbiny parowe i gazowe, Ossolineum, 1992</p> <p>Stefan Perycz, Turbiny parowe elektrowni jądrowych</p> <p>Krzysztof Kosowski, ed., Steam and gas turbines, Alstom, 2007</p> <p>Supplementary literature</p> <p>materials from nuclear power plant suppliers</p> <p>eResources addresses</p>						
Example issues/ example questions/ tasks being completed	<p>wyznaczenie linii ekspansji w turbinie nuklearnej</p> <p>typy podgrzewaczy regeneracyjnych i ich bilanse energetyczne</p> <p>straty w stopniu turbiny nuklearnej</p> <p>charakterystyczne cechy konstrukcji turbin nuklearnych</p>						
Practical activites within the subject	Not applicable						

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