

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Regulacje prawne i inwestycje w energetyce o strukturze rozproszonej**
 Name in English: **Legal regulations and investments in power system with distributed energy sources**
 Main field of study (if applicable): **Electrical Engineering**
 Specialization (if applicable): **Renewable Energy Sources**
 Level and form of studies: **2nd level, full-time**
 Kind of subject: **obligatory**
 Subject code: **ELR042315**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	15				15
Number of hours of total student workload (CNPS):	30				30
Form of crediting:	crediting with grade				crediting with grade
For group of courses mark (X) final course:					
Number of ECTS points:	1				1
including number of ECTS points for practical (P) classes :					1
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70				0.70

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Knows the principles a power system operation and control, is familiar with electricity generation and transmission techniques.
2. Has sufficient range of language means at his/her disposal to relatively flawlessly speak out (orally and written), formulate and justify opinions, explain his/her position, show advantages and disadvantages of different solutions, participate in discussion and present general, scientific and technical subject matter.
3. Can use basic hardware and software, create and edit a text on basic level, create computer presentations.
4. Understands a need and knows possibilities of continuous education, increasing of professional, personal and social competences.
5. Has awareness of responsibility for own work.

SUBJECT OBJECTIVES

- C1. Getting to know national and union legal regulations in the field of utilization of renewable energy sources.
- C2. Getting to know principles of well-balanced development.
- C3. Possession a knowledge of energy and heat markets in aspect of renewable energy sources.
- C4. Possession a knowledge of investment processes in renewable distributed generation.
- C5. Acquisition of abilities to analyze legal, technical and economical aspects of construction of distributed and dispersed generation objects using renewable energy sources.
- C6. Acquisition of abilities to design investments in distributed and dispersed generation.
- C7. Acquisition of abilities to assess support mechanisms for investment of distributed and dispersed generation using renewable energy sources.

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

- PEK_W01 Knows national and union legal regulations in the field of utilization of renewable energy sources.
- PEK_W02 Possession a knowledge of energy and heat markets in aspect of renewable energy sources.
- PEK_W03 Knows investment processes in renewable distributed generation.

relating to skills:

- PEK_U01 Can analyze legal, technical and economical aspects of construction of distributed and dispersed generation objects using renewable energy sources.
- PEK_U02 Can design investments in distributed and dispersed generation.
- PEK_U03 Can assess support mechanisms for investment of distributed and dispersed generation using renewable energy sources.

relating to social competences:

- PEK_K01 Can think and act in creative and enterprising way. He/she is able to rank appropriately the priorities needed for realizing the respective task.

PROGRAMME CONTENT

Form of classes - lecture		Number of hours:
Lec 1	The fundamentals of creating of legal regulations in the field of utilization of renewable energy sources.	2
Lec 2	The Union legal regulations in the field of utilization of renewable energy sources (documents of the European Union).	2
Lec 3	National legal regulations in the field of utilization of renewable energy sources (national documents).	2
Lec 4	Principles of well-balanced development and natural compensation and expansion of distributed and dispersed generation using renewable energy sources.	2
Lec 5	Formal and legal requirements for planning of construction of objects using renewable energy sources.	2
Lec 6	Financial requirements for construction of objects using renewable energy sources.	2
Lec 7	Preliminary study of investments using renewable energy sources in distributed generation. The goal and a range.	2
Lec 8	Test.	1
Total hours:		15

Form of classes - seminar		Number of hours:
Sem 1	The Union legal regulations in the field of utilization of renewable energy sources.	2
Sem 2	National legal regulations in the field of utilization of renewable energy sources.	2
Sem 3	Formal and legal regulations for using renewable energy sources in different countries of the European Union.	2
Sem 4	Support mechanisms for investment of distributed generation using renewable energy sources and electricity and heat markets.	2
Sem 5	Completion of preliminary study of investment for selected objects of distributed generation using renewable energy sources.	2
Sem 6	Guidelines for dealing with investors that plan to construct objects of distributed generation using renewable energy sources.	2
Sem 7	Technological systems using renewable energy sources for the environment and legal regulations in this field.	2
Sem 8	Repetition and summing up.	1
Total hours:		15

TEACHING TOOLS USED

- N1. Lecture with the use of audiovisual techniques, multimedia presentations.
- N2. Multimedia presentation.
- N3. Problem discussion.
- N4. Case study.

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT		
Evaluation <i>F – forming (during semester) P – concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(w)	PEK_W01 PEK_W02 PEK_W03 PEK_K01	Test.
P(w)	P=F1	
F1(s)	PEK_U01 PEK_U02 PEK_U03	Activity on seminar classes.
F2(s)	PEK_U01 PEK_U02 PEK_U03	Preparing and presenting a presentation
P(s)	P=0.2*F1+0.8*F2	

PRIMARY AND SECONDARY LITERATURE
PRIMARY LITERATURE: [1] Dyrektywa 2009/28/WE Parlamentu Europejskiego i Rady z dnia 23 kwietnia 2009 r. w sprawie promowania stosowania energii ze źródeł odnawialnych zmieniająca i w następstwie uchylająca dyrektywy 2001/77/WE oraz 2003/30/WE (Dz.Urz. WE L 140 z 5.06.2009). [2] Dyrektywa 2009/72/WE Parlamentu Europejskiego i Rady z 13 lipca 2009 dotycząca wspólnych zasad rynku wewnętrznego energii elektrycznej i uchylająca dyrektywę 2003/54/WE (Dz.U. UE L 211z 14.08.2009). [3] Ustawa z dnia 10 kwietnia 1997 r. – Prawo Energetyczne (Dz. U. z 2006 r. Nr 89, poz. 625 z późn.zm.). [4] Ustawa z dnia 20 lutego 2015 r. o odnawialnych źródłach energii (Dz. U. z 2015 r. poz. 478). [5] Kowalska A., Wilczyński A., Źródła rozproszone w systemie elektroenergetycznym. Wydawnictwo Kaprint, Lublin, 2007. [6] Lewandowski W., Proekologiczne źródła energii odnawialnej. WNT, Warszawa, 2008.
SECONDARY LITERATURE: 1] Rozporządzenia Ministra Gospodarki dotyczące funkcjonowania sektora elektroenergetycznego, http://www.ure.gov.pl/portal/pl/492/Aktualne.html [2] Boyle G., Renewable Energy – Power for a sustainable future. Second Edition. Oxford University Press Inc. New York, 2004

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT ELR042315 - Legal regulations and investments in power system with distributed energy sources AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY Electrical Engineering AND SPECIALIZATION Renewable Energy Sources				
Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)	Subject objectives	Programme content	Teaching tool number
PEK_W01	S2OZE_W12	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec8	N.1
PEK_W02	S2OZE_W12	C.3	Lec3 Lec4 Lec5 Lec6 Lec8	N.1
PEK_W03	S2OZE_W12	C.4	Lec5 Lec6 Lec7 Lec8	N.1
PEK_U01	S2OZE_U08	C.5	Sem1 Sem2 Sem3 Sem4 Sem5 Sem6 Sem7 Sem8	N.2 N.3 N.4
PEK_U02	S2OZE_U08	C.6	Sem4 Sem5 Sem6 Sem7	N.2 N.3 N.4
PEK_U03	S2OZE_U08	C.7	Sem4	N.2 N.3
PEK_K01	K2ETK_K06	C.3 C.4 C.5 C.6 C.7	Lec5 Lec6 Lec7 Sem4 Sem5 Sem6	N.1 N.2 N.3 N.4