



## Subject card

Subject name and code	Operation of Ship Power Plants, PG_00045114						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2022/2023		
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			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	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	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
	Additional information:						
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	60	10.0		30.0		100
Subject objectives	Learn the basic principles of using and operating marine engine systems						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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 exploitation strategies in relation to the main elements of the ship's power system			[SW1] Assessment of factual knowledge		
	[K6_U05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	Student describes the process operation of machinery and equipment of a marine engine room. He/she explains basic terms within the scope of using and operating of marine equipment and power 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	He applies knowledge of the basics of operation during practical use and supervision of marine power plant machinery and equipment in various operating conditions.			[SU1] Assessment of task fulfilment		
Subject contents	Lecture: The use of ship equipment and energy systems (main propulsion, generating sets and boilers). Servicing of ship devices and energy systems (main propulsion, generating sets and boilers). Operational susceptibility of ship devices. Mathematical models of ship equipment operation processes. Controlling the operation process of ship devices. Basics of logistics in the operation of power plants and ship devices. Management of the operation of marine power plants. Operation of reloading equipment. Laboratory: Measurement of physical properties of working media (density, viscosity, flash point). Measurement of lubricating properties of lubricating oils. Preparation for operation, start-up, supervision during operation, stopping the piston internal combustion engine, gas turbine set, fired boiler, fuel centrifuges, reciprocating compressor						
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%	25.0%
	Midterm colloquium	51.0%	75.0%
Recommended reading	Basic literature	Biernat J., Girtler J: Techniczna eksploatacja okrętów. Skrypt WSMW, Gdynia 1983 r.  Niziński S.: Eksploatacja obiektów technicznych, Biblioteka problemów eksploatacji, Radom 2002 r.  Włodarski J.K.: Podstawy eksploatacji maszyn okrętowych, Akademia Morska, Gdynia 2006 r.  Balcerski A.: Siłownie okrętowe. Skrypt Politechniki Gdańskiej 1990.  Górski Z., Perepeczko A.: Okrętowe maszyny i urządzenia pomocnicze. Wyd. TRADEMAR 1998.  Wojnowski W.: Siłownie okrętowe. Cz I, II i III. AMW Gdynia 1999 rok.	
	Supplementary literature	Dr C.B.Barrass: Ship Design and Performance for Masters and Mates. 2004 Elsevier	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Electricity generation on the ship - used methods, advantages and disadvantages. 2. Waste heat utilization - typical examples, rules for the calculation of total energy efficiency of ship power plant 3. Fuel oil system - - The 'Unifuel' system, design features and working principle. 4. Central cooling water system - design features and working principle. 5. Starting air system - design features and working principle.		
Work placement	Not applicable		