



## Subject card

Subject name and code	, PG_00056425						
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		dr inż. Jacek Nakielski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	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	The aim of the course is to familiarize students with methods of obtaining raw materials, including: crude oil and natural gas from under the seabed and obtaining energy from renewable sources on the example of offshore wind farms.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		The student is able, based on the acquired knowledge, to formulate simple engineering tasks and skillfully answer them.		[SU2] Assessment of ability to analyse information		
	[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		The student knows what aspects should be paid attention to during design and operation of oil pipelines. and what are the characteristics of individual offshore oil reloading systems. He has knowledge of the installation and construction of wind farms and the production of renewable energy.		[SW1] Assessment of factual knowledge		
	[K6_W08] has knowledge of the principles of sustainable development		The student is able to interpret legal acts contained in both the Constitution of the Republic of Poland and the Energy Law in order to limit the negative effects of the energy industry on the atmosphere and to indicate the components of sustainable development, using renewable energy sources, which involve, among others, maintaining energy security and environmental protection, as well as meeting the country's social and economic needs.		[SW1] Assessment of factual knowledge		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		The student is able to distinguish individual elements of offshore installations.		[SW1] Assessment of factual knowledge		

Subject contents	The course material includes knowledge in the field of:- methods of searching for oil and natural gas under the seabed,- installation and construction of individual elements of the oil field,- basic methods of undersea drilling,- methods of laying submarine pipelines,- type of ocean engineering facilities for undersea work, including drilling and construction, devices and equipment of units for the construction and operation of the oil field (FSU/FSO, FPSU/FPSO, FPDSO, drilling and mining platforms),- transshipment operations of crude oil and natural gas on the high seas,- location of wind farms at sea,- installation and construction of wind farms,- renewable energy production,- Polish and international regulations and institutions supervising the course of individual stages investments, starting from conceptual design, ending with operation and distribution.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	50%	50.0%	50.0%
	50%	50.0%	50.0%
Recommended reading	Basic literature	[1] Cydejko J., Puchalski J., Rutkowski G.; Statki i technologie off-shore w zarysie, Wyd. Trademar, Gdynia 2011  [2] Wiewióra A., Wesolek Z., Puchalski J.; Ropa naftowa w transporcie morskim, Wyd. Trademar, Gdynia 1999  [3] Babicz J.; Offshore Support Vessels, Wyd. Baobab Naval Consultancy, Gdańsk 2016  [4] Pepliński H.; Automatyka statków i jednostek offshore. Praktyczny poradnik, Wyd. Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2020  [5] Karlic S.; Zarys górnictwa morskiego, Wyd. Śląsk, Katowice 1984	
	Supplementary literature	[1] Specialized magazines  [2] Websites  [3] EEA, Europe's onshore and offshore wind energy potential, Technical report No 6/2009[  4] Projekt UpWind Integrated Wind Turbine Design, Offshore Foundations and Support Structures.  [5] Polskie Stowarzyszenie Energetyki Wiatrowej, Ocena możliwości rozwoju i potencjału energetyki wiatrowej w Polsce do roku 2020.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Name the basic types of mining platforms? Describe the chosen method of transshipment of crude oil on the high seas. Describe how a typical offshore wind farm is constructed.		
Work placement	Not applicable		