



Subject card

Subject name and code	, PG_00057313						
Field of study	Ocean Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jerzy Gluch					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	9.0	0.0	0.0	18.0	0.0	27
	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	27		10.0		63.0	100
Subject objectives	Raising students knowledge of the methods of designing cycles and selected structural nodes of thermal turbines.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W05] has an organized, widened knowledge on design, construction and operation of ocean technology objects and systems		The student can characterize the basic types of thermal turbines, their usage, design methods and basic operating conditions.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
	[K7_U07] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete an advanced engineering task within the range of design, construction and operation of ocean technology objects and systems		The student can choose suitable methods of designing cycles and structural nodes of thermal turbines		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W06] has an organized, widened knowledge on engineering methods and design tools allowing the conducting of advanced projects within the construction and operation of ocean technology objects and systems		The student knows the most important methods of designing cycles and structural nodes of thermal turbines		[SW2] Assessment of knowledge contained in presentation		
Subject contents	Marine turbines, aviation turbines and power plants and combined heat and power plants. The main types of gas turbines, the rules for the selection of their structure and parameters. Selection of parameters and structure of gas-steam combined systems. Principles for the selection and design of the main parameters of stages and group of stages, multi-stage turbines, the power and efficiency of a multi-stage turbine. Methods for calculating three-dimensional flows, radial equilibrium equation. Selection of rotation frequency, number of shafts and bodies of steam and gas turbines.						
Prerequisites and co-requisites	Knowledge of thermodynamics and fluid dynamics						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	lecture		60.0%		50.0%		
	seminary		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. Kosowski K, Ship Turbine Power Plans, Wyd. PG Delft University, Gdańsk 2004 Kosowski K, Introduction to the theory of marine turbines, Wyd. PG Delft University, Gdańsk 2004
	Supplementary literature	World literature on steam and gas turbines
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	What is the difference between efficiency of one stage turbine and multistage turbine?	
Work placement	Not applicable	