GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Introduction to raw materials and energy policy, PG_00064743		
Field of study	Power Engineering, Power Engineering		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2026/2027
Education level	second-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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Janusz Cieśliński	
	Teachers	prof. dr hab. inż. Janusz Cieśliński	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	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	6.0	14.0	50

Subject objectives

The energy transition that is taking place on a global scale is forcing many countries to change their energy policies. The departure from fossil fuels (hard coal, lignite, crude oil and in the near future, probably natural gas) in favor of the energy of the so-called renewable sources causes interest in the resources of raw materials that are necessary for the development of photovoltaics or electromobility. These raw materials are, m.in, lithium and cobalt.

The progressive integration of EU countries forces member states to adapt to the requirements of a common climate policy. For many countries, including Polish, this means significant changes in the energy and heating sector. The problem of energy security, as well as energy poverty, requires political solutions.

We should also remember about space exploration, where resources of all raw materials are already in demand.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K12] is ready for fullfiling social commitement and initation of actions for public interest including entrepreneurial thinking and acting	understands the importance of energy in the development of human civilization. It can assess the social effects, e.g. high energy prices or lack of energy	[SK5] Assessment of ability to solve problems that arise in practice
[K7_U11] communicates and justifies opinions on specialized topics in a manner understandable to diverse audiences, including the use of modern techniques, including information technology	is able to justify the impact of energy conversion technology on electricity prices or the state of the natural environment	[SU2] Assessment of ability to analyse information
[K7_U14] integrates information obtained from literature and other properly selected sources, including those in a foreign language, creatively interpreting and critically evaluating them, and drawing conclusions	is able to analyse contradictory information from various sources, including statements of experts and politicians	[SU4] Assessment of ability to use methods and tools
[K7_W11] interprets social, economic, legal (including industrial and intellectual property laws), and other non-technical aspects of engineering activities, and includes them into engineering practice	is able to assess the difficulties in the implementation of projects including those resulting from legal restrictions	[SW1] Assessment of factual knowledge

Subject contents

Course content – lecture

1. Geopolitics. 3. Astropolitics. 3. Energy policy as a part of the economic policy of the state. 4. Objectives and tasks of energy policy 5. Energy Carriers and Raw Materials as Means of Political Pressure 6. Resources of energy carriers and selected raw materials. 7. Climate policy

Prerequisites and co-requisites

Applied thermodynamics, heat transfer, energy conversion

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lecture	50.0%	50.0%
Seminar	50.0%	50.0%

Recommended reading

Basic literature

1. Bartodziej G., Tomaszewski M.: Polityka energetyczna i bezpieczeństwo energetyczne. Wyd. 2. Wydawnictwo Nowa Energia, Racibórz, 2009

2. Michałowski W.: Rury pod specjalnym nadzorem. Wyd. von borowiecky, 2010

3.Smyrgała D.: Oś naftowa. Latynoamerykańskie imperium Hugo Chaveza. Difin, 2012

4.Makuch G.: Gaz łupkowy. Wielka gra o bezpieczeństwo energetyczne, Kraków 2014

5.Bartosiak J.: Pacyfik i Eurazja. O wojnie, ZonaZero, 2016

6.Bartosiak J.: Rzeczpospolita między lądem a morzem. O wojnie i pokoju, Warszawa 2018

7.Krajewski A.: Krew cywilizacji. Biografia ropy naftowej. Wydawnictwo Mando, 2018

8.Wiech J.: Energiewende. Nowe niemieckie imperium. Energetyka24, Warszawa, 2019.

9. Yergin D.: The prize. Free Press, NY, 1992.

	Supplementary literature	1.Polityka energetyczna Polski do 2040 roku (na dzień 18.02.2021 niedostępny) (http://www.mg.gov.pl) 2. Projekt Polityka surowcowa państwa, MŚ, 2018 3. Polska strategia wodorowa do roku 2030 z perspektywą do 2040 r.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Reasons for the growing importance of energy and raw materials policy 2. Level of energy dependence 3. Climate and energy packages 4. Joint energy projects of EU countries 5. Taxonomy	
Practical activites within the subject	Not applicable	

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