



## Subject card

Subject name and code	Team Project, PG_00056044						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject				2023/2024	
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				3.0	
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 hab. inż. Jerzy Głuch				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	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		8.0		37.0	75
Subject objectives	Project of an energetical machine and its auxiliary installations						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U02] is able to apply the learned mathematical methods to the analysis and design of elements, systems and energy systems	He can apply basic knowledge from fluid flow machinery field and from methods of design in analytical and numerical way to primary design of energy systems			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
	[K6_U11] Can design and properly dimension basic foundations in hydrotechnical construction facilities; can evaluate and list the loads acting on constructions, knows the codes of modern geotechnical investigations and technologies, knows the principles of foundations and safe design of foundations of typical buildings	He can design basic geometrical parameters of devices realising energy conversion and evaluate design from technical point of view			[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	[K6_W09] knows the dangers of electrical devices and the principles of protection against them, has basic knowledge of heat exchangers, has basic knowledge of power equipment such as pumps, compressors, turbines, combustion engines, boilers, pipelines and their accessories and methods of their selection depending on the needs	He can design basic auxiliary equipment of energetical installations.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K6_W10] knows the basic installations in the field of renewable energy sources and their impact on the environment	He can design basic technology parameters concerning energy conversion and choose auxiliary equipment and evaluate design from technical and economical points of view			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
Subject contents	Steam and gas energetical turbines. Review of the most important Industrial energetic installations. Including of the auxiliary equipment to the energetic installations. Steam-water installations. Oil and fuel installations. Construction of the energetic pipelines. Pumping installations. Pneumatic and ventilation installations. Application of the pumps and compressors to the energetic installations.						

Prerequisites and co-requisites	basic knowledge in the field of thermal machines		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	projekt	100.0%	100.0%
Recommended reading	Basic literature	<p>Głuch J. (red), <i>Ciepłno-przepływowe relacje diagnostyczne w ruchowych warunkach przemysłowych</i>, Politechnika Gdańska WOiO, Monografia, Gdańsk 2007</p> <p>Szuman R., <i>Urządzenia elektrowni ciepłych</i>, WNT Warszawa 1974</p> <p>Zembaty W., <i>Systemy i urządzenia chłodzące elektrowni ciepłych</i>, WNT, Warszawa 1993.</p> <p>Kosowski K, <i>Ship Turbine Power Plans</i>, Wyd. PG Delft University, Gdańsk 2004</p>	
	Supplementary literature	<p>Kosowski K, <i>Introduction to the theory of marine turbines</i>, Wyd. PG Delft University, Gdańsk 2004</p> <p>Andrzejewski M., <i>Projektowanie elektrowni parowych</i>, WNT, Warszawa 1994</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	design condensate pump of the steam turbine power station		
Work placement	Not applicable		