GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Designing of energetical installations, PG_00064778 | | |
| Field of study | Power Engineering, Power Engineering | | |
| Date of commencement of studies | February 2027 | Academic year of realisation of subject | 2027/2028 |
| Education level | second-cycle studies | Subject group | Specialty subject group<br>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 | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 2.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Division of Fluid-Flow Machinery -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Marian Piwowarski | |
| | Teachers | dr hab. inż. Marian Piwowarski | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 0.0 | 30.0 | 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 | 7.0 | 13.0 | 50 |

**Subject objectives**

Gain knowledge of selected energy installations and how they can be used in the energy industry.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_U04] creatively designs or modifies, either entirely or at least in part, energy systems, machines and devices, transmission grids and internal installations, considering both technical and non-technical aspects, estimating costs and utilizing design techniques appropriate for tasks within the scope of Power Engineering | The student is able to correctly select the relevant components of the designed energy installation | [SU1] Assessment of task fulfilment |
| [K7_U15] evaluates the feasibility of advanced methods and tools for solving complex engineering tasks of a practical nature, characteristic of the field of study, and selects and applies appropriate methods and tools for this purpose | The student is able to use appropriate tools for engineering design. | [SU4] Assessment of ability to use methods and tools |
| [K7_U03] identifies and formulates task specifications in the scope of energy systems, machines and devices, transmission grids, buildings and internal installations | Student potrafi zidentyfikować oraz sformułować zadania do wykonania właściwego projektu instalacji energetycznej | [SU2] Assessment of ability to analyse information |
| [K7_W03] demonstrates structured and theory supported knowledge encompassing key issues in the field of Power Engineering, enabling design of energy systems, machines and devices, transmission grids and internal installations | Student potrafi wykorzystać zdobytą wiedzę do zaplanowania i zaprojektowania wybranej instalacji energetycznej. | [SW1] Assessment of factual knowledge |

<table>
<tr><td>Subject contents</td><td>Course content – project<br><br>Review of the most important Industrial energetic installations. Including of the auxiliary equipment to the energetic installations. Steam-water installations. Oil and fuel installations. Construction of the energetic pipelines. Pumping installations. Pneumatic and ventilation installations. Application of the pumps and compressors to the energetic installations.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge on thermal turbines and their thermal cycles.</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>project</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Kosowski K, Ship Turbine Power Plans, Wyd. PG Delft University, Gdańsk 2004<br><br>Kosowski K, Introduction to the theory of marine turbines, Wyd. PG Delft University, Gdańsk 2004</td></tr>
<tr><td>Supplementary literature</td><td>Worldwide technical journals</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Why condenser cooling water pumps of closed coolig systems has larger power need for pumping compared with such pumps in open cooling systems?</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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