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1 Knowledge energy management, and fuels and their 2 Skills Ability to effectively self-education in a field	il competencies:		
2 Skills	ic knowledge of the bases of electrical power engineering, basics of thermal energy, rgy management, and fuels and their utilization.		
- Social Is aware of the need to expand their com	on in a field related to the chosen field of study.		
3 Social is aware of the need to expand their com	petences.		
Assumptions and objectives of the course:			
Acquire knowledge about the shaping energy security complex systems the energy sector in the European Union and Poland to increase the rel		hanges in	
Study outcomes and reference to the educate	tional results for a field of study	/	
Knowledge:			
1. Bbasic knowledge of the risks and activities in the area of ??energy s	ecurity - [K_W07+++]		
2. Kknowledge about the main legal, organizational and economical reg		-	
 Versed in the latest trends of energy development to increase energy [K_W20++] 	security, in particular the introduction of B	BAT -	
Skills:			
1. Able to assess the impact of energy on the environment $-[K_U17++$			
 Able to analyze the current energy situation and suggest lines of action Second composition and suggest lines of action 	on to increase energy security - [K_U20+]		
Social competencies:		on the	
1. Understand the non-technical aspects and impacts associated with the nvironment - [K_K02+]	a supportion of a support of the state of th	on the	
Assessment methods of s	ne operation of power, including its impact		

- evaluation of the knowledge and skills demonstrated on the basis of the current check posts and two written tests,

- continuous evaluation for each class skills and expertise by conducting discussions on current issues related to energy security.

Course description

The main objectives of European energy policy. Balanced Energy Policy. The concepts of reliability, sufficiency and security. The main groups of security threats. Instruments formative energy security. Legal, management and marketing. The European Emissions Trading Scheme. Ways to reduce CO2 emissions. Diversification of energy sources. The main objectives set out in the document "Polish Energy Policy until 2030". The production costs of electricity and heat (C02, S02). Clean Coal Technologies. Certificates of origin as instruments to promote activities that increase energy security. Energy tariffs as part of the shaping energy security. Metering and billing, and information systems. Reliability of the power grid. System failures as a feature of large complex systems. The basic principles of defense and reconstruction of power systems during states of emergency and disaster. Defenses and reconstruction generating capacity in the power system in a catastrophic failure.

Basic bibliography:

1. R.Janiczek ? Loading of power steam power plants, WNT W-wa 1990

2. Florkowska B., Diagnostics of high voltage insulating systems of power devices, Wydawnictwa AGH, Kraków, 2009

Additional bibliography:

1. Gładyś H., Matla R.: Work of power plant in electric power system. WNT. W-wa 1995

2. D.Laudyn, M.Pawlik, F.Strzelczyk ? Power plants, WNT W-wa 2000

3. M.Pawlik, J.Skierski ? Systems and devices of power station internal load. WNT W-wa 1986

4. Gacek Z., Structure of high voltage insulating systems used in electric power engineering, Wydawnictwo Politechniki Śląskiej, Gliwice, 2002

5. Florkowska B. i inni, Mechanisms, measurements and analysis partial discharges in diagnostics of high voltage insulating systems, Uczelniane Wydawnictwo Naukowo ? Dydaktyczne AGH, Kraków, 2001

Result of average student's workload

Activity	Time (working hours)	
1. participation in the lectures		18
2. participation in the consulting		5
3. preparation to the tests		30
Student's wo	rkload	
Source of workload	hours	ECTS
Total workload	53	3
Contact hours	23	1
Practical activities	0	0