

DESCRIPTION OF THE COURSES

- Course code: ELR2401
- Course title: **Electric shock protection systems**
- Language of the lecturer: polish

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	<i>1</i>		<i>2</i>		
<i>Number of hours/semester*</i>	<i>15</i>		<i>30</i>		
<i>Form of the course completion</i>	class test		class test		
<i>ECTS credits</i>	<i>1</i>		<i>2</i>		
Total Student's Workload	<i>30</i>		<i>60</i>		

- Level of the course (basic/advanced): basic
- Prerequisites: Credited Theoretical electrical engineering
- Name, first name and degree of the lecturer/supervisor: Zbigniew Wróblewski, PhD, DSc
- Names, first names and degrees of the team's members:
 Lech Danielski, PhD
 Marek Szuba, PhD
 Ryszard Zacirka, PhD
 Marek Jaworski, PhD
 Janusz Konieczny, PhD
- Year: 3 Semester: 5
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course):
- Form of the teaching (traditional/e-learning): traditional
- Course description:

Basic definitions and designations in protection against electric shock. Working of electric current on human beings. The criteria of protection against electric shock. Degrees of protection and classes of protection of electric equipment. Low voltage networks systems: TN, TT and IT. Basic protection. Fault protection, structure and means of protection. Main and supplementary equipotential bonding. Functional and protective earthing. Simultaneous protection before direct and indirect contact - SELV, PELV and FELV circuits. Personal safety equipment. The principles of resuscitating of persons shocked by electric current. The principles of organizing of safety work by electric devices.

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
1. Basic definitions and designations in protection against electric shock and working of electric current on human beings.	2
2. The criteria of protection against electric shock and degrees of protection and classes of protection of electric equipment.	2
3. Low voltage networks systems and basic protection.	2
4. Fault protection.	2

5. Main and supplementary equipotential bonding. Earthing. Simultaneous protection before direct and indirect contact.	2
6. Initial verification and periodic inspection and testing of electrical installations.	2
7. The principles of resuscitating of persons shocked by electric current and safe work organization principles at electrical equipment	2

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:

1. Resuscitating of persons shocked by electric current
2. Testing of resistance and continuance of protection conductors and equipotential bonding.
3. Testing of resistance and electrical durability of insulation
4. Technical measurement method of protection by automatic disconnection of supply with overcurrent devices
5. The specialist measuring instruments for testing of protection by automatic disconnection of supply with overcurrent devices
6. Measurement of protection by automatic disconnection of supply with residual current devices
7. Laboratory testing of earthing resistance and electric resistivity of soil
8. Ground testing of earthing resistance and electric resistivity of soil
9. Measurement of stand resistance and touch voltage
10. Measurement of parameters electrical systems TN and TT
11. Measurement of parameters electrical systems IT
12. Testing of electric fields distribution in underground line model

- Project – the contents:

- Basic literature:

[1] Markiewicz H. Ochrona przeciwporażeniowa w urządzeniach elektrycznych. WNT, Warszawa 1999

- Additional literature:

[1] PN-IEC 60364:1999- 2000. Instalacje elektryczne w obiektach budowlanych

[2] Ustawa „Prawo budowlane” wraz z rozporządzeniami wykonawczymi

- Conditions of the course acceptance/creditation:

Completion of the course is confirmed on the basis of class test covering the whole material

* - depending on a system of studies