GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Offshore Systems, PG_00056429		
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	2.0
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	30.0	0.0	0.0	0.0	0.0	30

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	30	3.0	17.0	50

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_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 is able to distinguish individual elements of offshore installations.	[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 Act for the purpose of limiting the negative effects of the energy industry on the atmosphere and indicate the components of the sustainable one development, using renewable energy sources, which involve, among others, with maintaining energy security and environmental protection, as well as meeting the country's social and economic needs.	[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	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

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 technical facilities for conducting undersea works, including drilling and structures, devices and equipment of units for the construction and operation of the oil field (FSU/FSO, FPSU/FPSO, FPDSO, drilling and production platforms), - transhipment 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 investment stages, starting from the 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., Wesołek 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. Praktycznyporadnik, Wyd. Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2020 [5] Karlic S.; Zarys górnictwa morskiego, Wyd. Śląsk, Katowice 1984
Supplementary literature	[1] Offshore magazine [2] EEA, Europe's onshore and offshore wind energy potential, Technical report No 6/2009 [3] Projekt UpWind Integrated Wind Turbine Design, Offshore Foundations and Support Structures. [4] 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	