



Subject card

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|---|---|---|-------------------------------------|---------------------------------------|--|---------|-----|
| Subject name and code | Technology of offshore Structures, PG_00045068 | | | | | | |
| Field of study | Ocean Engineering, Ocean Engineering | | | | | | |
| 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 | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Department of Ship Manufacturing Technology, Quality Systems and Materials Science -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Ryszard Pyszko | | | | | |
| | Teachers | dr inż. Ryszard Pyszko | | | | | |
| 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 | | | | | | |
| Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/mod/url/view.php?id=280994 | | | | | | | |
| 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 | 5.0 | | 15.0 | | 50 |
| Subject objectives | The aim of the course is to familiarize students with the requirements of regulations and conventions specific to the industry, an indication of the variety of facilities and operational requirements, used materials and processing technologies, construction safety requirements and environmental impact. | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K6_K03] understands non-technical aspects and effects of operation as an engineer, its influence on the environment and is aware of the responsibilities for the decisions taken | The student is able to explain the far-reaching effects of the operation of offshore facilities, challenges in terms of broadly understood safety (facility, crew, environment) and formal requirements. | | | [SK2] Assessment of progress of work | | |
| | [K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems | The student has an organized knowledge of the technology of building steel facilities on and offshore. The information relates to the knowledge of construction materials, selection of additional materials, plastic working and welding techniques. | | | [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 to explain the basic production processes related to the production of offshore structures | | | [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 | As part of the project being developed, the student is able to review and verify the regulations and their requirements | | | [SW1] Assessment of factual knowledge | | | |

| Subject contents | Offshore facilities with a reinforced concrete structure Characteristics of the material Steel structure offshore facilities Installations using solar energy Wind towers - division according to the axis of rotation Comparison of the efficiency of renewable sources Technologies of the future Material for offshore structures General technological remarks for stainless steel General technological remarks for carbon steel Safety of manufactured structures ISO standards Norsok standards PRS - Offshore Wind Farms Technology of construction of steel masts of wind towers Manufacturers of offshore facilities Prefabrication of large diameter pipes Pipe burner | | | | | | | | |
|--|--|---|--|--------------------------|-------------------|-------------------------------|---------|-------|--------|
| Prerequisites and co-requisites | Initial knowledge of materials science, welding, manufacturing of steel materials. | | | | | | | | |
| Assessment methods and criteria | <table border="1" data-bbox="451 573 1487 645"> <thead> <tr> <th data-bbox="451 573 794 607">Subject passing criteria</th> <th data-bbox="794 573 1137 607">Passing threshold</th> <th data-bbox="1137 573 1487 607">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 607 794 645">lecture</td> <td data-bbox="794 607 1137 645">60.0%</td> <td data-bbox="1137 607 1487 645">100.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | lecture | 60.0% | 100.0% |
| Subject passing criteria | Passing threshold | Percentage of the final grade | | | | | | | |
| lecture | 60.0% | 100.0% | | | | | | | |
| Recommended reading | Basic literature | 1. Ryszard Pakos, Ernest Romek, "Offshore steel structures - types, repairs", SPawalnictwa Review 1/2009 2. Robert Bęczkowski, "Analysis of the occurrence of welding imperfections in the foundations of wind towers", WELDING REVIEW Vol. 88 5/2016 3. PN-EN ISO / IEC 17025: 2005;"General requirements for the competence of testing and calibration laboratories. 4. PN-EN ISO 14175: 2009 Welding consumables - Gases and gas mixtures for welding and related processes | | | | | | | |
| | Supplementary literature | PRS - Offshore Wind Farms, publication p130p_pl NORSOK standards plansje A2 - September 2019 (1) poster | | | | | | | |
| | eResources addresses | Adresy na platformie eNauczanie: Technologia konstrukcji offshore, W, OCE, sem. 05, zima 22/23, (O: 098280) - Moodle ID: 26070 https://enauzanie.pg.edu.pl/moodle/course/view.php?id=26070 | | | | | | | |
| Example issues/ example questions/ tasks being completed | 1. How is the welding supervision system organized 2. Explain the advantages and disadvantages of prefabricating sheet metal and truss wind towers | | | | | | | | |
| Work placement | Not applicable | | | | | | | | |