GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | , PG_00066270 | | |
| Field of study | Recycling and Energy Recovery | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2025/2026 |
| Education level | first-cycle studies | Subject group | |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 2 | Language of instruction | Polish |
| Semester of study | 4 | ECTS credits | 2.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Geotechnical and Hydraulic Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Krzysztof Szarf | |
| | Teachers | | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | 20 |

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 | 20 | 0.0 | 0.0 | 20 |

**Subject objectives**

To familiarize students with classical and niche technologies of producing and storing electrical and heat energy.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_U02] solves engineering issues and problems in the area of raw materials and energy recovery through the use of appropriate analytical, numerical and experimental tools and methods. | The student can propose methods of reclamation of energy and/or resources in certain technical scenarios. | [SU5] Assessment of ability to present the results of task |
| [K6_U03] designs processes, technologies and systems related to the recovery of raw materials and energy, using appropriate concepts, standards and design methods. | The student is able to recognize different types of energy conversion and is aware of their effectiveness. | [SU2] Assessment of ability to analyse information |
| [K6_W02] analyzes engineering and technological issues and problems in the area of raw materials and energy recovery using appropriate and appropriate analytical, numerical and experimental tools and methods | The student knows how efficient particular energy sources are and is aware of their technical limitations | [SW2] Assessment of knowledge contained in presentation |
| [K6_W03] identifies problems and phenomena related to the recovery of raw materials and energy as well as applicable concepts, standards and design methods and is aware of their limitations. | The student knows how to find and pinpoint potential areas where energy and/or materials could be reclaimed. | [SW1] Assessment of factual knowledge |

**Subject contents**

**Prerequisites and co-requisites**

Basic knowledge of physics, electricity and thermodynamics in particular.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Class participation assessment</td><td>0.0%</td><td>33.33%</td></tr>
<tr><td>Prparing and presenting a given topic</td><td>0.0%</td><td>33.34%</td></tr>
<tr><td>Tests after each class</td><td>0.0%</td><td>33.33%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Jelley, Nick. Renewable Energy: A Very Short Introduction. UK, OUP Oxford, 2020.<br><br>2. Taler, Dawid, and Rup, Kazimierz. Podstawy obliczeń turbin wiatrowych i wodnych. Polska, PWN, 2024.<br><br>3. Instalacje fotowoltaiczne w systemie elektroenergetycznym: jakość dostaw energii elektrycznej, warunki techniczne przyłączenia instalacji PV. Polska, PWN, 2024.<br><br>4. Kubowski, Jerzy. Elektrownie jądrowe. Polska, PWN, 2020.</td></tr>
<tr><td>Supplementary literature</td><td>Halliday, David., Resnick, Robert., Walker, Jearl. Fundamentals of Physics. Wielka Brytania: Wiley, 2013.</td></tr>
<tr><td>eResources addresses</td><td>Basic<br>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44966 - Materials for "Obiekty OZE" 2024/2025 class</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Exemplary topics to be prepared and presented:<br><br>- energy of sea waves<br><br>- transmitting energy from Earth's orbit<br><br>Examples of questions asked during tests:<br><br>- "Wave energy is the strongest ..." a) deep below the sea level b) at the sea level c) at the intermediate depth below the sea level<br><br>- "List some common appliances where electrical energy is being transmitted wireless"<br><br>Examples of activity during class:<br><br>- asking questions of the speaker</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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