



## Subject card

Subject name and code	, PG_00056325						
Field of study	Ocean Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group					
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 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	15.0	0.0	30.0	0.0	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	5.0		25.0	75	
Subject objectives	To teach the basic principles of operation and maintenance of marine power plants						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W08] has knowledge of the principles of sustainable development	Student can characterize the process of maintenance of the main elements of ship power systems in the aspect of its influence on the environment			[SW1] Assessment of factual knowledge		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	A student describes an operation process of the marine power plants machines and devices. He explains basic notions within the range of usage and servicing the marine devices and energetic systems.			[SW1] Assessment of factual knowledge		
	[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	Student applies the gathered knowledge concerning operation keystones for the practical usage and supervising the marine power plant"s machines and devices in different working states.			[SU1] Assessment of task fulfilment		
[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	Students can characterize and present the conditions for the use of selected operational strategies in relation to the main elements of the ship's power system			[SW1] Assessment of factual knowledge			

Subject contents	<p>Lecture: The usage of ship devices and energetistic systems ( main propulsion system, generating sets and boilers). Servicing ship devices and energetistic systems ( main propulsion system, generating sets and boilers). An operational susceptibility of ship devices. Mathematical models of operational processes of ship devices. Controlling the process of ship devices" operation . The operation's management of ship power plants.</p> <p>Laboratory: Measurement of physical properties of working fluids (density, viscosity, flash point). Preparation for operation, starting, supervision during operation, stopping of diesel engine of main propulsion, ship power plant, auxiliary fired boiler, selected installations of ship pipelines.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Reports from executed laboratory practices	100.0%	30.0%
	Midterm colloquium	51.0%	70.0%
Recommended reading	Basic literature	<p>Biernat J., Girtler J: Techniczna eksploatacja okrętów. Skrypt WSMW, Gdynia 1983 r.</p> <p>Niziński S.: Eksploatacja obiektów technicznych, Biblioteka problemów eksploatacji, Radom 2002 r.</p> <p>Włodarski J.K.: Podstawy eksploatacji maszyn okrętowych, Akademia Morska, Gdynia 2006 r.</p> <p>Balcerski A.: Siłownie okrętowe. Skrypt Politechniki Gdańskiej 1990.</p> <p>Górski Z., Perepeczko A.: Okrętowe maszyny i urządzenia pomocnicze. Wyd. TRADEMAR 1998.</p> <p>Wojnowski W.: Siłownie okrętowe. Cz I, II i III. AMW Gdynia 1999 rok.</p>	
	Supplementary literature	Woud H. K., Stapersma D.: Design of propulsion and electric power generation systems. IMarEST, London 2002	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Pperational states of the ship's boiler room - heating steam requirement.</li> <li>2. Ship sources of electrical energy.</li> <li>3. Main propulsion engine work with damaged turbocharger.</li> <li>4. CO<sub>2</sub> emission in selected operation conditions of main propulsion system and methods of its decreasing</li> </ol>		
Work placement	Not applicable		