



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Humanistic-social subject II - Energy Market

### Course

Field of study

Green Energy

Area of study (specialization)

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Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

dr inż. Justyna Michalak

Responsible for the course/lecturer:

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Wydział Inżynierii Środowiska i Energetyki

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### Prerequisites

Student has a knowledge in the scope of basis of power engineering, electric energy management, technology of processes in power engineering, and economy. Student is able to determine relationships between business entities acting on market. Student is ready to work in team and to make a decision.

### Course objective

To acquaint the basic kinds and acting methods of power markets, allowing to understand their acting and to gain ability and competences allowing to evaluate power situation of country with reference to world trends, taking into account energyconsumption of production processes.

### Course-related learning outcomes

Knowledge



1. Has a knowledge in the scope of basis structures of market and about basic processes on the electric power market, heat market and on the liquid fuels market.
2. Has a knowledge in the scope of balancing of energy generation and consumption

#### Skills

1. Is able to define regularity of behavior of consumer on market. Is able to define regularity of behavior of producer on perfect competition market, pure monopoly, monopoly competition and oligopoly

#### Social competences

1. Has a consciousness of economy aspects of power company conducting on market

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

##### Lecture

- evaluation of knowledge and competitions by written test (13 week) permanent evaluation during every classes (rewarding for activity and particularly for proposing to discuss new aspects of problem )

#### Programme content

##### Lecture

Genesis of European energy markets. Profile of basic processes of energy market. Sections of energy market: electric energy, heat, fuels. Law regulations in energy sales. Energy exchange: basic functions of participants, offers, kinds of operations, cashing of transaction. Functions of operators: of transmission, distribution technical-commercial systems. Balancing of energy consumption in KSE. Principles of prices determining: of system services, of power and energy, of planning and conducting of work of production units (power plants), evaluation of risk level. Natural monopoly as a feature of energy conversion and delivering system Country system of registration of CO<sub>2</sub> emission entitlement: profile, functions, equivalents in other energy market systems. Market controller. Functions of integrated control systems in power engineering implemented for energy market.

#### Teaching methods

Lecture with multimedia presentation

#### Bibliography

##### Basic

1. Pach-Gurgul A., Jednolity rynek energii elektrycznej w Unii Europejskiej w kontekście bezpieczeństwa energetycznego Polski, Wydawnictwo Difin, 2012.
2. Chochowski A., Krawiec F. (red), Zarządzanie w energetyce, Wydawnictwo Difin, Warszawa 2008.
3. Kaproń H., Efektywność wytwarzania ciepła sieciowego w warunkach rynkowych, Oficyna Wydawnicza PW, Warszawa 2003.



Additional

1. Ustawa z dnia 10 kwietnia 1997 r. PRAWO ENERGETYCZNE z Rozporządzeniami Ministra Gospodarki w sprawie szczegółowych zasad kształtowania i kalkulacji taryf oraz zasad rozliczeń w obrocie energią elektryczną.
2. Nagaj R., Regulacja rynku energii elektrycznej w Polsce - ex ante czy ex post, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin 2016.
3. Nowak B., Wewnętrzny rynek energii w Unii Europejskiej, Wydawnictwo C.H.Beck, 2009.
4. Wojcieszak Ł., Towarowa giełda energii jako instrument liberalizacji rynku gazu w Polsce, Wydawnictwo Fundacja na rzecz Czystej Energii, Poznań 2017.
5. Czarnecka M. (red.), Konsument na rynku energii elektrycznej, Wydawnictwo C.H.Beck, 2014.
6. Kaproń H., Kaproń T., Efektywność wytwarzania i dostawy energii w warunkach rynkowych, Kaprint, Lublin 2016. 7. Wojtkowska-Lodej G., Michalski D., Hawranek P., Zmiany uwarunkowań funkcjonowania przedsiębiorstw na rynku energii elektrycznej w Unii Europejskiej, Oficyna Wydawnicza SGH, 2014

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for exam) <sup>1</sup>	20	1,0

<sup>1</sup> delete or add other activities as appropriate