GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Propulsion Systems Using Internal Combustion Engines, PG_00062687						
Field of study	Naval Architecture and Offshore Structures						
Date of commencement of studies	February 2024		Academic year of realisation of subject	2024/2025			
Education level	second-cycle studies		Subject group	Specialty 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	1		Language of instruction	English			
Semester of study	2		ECTS credits	5.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Zakład Siłowni Okrętowych -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Zbigniew Korczewski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	30.0	0.0	75
	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	75		10.0	40.0		125
Subject objectives	Introduce students to the basics of designing ship power plants.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U01] Develops innovative strategies to solve complex and dynamic problems by synthesizing information from various sources and utilizing analytical, simulation, and experimental methods, considering environmental variability	The student is able to select marine machinery taking into account technical and economic aspects	[SU1] Assessment of task fulfilment
[K7_U02] Presents convincing and logically justified arguments regarding outcomes through critical analysis of information in diverse technical contexts and an approach to their interpretation	The student is able to select a rational solution to a problem related to the designing of a ship's power plant.	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K7_W03] Demonstrates advanced skills in applying analytical methods and problem-solving techniques related to ocean engineering, using appropriate tools	The student understands the processes of energy transformation in ship machines and equipment and phenomena occurring in pipelines.	[SW1] Assessment of factual knowledge
[K7_K01] Understands the need for lifelong learning, critically evaluate acquired knowledge, and comprehend the significance of knowledge in addressing cognitive and practical problems	The student understands the need for a rational selection of a solution to a problem related to the design of a ship's power plantThe student understands the need for a rational selection of a solution to a problem related to the design of a ship's power plant	[SK5] Assessment of ability to solve problems that arise in practice
[K7_W02] Explains the essence and relationships of key components describing systems and processes in ocean engineering, utilizing current knowledge from major scientific fields related to the field of study	The student knows the principles, methods and tools helpful in designing ship power plants	[SW1] Assessment of factual knowledge
[K7_W06] Capable of finding and utilizing credible sources of information crucial for analyzing issues within the field of study	The student is able to prepare a preliminary design of a ship's power plant.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Creating a list of gyms of similar units. Selection of the main engine and drive system components. Selection of generating sets. Selection of auxiliary boilers. Design of installations: cooling water, lubricating oil, liquid fuel, starting air, exhaust gas discharge. Location of machines, devices and tanks in the engine room. 3D ship power plant model

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	100.0%	30.0%
Colloquium lecture	60.0%	40.0%
Colloquium exercises	60.0%	30.0%

Recommended reading

Basic literature	1.Woud H.K., Stapersma D.: Design of Propulsion and Electric Power Generation Systems. IMarEST, London 2003 2. Jamroż J., Wieszczeczyński T.,Swolkień T.: Projektowanie siłowni okrętowych. PG, Gdańsk, 1997. 3. Michalski R.:Siłownie okrętowe. PSz, Szczecin, 1997. 4. Wojnowski W.:Okrętowe siłownie spalinowe. Część III.Gdańsk, 1992. 5. PRS: Przepisy klasyfikacji i budowy statków morskich. 6. IMO: Formal Safety Assessment. Witryny internetowe: www.manbw.com; www.wartsila.com; www.alfalaval.com; www.imo.or
Supplementary literature	.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Prepare a preliminary design of the power plant of a container ship with a capacity of 3,000 TEU.
Work placement	Not applicable