GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00060057		
Field of study	Power Engineering, Power Engineering, Power Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	English
Semester of study	3	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Sanitary Engineering -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Filip Gamoń	
	Teachers		

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

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	0.0	25.0	55

Subject objectives

The aim of the subject is to analyze legal norms related to the energy sector, mainly renewable energy sources. Discussing various renewable energy technologies and their impact on the environment. Discussing the possibilities of recovering resources from waste generated as a result of the exploitation of renewable energy technologies in the context of a closed-loop economy.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W07] knows the environmental effects of energy technologies used; is familiar with the issues of effective energy management and use of renewable energy sources, has a broad and well-established knowledge of the processes of energy production and use	The student is familiar with the technologies of the energy industry using fossil fuels and renewable sources, and is able to conduct techno-economic analysis of selected technologies.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language	The student has the English language skills to actively participate.	[SK4] Assessment of communication skills, including language correctness [SK2] Assessment of progress of work
[K7_K05] is aware of the impact of engineering activities on the environment	The student is able to assess the impact of renewable energy technologies on the environment.	[SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work
[K7_W08] as knowledge about development trends in the field of known technologies and non-technical aspects to solve simple engineering tasks in the field of power systems and equipment or transmission networks and internal installations	The student has knowledge of renewable energy technologies and can assess their suitability depending on the conditions of individual markets	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge

Subject contents

Detailed discussion of renewable energy sources, with particular emphasis on those that have potential for use in Poland. Discussion of legal norms concerning renewable energy. General overview of technologies and materials used in renewable energy. Detailed discussion of the possibilities of resource recovery from various renewable energy sources, along with the methods that can be applied for their recovery. Discussion of Poland's energy policy assumptions until 2040.

Prerequisites and co-requisites

The student should have basic knowledge of the types of renewable energy sources and their potential utilization in the energy sector.

<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></td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Ryszard Tytko "Renewable energy devices and systems. XVI edition. ECO INVESTMENT SP Z O.O., 2023Nick Jelley "Short course. Renewable energy". PWN Scientific Publishers, 2022Izabela Filipiak, Władysław Mielczarski "Energetyka w okresie transformacji" Wydawnictwo Naukowe PWN, Kraków 2023Document Energy Policy of Poland 2040Scientific articles</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td>Podstawowe
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37335 -
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">To introduce Students to renewable energy sources, the technology used to produce them and how to dispose of the materials. Special attention will be paid to the disposal of wind turbines, with a discussion of physical and chemical methods of their disposal. Current investments that are being carried out in Poland in the context of renewable energy sources will be discussed</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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