

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Energy market		Code 1010311361010326134
Field of study Power Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Ecological Source of Electrical Energy	Subject offered in: polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 3 Classes: - Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: dr inż. Justyna Michalak email: justyna.michalak@put.poznan.pl tel. 616652030 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: dr inż. E. Sroczan email: eugeniusz.sroczan@put.poznan.pl tel. 616652276 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has a knowledge in the scope of basis of power engineering, electric energy management, technology of processes in power engineering, and economy.
2	Skills	Student is able to determine relationships between business entities acting on market.
3	Social competencies	Student is ready to work in team and to make a decision
Assumptions and objectives of the course: 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 energy-consumption of production processes.		
Study outcomes and reference to the educational results for a field of study		
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. - [K_W06 +K_W22+++K_W23 ++]		
2. Has a knowledge in the scope of balancing of energy generation and consumption. - [K_W07+K_W18+ K_W22+++]		
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. - [K_U08+K_U16+K_U20+]		
Social competencies:		
1. Has a consciousness of economy aspects of power company conducting on market. - [K_K02+K_K05+++]		
Assessment methods of study outcomes		
Lecture evaluation of knowledge and competitions by written test permanent evaluation during every classes (rewarding for activity and particularly for proposing to discuss new aspects of problem)		

Course description		
<p>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 CO2 emission entitlement: profile, functions, equivalents in other energy market systems. Market controller. Functions of integrated control systems in power engineering implemented for energy market.</p>		
<p>Basic bibliography:</p> <ol style="list-style-type: none"> 1. Chojnowski J., Efektywne gospodarowanie energią ?regulacje polskie i europejskie, Rynek Energii nr 1 (56)/2005, s. 18-23. 2. Duda M., Efektywność ekonomiczna mechanizmów rynkowych i regulacyjnych w energetyce, Rynek Energii nr 3(76)/2008, s. 54-60. 3. Halicka K., Ocena skuteczności prognozowania na giełdzie energii, Przegląd Elektrotechniczny Vol, 2010, nr 4, s. 320-322. 4. Kalinowski T., Malko J., Szalbierz Z., Wilczyński A., Efektywność międzynarodowego handlu energią elektryczną, Wydawnictwo Kaprint, Lublin 1990. 5. Malko J., Rynki energii elektrycznej: ewolucja i perspektywy, APE?03-Present-Day Problems of Power Engineering, Jurata, Poland, 2003, T.III, s. 133-144. 6. Mielczarski W., Rynek energii elektrycznej, Agencja Rynku energii S.A., Energoprojekt Consulting S. A., Warszawa 2000. 7. Mielczarski W., Koszty bilansowania i ograniczeń rynku energii elektrycznej, Rynek Energii nr 4(41)/2002, s. 2-7. 8. Niedziółka D., Rynek energii w Polsce, DIFIN S.A., Warszawa 2010. 9. Toczyłowski E., Efektywność ekonomiczna mechanizmów rynkowych i regulacyjnych w energetyce, XIV Konferencja Naukowo-Techniczna Rynek Energii Elektrycznej REE?08, Rynek Energii Zesz. Temat. nr I(II) maj 2008, s. 7-26. 		
<p>Additional bibliography:</p> <ol style="list-style-type: none"> 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. Jasiński P., Kaproń H., Optymalizacja pracy elektrowni w warunkach ograniczonej konkurencji, Rynek Energii nr 2(75)/2008. 3. Polskie Sieci Elektroenergetyczne SA ? Instrukcja ruchu i eksploatacji Sieci Przesyłowej; Regulamin Rynku Bilansowego PSE SA. 4. Sroczan E., Zarządzanie współpracą elektrowni w systemie elektroenergetycznym, Rynek Energii nr 2 (15)/1998, s. 17-23 5. Sroczan E., Współczesne narzędzia teleinformatyczne stosowane do zarządzania energią, Rynek Energii nr 1(50)/2004, s. 2-11. 		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in lectures	45	
2. participation in tutorials related to lectures	7	
3. preparation to exam	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	62	2
Contact hours	52	2
Practical activities	0	0