GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Design of Turbine Propulsion, PG_00057241		
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	Full-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. Marek Dzida	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	30.0	0.0	45

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	45	10.0	45.0	100

Subject objectives

The aim of the course is to: design a steam or gas turbine, perform thermodynamic calculations of the cycle, determine the main design parameters of the flow part of the turbine set, perform detailed flow and strength calculations to check the selected turbine stage and draw a drawing of the axial section of the gas turbine set or steam turbine.

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 is able to use the knowledge to analyze projects related to the main elements of the unit	[SW3] Assessment of knowledge contained in written work and projects
[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	He is able to pre-design a steam and gas turbine set	[SU4] Assessment of ability to use methods and tools
[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 basic thermal cycles of the power plant with steam and gas turbines, the theory of operation of the axial turbine stage, the principle of operation of multi-stage turbines.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Steam or gas turbine design; Cycle thermodynamic calculations; Determination of the main design parameters of the flow part of the turbine set; Preliminary calculations of the flow part of a gas turbine set or steam turbine; Detailed flow and strength calculations checking the selected turbine stage; Preparation of a drawing of the axial cross-section of a gas turbine set or a steam turbine;

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Thermodynamics;

Steam and gas turbines;

Technical and machine drawing;</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>project exam</td><td>0.0%</td><td>50.0%</td></tr>
<tr><td>colloquium passing the lecture</td><td>0.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Kosowski K. at al "Steam and Gas Turbines Power Plants" Alstom, France-Switzerland-United Kingdom- Poland, 2007;

2. Leizerovich A. S. "Steam Turbines for Modern Fossil-fuel Power Plants" Inc NetLibrary, 2007;

3. Logan E., Ro R. "Handbook of Turbomachinery" Arizona State University, Marcel Dekker Inc. New York, Basel, 2003;</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. Boyce M. P. "Gas Turbine Engineering Handbook Gulf Professional Publishing an imprint of Butterworth- Heinemann, Boston, Oxford, Auckland, Johannesburg, Melbourne, New Delhi, 2002;

2. Horlock J. H. "Advanced Gas Turbine Cycles An imprint of Elsevier Science, Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Singapore, Sydney, Tokyo, 2003;</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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