GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	System of Transportation of bulk cargos, PG_00045235		
Field of study	Transport and Logistics, Transport and Logistics		
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	5	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Marine Mechatronics -> Faculty of Ocean Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Wojciech Litwin	
	Teachers	mgr inż. Ewa Wojtowicz dr inż. Jacek Nakielski	

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	15.0	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	42.0	92

Subject objectives

The aim of the course is to familiarize students with various systems of transporting solid, liquid and gas bulk cargo including intermodal transport.

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 means and systems of transport	The student has an extensive knowledge of bulk cargo, is able to select the optimal transport chain for a specific cargo on a given route using lands and waterways.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task
[K6_W05] has an organized knowledge on design, construction and operation of means and systems of transport	The student is able to characterize the floating units intended for the transport of bulk cargo, as well as ship and harbor handling eqipment used for the reloading of bulk solid, liquid and gas.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>1. Introduction to the course.

2. Bulk cargo transport chains of solid, liquid and gas with the use of roads and waterways. Types of cargo.
3. General characteristics of the vessels used for the transport of cargo respectively mass of solid, liquid and gas. The technical characteristics of bulk carriers, tankers and gas carriers.
4. Oil - ownership, the basic species of crude oil. Deposits of oil. Mining and oil pretreatment. Processing of crude oil. Utilities oil products.
5. Exploitation of offshore oil - examples of design solutions. Operating platforms, FPSO vessels type / FPSU. Storing oil in fixed tanks and vessels (FPSO vessels type / FPSU). Transhipment of oil at sea. Systems and devices for transhipment at sea. Shuttle tankers.
6. Oil terminals. Transport tanks of crude oil and petroleum products. Transportation of oil pipelines (oil pipelines). Geography transportation of crude oil.
7. Dry bulk coal ore, grain , fertilizers and other - ownership and the requirements for their transport. Design solutions of various cargo transshipment of dry bulk. Technical characteristics of vessels to transport dry bulk.
8. Liquefied natural gas, liquefied petroleum gas, compressed natural gas - physical properties, receive. Cargo transportation by sea gas tankers, gas type LNG, LPG and PNG. Storage and cargo handling systems for gas. Routes freight transport gas. The basic rules on cargo gas.
9. Port handling equipment and installed on ships used for loading and unloading of bulk solid, liquid and gas.
10. Marine Equipment systems required to maintain ownership of freight of solid, liquid and gas during carriage by sea.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>1 presentation</td><td>60.0%</td><td>20.0%</td></tr>
<tr><td>4 tests for the semester</td><td>60.0%</td><td>80.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>R. Urbaniak, "Typical bulk cargo and transport"
Wiewióra A., Wesołek Z., J. Puchalski, "Crude oil for maritime transport"</td></tr>
<tr><td>Supplementary literature</td><td>Magda W., "Offshore Pipelines"</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
System Transportu Ładunków Masowych (S), STW, sem. 5, zimowy 22/23 (O:09980) - Moodle ID: 26318
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26318</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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