COURSE DESCRIPTION CARD - SYLLABUS

Course name
Energy policy and energy markets [S2EPiO1>PEiRE]

Course

Field of study
Industrial and Renewable Energy Systems

Year/Semester
2/3

Area of study (specialization)
Thermal and Renewable Energy

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Basic knowledge of the economy, entrepreneurship and energy sources (fossil fuels, biomass, wind, sun, etc.) SKILLS: The student should have the skills required to solve engineering problems using scientifically sound methodologies. Can effectively obtain information from various sources, including data sheets, literature and the Internet SOCIAL COMPETENCIES: He knows the limits of his own knowledge and skills.

Course objective

To familiarize students with the legal aspects governing the production and distribution of fuels and energy, to present basic principles shaping and influencing the production and distribution of fuels and energy, energy security, and the energy market - what laws govern it.

Course-related learning outcomes

Knowledge:
has ordered and in-depth knowledge necessary to understand the issues of energy safety
knows the basic principles of creating and developing various forms of entrepreneurship
has knowledge of structures and processes for managing fuel extraction and processing enterprises

Skills:
is able to formulate and test hypotheses related to simple research problems
is able to make a preliminary economic assessment when formulating and solving engineering tasks in the application of industrial power
is able to communicate on topics related to energy policy with diverse audiences

Social competences:
is ready to recognize the importance of knowledge in solving cognitive and practical problems and to seek expert opinions in the event of difficulties in solving the problem yourself
he is ready to initiate actions for the social interest
is ready to think and act in an entrepreneurial way

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Written exam - the pass condition is to obtain a minimum of 51% of the maximum number of points
Project - the right solution to a design issue

Programme content

Lecture:
Analysis of electricity markets
Characteristics of the natural gas market
Parameters influencing the price of energy
European energy transition programmes
Energy policy of the European Union
Poland's energy policy
The heating sector
Project:
Characterisation of change for a selected industry in terms of decarbonisation,
Energy transition cost analysis

Course topics

Lecture:
Availability of energy resources in the world and Europe
(a) Fossil fuels: coal, oil, lignite, natural gas, uranium;
b) Renewable energies: wind, solar, geothermal, biomass, hydropower
geothermal energy, biomass, hydropower;
(c) energy prices on world markets, Poland, energy exchange, fuel price formation mechanisms,
(d) organisation of fuel supply and storage networks in the energy sector
(e) Energy law in the EU and energy policy (Green Deal, Fit for 55).
(f) Poland's Energy Policy until 2040
Project:
Characterisation of the transition for a selected industry area: transport, energy production, district heating, power supply of buildings in terms of decarbonisation,
Cost analysis of the energy transition using a selected example,
Development of an energy price calculator

Teaching methods

Lecture - multimedia presentation with talk
Project - independent or group solution of the given problem (s)

Bibliography

Basic
1. Petroleum Economist
2. Gas To Power Journal

3. European Energy Review
4. Wind Energy
5. Oil and Gas Industry Journal
Additional
1. Gaz Woda i Technika Sanitarna
2. Czysta Energia
3. IEA International Energy Agency, British Petroleum BP, EPRI from USA

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,00
Classes requiring direct contact with the teacher	32	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	28	1,00