GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Aspects of Green Transition, PG_00067264		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Signals and Systems -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Piotr Fiertek	
	Teachers	dr inż. Piotr Fiertek	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15	1.0	9.0	25

Subject objectives	The aim of the subject is to introduce issues related to the need to introduce changes in the energy system, including: the depletion of energy resources and the impact of burning fossil fuels on climate change. Among other things, the concept of "Peak oil" will be introduced. Another aim is to introduce the concept of functioning of the economy without fossil fuels. As part of the subject, a road map leading the economy from the current state to the target state will be presented. The disadvantages, advantages and limitations of such energy sources as: wind energy, solar energy, hydroelectric power plants, biogas, nuclear power plants will be discussed.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K02] is ready to critically assess possessed knowledge and acknowledge the importance of knowledge in solving cognitive and practical problems	The aim of the lecture is to provide basic knowledge about the functioning of individual types of renewable energy sources and to develop a critical attitude towards disinformation and lies flooding the infosphere related to renewable energy sources and global warming.	[SK4] Assessment of communication skills, including language correctness
[K6_K01] is ready to cultivate and disseminate models of proper behaviour in and outside the work environment; make independent decisions; critically evaluate actions of their own, teams they lead and organisations they are part of; take responsibility for results of these actions; responsibly perform professional roles, including:n - observing rules of professional ethics and require it from others,n - care for the achievements and traditions of the professionn	The lecture presents basic information that will allow students to make the right (environmentally and socially responsible) decisions related to the implementation of energy solutions (in private installations or in production plants) in the future.	[SK4] Assessment of communication skills, including language correctness
[K6_K03] is ready to meet social obligations, co-organise activities for the social environment, initiate actions for the public interest, think and act in an entrepreneurial way	The lecture will present the impact of the energy system on the functioning of communities and individual units, as well as the impact of individual units on the functioning of the energy economy and, in a broader sense, the impact of individual units on the natural environment.	[SK4] Assessment of communication skills, including language correctness
[K6_W11] knows and understands, to an advanced extent, the general principles of setting up and development of business entities, forms of individual entrepreneurship and running ventures and the fundamental dilemmas of modern civilization and basic economic, legal and other conditions of various types of activities related to the field of study, including the basic concepts and principles in the field of industrial property and copyright protection	During the lecture, students will learn about the impact of the energy system on the functioning of the economy and the basics of today's financial system based on exponentially growing debt will be presented.	[SW1] Assessment of factual knowledge

Subject contents

Lecture:

1. (2h) Introduction. Discussion of the world of "exponential growth". Discussion of the basics of the financial system.
2. (2h) Discussion of the issue of depletion of raw materials, with particular emphasis on the depletion of gas and oil resources - the concept of "Peak oil".
3. (2h) Discussion of the impact of greenhouse gas emissions on the observed global warming.
4. (2h) Presentation of the functioning of the current energy system, based on the combustion of fossil fuels.
5. (2h) Presentation of the scheme of the functioning of the energy system based on renewable energy sources.
6. (2h) Discussing the advantages and disadvantages of individual renewable energy sources.
7. (1h) Written test

Prerequisites and co-requisites

No specific prerequisites. Basic knowledge of the laws of physics and chemistry at primary school level.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	60.0%	100.0%

Recommended reading

Basic literature	1. M. Popkiewicz, Zrozumieć transformację energetyczną, wyd. Sonia Draga 2024 2. M. Popkiewicz, Rewolucja energetyczna Ale po co?, Sonia Draga 2015 3. M. Popkiewicz, Świat na rozdrożu, wyd. Sonia Draga 2012
Supplementary literature	1. M. Popkiewicz, A. Kardaś, Sz. Malinowski, Nauka o klimacie, 2023
eResources addresses	Basic https://ziemianarozdrozu.pl/ - Portal Earth at a Crossroads https://naukaoklimacie.pl/ - Climate Science Portal

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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