GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00066270		
Field of study	Recycling and Energy Recovery		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
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 -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Szarf	
	Teachers	dr inż. Krzysztof Szarf	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	0.0	20.0	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_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
[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

Subject contents	A. Theoretical part: 1. Energy, heat, electricity. How to generate electricity and heat. 2. Conventional and renewable sources of energy: energy from the Sun, air, water, Earth and plants. 3. Energy storage B. Practical part: Working out a specific problem, presenting it and discussing with the group.
Prerequisites and co-requisites	Basic knowledge of physics, electricity and thermodynamics in particular.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Class participation assessment	0.0%	33.33%
Prparing and presenting a given topic	0.0%	33.34%
Tests after each class	0.0%	33.33%

Recommended reading

Basic literature	1. Jelley, Nick. Renewable Energy: A Very Short Introduction. UK, OUP Oxford, 2020. 2. Taler, Dawid, and Rup, Kazimierz. Podstawy obliczeń turbin wiatrowych i wodnych. Polska, PWN, 2024. 3. Instalacje fotowoltaiczne w systemie elektroenergetycznym: jakość dostaw energii elektrycznej, warunki techniczne przyłączenia instalacji PV. Polska, PWN, 2024. 4. Kubowski, Jerzy. Elektrownie jądrowe. Polska, PWN, 2020.
Supplementary literature	Halliday, David., Resnick, Robert., Walker, Jearl. Fundamentals of Physics. Wielka Brytania: Wiley, 2013.
eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44966 - Materials for "Obiekty OZE" 2024/2025 class Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Exemplary topics to be prepared and presented: - energy of sea waves - transmitting energy from Earth's orbit Examples of questions asked during tests: - "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 - "List some common appliances where electrical energy is being transmitted wireless" Examples of activity during class: - asking questions of the speaker
Work placement	Not applicable

Document generated electronically. Does not require a seal or signature.