



Subject card

Subject name and code	Design of Ship Propulsion Systems Using Internal Combustion Engines, PG_00062696						
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	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
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	18.0	9.0	0.0	18.0	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		8.0		72.0	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 plant The 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
	Colloquium lecture	60.0%	40.0%
	Colloquium exercises	60.0%	30.0%
	Project	100.0%	30.0%
Recommended reading	Basic literature	1. Woud H.K., Stapersma D.: Design of Propulsion and Electric Power Generation Systems. IMarEST, London 2003 2. Jamroz J., Wieszczyński 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 eNauczenie:	

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