

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Miernictwo wysokonapięciowe i diagnostyka izolacji**
 Name in English: **High Voltage Measurement and diagnostics of insulation**
 Main field of study (if applicable): **Electrical Engineering**
 Specialization (if applicable): **Industrial Electrical Engineering**
 Level and form of studies: **2nd level, part-time**
 Kind of subject: **obligatory**
 Subject code: **ELR041164**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):			22		
Number of hours of total student workload (CNPS):			108		
Form of crediting:			crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:			4		
including number of ECTS points for practical (P) classes :			4		
including number of ECTS points for direct teacher-student contact (BK) classes:			2.80		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basic knowledge In the range of high-voltage technique and electrical metrology.

SUBJECT OBJECTIVES

- C1. Gaining theoretical knowledge and skills in the range of high-voltage metrology
 C2. Gaining theoretical knowledge in the range of selected diagnostic test methods of materials and high voltage insulation systems

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

PEK_U01 The Student is prepared to high-voltage measurement.

PEK_U02 The Student is prepared to diagnostic measurements of high voltage equipment and to work on positions related to the operation of such devices.

relating to social competences:

PEK_K01 The Student will gain knowledge about any risks to personnel and equipment.

PROGRAMME CONTENT

Form of classes - laboratory		Number of hours:
Lab 1	Introduction, regulations, occupational health and safety regulations, requirements, scope lab	2
Lab 2	Direct measurement methods of high voltage – sphere spark gap, electrostatic voltmeter	3
Lab 3	Indirect measurement methods of high voltage – measurements of peak voltage value	3
Lab 4	Determination of scale factors of high voltage measurement systems	3
Lab 5	Tests of high surge voltage protection devices	3
Lab 6	Tests of composite insulator under high surge voltage	3
Lab 7	Examination of surface properties of insulating materials	3
Lab 8	Correction term, credit lab	2
Total hours:		22

TEACHING TOOLS USED

- N1. Individual learning.
N2. Laboratory measurements, analysis of results, preparation of reports.

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(L)	PEK_U01 PEK_U02 PEK_K01	Preparation for laboratory classes
F2(L)	PEK_U01 PEK_U02 PEK_K01	Preparation of the report
P(L)	$P=0,7 \cdot F1 + 0,3 \cdot F2$	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

E.Kuffel, W.S. Zaengel, J. Kuffel: High Voltage Engineering Fundaments, Elsevier, 2000

SECONDARY LITERATURE:

SUBJECT SUPERVISOR

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT **ELR041164 - High Voltage Measurement and diagnostics of insulation** 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_U01	S2ETP_U07	C.1	Lab1 Lab2 Lab3 Lab4	N.1 N.2
PEK_U02	S2ETP_U07	C.2	Lab5 Lab6 Lab7	N.1 N.2
PEK_K01	K2ETK_K03 K2ETK_K06	C.1 C.2	Lab2 Lab3 Lab4 Lab5 Lab6 Lab7 Lab8	N.1 N.2