

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Systemy ochrony przed zagrożeniami prądem elektrycznym 1**
 Name in English: **Systems of protection against electric shock 1**
 Main field of study (if applicable): **Electrical Engineering**
 Specialization (if applicable):
 Level and form of studies: **1st level, part-time**
 Kind of subject: **obligatory**
 Subject code: **ELR042461**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	10				
Number of hours of total student workload (CNPS):	27				
Form of crediting:	crediting with grade				
For group of courses mark (X) final course:					
Number of ECTS points:	1				
including number of ECTS points for practical (P) classes :					
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70				

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Knowledge of the basic principles of electrical engineering
2. Basic knowledge of the construction of low-voltage electrical installations.
3. Basic knowledge of the construction and operation of the electrical equipment and apparatus
4. Ability to think and act creatively

SUBJECT OBJECTIVES

- C1. Knowledge of operation rules of electric shock protection systems used in low-voltage installations
 C2. Knowledge of effectiveness criteria of electric shock protection systems in low-voltage installations
 C3. Knowledge of principles of low-voltage electrical installations testing

SUBJECT EDUCATIONAL EFFECTS*relating to knowledge:*

- PEK_W01 Student has knowledge of the effects of electrical current on the human body
 PEK_W02 Student has knowledge of the protective systems and protective measures used in low-voltage installations as well as knowledge of criteria of effectiveness of the shock protection measures in low-voltage installation
 PEK_W03 Student has knowledge of the principles of testing of low-voltage electrical installations as well as knowledge of the principles of working on low-voltage electrical equipment

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

- PEK_K01 The student is aware of the risks posed by electrical circuits and equipment

PROGRAMME CONTENT

Form of classes - lecture		Number of hours:
Lec 1	Basic definitions and designations in protection against electric shock. The impact of electric current on human beings.	2
Lec 2	Classes of protection of electrical equipment. Degrees of protection provided by enclosures. The criteria of protection against electric shock.	2
Lec 3	Low-voltage networks systems. Main and supplementary protective equipotential bonding. Earthing.	2
Lec 4	Basic protection measures used in low-voltage installations. Fault protection measures used in low-voltage installations. Initial and periodic verification of electrical low-voltage installations.	2
Lec 5	The principles of safe work organization on electrical equipment Final test	2
Total hours:		10

TEACHING TOOLS USED

- N1. Multimedia presentation
N2. Informative lecture

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS 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)	PEK_W01 PEK_W02 PEK_W03	presence at the lecture
F2(w)	PEK_W01 PEK_W02 PEK_W03 PEK_K01	final test
P(w)	$P = 0,25F1 + 0,75F2$	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

- [1] Markiewicz H.: Bezpieczeństwo w elektroenergetyce: zagadnienia wybrane. WNT, Warszawa 2009

SECONDARY LITERATURE:

- [1] PN-IEC 60364 Instalacje elektryczne w obiektach budowlanych (norma wieloarkuszowa)
[2] PN-HD 60364 Instalacje elektryczne niskiego napięcia (norma wieloarkuszowa)
[3] Ustawa „Prawo budowlane” wraz z rozporządzeniami wykonawczymi

SUBJECT SUPERVISOR

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT **ELR042461 - Systems of protection against electric shock 1** AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **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	K1ETK_W32	C.2	Lec1	N.1 N.2
PEK_W02	K1ETK_W32	C.1 C.2	Lec1 Lec2 Lec3 Lec4	N.1 N.2
PEK_W03	K1ETK_W32	C.2 C.3	Lec4 Lec5	N.1 N.2
PEK_K01	K1ETK_K05 K1ETK_K06	C.1 C.3	Lec4 Lec5	N.1 N.2