

FACULTY OF ELECTRICAL  
ENGINEERING**SUBJECT CARD**

Name in Polish: **Ochrona odgromowa i przepięciowa w obiektach budowlanych**  
 Name in English: **Lightning and overvoltage protection in buildings**  
 Main field of study (if applicable): **Electrical Engineering**  
 Specialization (if applicable): **Industrial Electrical Engineering**  
 Level and form of studies: **2nd level, full-time**  
 Kind of subject: **obligatory**  
 Subject code: **ELR041105**  
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	15				
Number of hours of total student workload (CNPS):	60				
Form of crediting:	crediting with grade				
For group of courses mark (X) final course:					
Number of ECTS points:	2				
including number of ECTS points for practical (P) classes :					
including number of ECTS points for direct teacher-student contact (BK) classes:	1.40				

**PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**

1. Basic knowledge of electrical engineering and high-voltage technology

**SUBJECT OBJECTIVES**

- C1. Gaining knowledge about the techniques of lightning and surge protection  
 C2. The student can select the devices to surge protection

**SUBJECT EDUCATIONAL EFFECTS***relating to knowledge:*

PEK\_W01 The student has knowledge about the high-voltage pulse exposures

PEK\_W02 The student can choose overvoltage protection of a building

*relating to skills:**relating to social competences:*

PEK\_K01 Is aware about the importance and non-technical aspects of engineering activities, i.e. influence on environment, therefore takes responsible actions.

**PROGRAMME CONTENT**

Form of classes - lecture		Number of hours:
Lec 1	The preliminary, introduction to the problems of the subject	2
Lec 2	Lightning strikes	2
Lec 3	External lightning protection equipment for buildings	2
Lec 4	Lightning exposure in low-voltage installations of a buildings	2
Lec 5	Lightning protection zone concept	2
Lec 6	Surge arresters	2
Lec 7	Limiting the surge in the electrical system of a building construction	2
Lec 8	Test	1
Total hours:		<b>15</b>

### TEACHING TOOLS USED

- N1. Traditional lecture using multimedia presentation  
N2. Student's own work

### 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_K01	Test
P(w)	P=F1	

### PRIMARY AND SECONDARY LITERATURE

#### PRIMARY LITERATURE:

- [1] Sowa A., Kompleksowa ochrona odgromowa i przepięciowa. Biblioteka COSiW SEP, Warszawa 2005.  
[2] Szpor St., Samuła J., Ochrona odgromowa, tom 1, wiadomości podstawowe, WNT 1983.  
[3] Szpor St., Ochrona odgromowa, tom2, Ochrona urz. elektroenergetycznych, WNT 1975.  
[4] Szpor St., Ochrona odgromowa, tom 3, Piorunochrony, WNT 1978.

#### SECONDARY LITERATURE:

- [1] Dehn + Soehne, Lightning protection guide. 2007.  
[2] Uman M.A., The art and science of lightning protection. Cambridge University Press 2008.

### SUBJECT SUPERVISOR

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### MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT **ELR041105 - Lightning and overvoltage protection in buildings** AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **Electrical Engineering** AND SPECIALIZATION **Industrial Electrical Engineering**

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	S2ETP_W07	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.2
PEK_W02	S2ETP_W07	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.2
PEK_K01	K2ETK_K03	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7 Lec8	N.1 N.2