GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | System of Transportation of bulk cargos, PG_00056227 | | |
| Field of study | Transport and Logistics | | |
| 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 | 5 | ECTS credits | 4.0 |
| 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 | mgr inż. Ewa Wojtowicz<br>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 | 50.0 | 100 |

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| Subject objectives | The aim of the course is to familiarize students with various systems of transport of solid, liquid and gaseous bulk cargoes, taking into account 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 extensive knowledge of bulk cargo and is able to select the optimal transport chain for a given cargo on a given route using land and water routes. | [SU5] Assessment of ability to present the results of task<br>[SU3] Assessment of ability to use knowledge gained from the subject<br>[SU1] Assessment of task fulfilment<br>[SU4] Assessment of ability to use methods and tools |
| [K6_W05] has an organized knowledge on design, construction and operation of means and systems of transport | The student is able to characterize floating units intended for the transport of bulk cargo and port and ship transshipment equipment used for the transshipment of solid, liquid and gaseous bulk goods. | [SW3] Assessment of knowledge contained in written work and projects<br>[SW2] Assessment of knowledge contained in presentation<br>[SW1] Assessment of factual knowledge |

<table>
<tr><td>Subject contents</td><td>1. Introduction to the subject.2. Transport chains of solid, liquid and gaseous bulk cargoes using land and water routes. Types of cargo.3. General characteristics of floating units intended for the transport of solid, liquid and gaseous bulk cargoes. Technical characteristics of bulk carriers, tankers and gas carriers.4. Crude oil - properties, basic types of crude oil. Crude oil deposits. Extraction and pre-processing of crude oil. Crude oil processing. Utility products of crude oil processing.5. Exploitation of offshore crude oil deposits - examples of design solutions. Exploitation platforms, FPSO/FPSU type ships. Storage of crude oil in fixed and floating tanks (FPSO/FPSU type ships). Transshipment of crude oil at sea. Systems and devices for transshipment at sea. Shuttle tankers.6. Oil terminals. Transport of crude oil and petroleum products in tanks. Transport of oil by pipelines (oil pipelines). Geography of oil transport.7. Dry bulk cargo: coal, metal ores, grains, fertilizers and others - properties and requirements for their transport. Design solutions for reloading various dry bulk cargoes. Technical characteristics of ships for the transport of dry bulk cargoes.8. Liquefied natural gas, liquefied paraffin gas, compressed natural gases - physical properties, obtaining. Transport of gas cargoes by sea, LNG, LPG and PNG type gas carriers. Storage and reloading systems for gas cargoes. Transport routes for gas cargoes. Basic regulations for gas cargoes.9. Port and ship reloading equipment used for loading and unloading solid, liquid and gaseous bulk cargoes.10. Equipping ships with systems for maintaining the required properties of solid, liquid and gaseous cargoes during sea transportation.</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>2 x test per semester</td><td>51.0%</td><td>100.0%</td></tr>
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</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>-</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:<br>System transportu ładunków masowych (S), STW (PG_00056227), sem. 5, zimowy 24/25 - Moodle ID: 39437<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=39437</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Physical and chemical properties of bulk cargo.<br>2. Construction of units for the transport of bulk cargo (solid, liquid and gas).<br>3. Methods of transshipment of bulk cargo.<br>4. Terminals for transshipment of bulk cargo.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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