



Subject card

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| Subject name and code | , PG_00056425 | | | | | | |
| Field of study | Ocean Engineering | | | | | | |
| Date of commencement of studies | October 2021 | | Academic year of realisation of subject | | 2023/2024 | | |
| Education level | first-cycle studies | | Subject group | | Optional subject group Subject group related to scientific research in the field of study | | |
| 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 | | dr inż. Jacek Nakielski | | | | |
| 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. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [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 |
| | [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_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_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 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 | <p>[1] Cydejko J., Puchalski J., Rutkowski G.; Statki i technologie off-shore w zarysie, Wyd. Trademar, Gdynia 2011</p> <p>[2] Wiewióra A., Wesolek Z., Puchalski J.; Ropa naftowa w transporcie morskim, Wyd. Trademar, Gdynia 1999</p> <p>[3] Babicz J.; Offshore Support Vessels, Wyd. Baobab Naval Consultancy, Gdańsk 2016</p> <p>[4] Pepliński H.; Automatyka statków i jednostek offshore. Praktyczny poradnik, Wyd. Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2020</p> <p>[5] Karlic S.; Zarys górnictwa morskiego, Wyd. Śląsk, Katowice 1984</p> | |

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| | Supplementary literature | <p>[1] Specialized magazines</p> <p>[2] Websites</p> <p>[3] EEA, Europe's onshore and offshore wind energy potential, Technical report No 6/2009[</p> <p>4] Projekt UpWind Integrated Wind Turbine Design, Offshore Foundations and Support Structures.</p> <p>[5] Polskie Stowarzyszenie Energetyki Wiatrowej, Ocena możliwości rozwoju i potencjału energetyki wiatrowej w Polsce do roku 2020.</p> |
| | 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 | |