GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Steam and Gas Turbines Constuction (WOiO), PG_00042090						
Field of study	Power Engineering						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
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	English			
Semester of study	6		ECTS credits	4.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Institute of Naval Architecture -> 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. Jerzy Głuch				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	15.0	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		5.0		65.0	100
Subject objectives	Gaining basic knowledge in thermal turbomachinery design						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U07] is able to use basic knowledge of fluid flow machines and methods related to their design in an analytical and numerical approach to the preliminary design of an energy installation		
[K6_W06] knows classic and developmental energy technologies, rules for the selection and operation of heat and energy devices and installations, basic principles of energy systems operation, basic issues regarding the reliability of energy devices and diagnostics, environmental effects of energy technologies used, methods of using renewable energy sources		
[K6_W12] has basic knowledge of the life cycle and repairs of energy equipment in the field of thermal power stations, thermal and energy systems and heating systems, internal combustion engines and compressors as well as rotating machines		
[K6_W13] has basic knowledge of the operation of energy equipment in the field of thermal power plants, thermal and energy and heating systems, internal combustion engines, compressors and rotating machines, has basic knowledge of the regulation of energy equipment and methods of their selection depending on the needs		
[K6_U06] is able to use the basic knowledge on the operation of energy equipment in the field of thermal power plants, thermal and energy and heating systems, combustion engines, compressors and rotating machines to assess the technical condition of the system		

Subject contents

Course content – lecture
Rotor design. Stress analysis of drum and disc rotors. Trigger rotations of folding disc rotors. Rotor balancing. Design of statordiscs. Stress analysis of statordiscs. Design of rotary blades and their mounts. Vibration of the blades. Basics of rotor dynamics. Turbine bodies and external glands. Design of radial and thrust bearings.

Prerequisites and co-requisites

basic knoledge on termal turbomachinery cycles

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
seminary	100.0%	50.0%
lecture	60.0%	50.0%

Recommended reading	Basic literature	Perycz S., Turbiny parowe i gazowe, Politechnika Gdańska, Skrypt, Gdańsk 1988 Perycz S., Turbiny parowe i gazowe, Maszyny Przepływowe T. 10, Wydawnictwo Instytutu Maszyn Przepływowych PAN, Gdańsk 1992. Allen Bursley Heat Engines Steam, Gas, Steam Turbines and their Auxiliaries James Ambrose Moyer The Steam Turbine A Practical and Theoretical Treatise for Engineers and Designers, Including a Discussion of the Gas Turbine Cohn H Rogers Gas Turbine Theory Salisbury J K Steam Turbines and their Cycles
	Supplementary literature	Kosowski K, Introduction to the theory of marine turbines, Wyd. PG Delft University, Gdańsk 2004
	eResources addresses	
Example issues/ example questions/ tasks being completed	Descibe Gruber's method	
Practical activites within the subject	Not applicable	

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