

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: **ELR051105**
 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 LEARNING OUTCOMES*relating to knowledge:*

- PEU_W01 The student has knowledge about the high-voltage pulse exposures
 PEU_W02 The student can choose overvoltage protection of a building

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

- PEU_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:		15

TEACHING TOOLS USED

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

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT

Evaluation <i>F - forming (during semester)</i> <i>P - concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(w)	PEU_W01 PEU_W02 PEU_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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