

## DESCRIPTION OF THE COURSES

- Course code: ELR1169
- Course title: Power system insulation
- 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>	2				
<i>Number of hours/semester*</i>	30				
<i>Form of the course completion</i>	Exam				
<i>ECTS credits</i>					
<i>Total Student's Workload</i>					

- Level of the course (basic/advanced): basic
- Prerequisites: Mathematics, Electrotechnics. fundamentals
- Name, first name and degree of the lecturer/supervisor: Krystian Chrzan, Ph.D.
- Names, first names and degrees of the team's members:  
1. Adam Tymań, PhD.
- Year:..II..... Semester:.....3.....
- Type of the course (obligatory/optional): optional
- Aims of the course (effects of the course): Knowledge of dielectric materials, insulation used in power system and its diagnostics.
- Form of the teaching (traditional/e-learning): traditional
- Course description:
- The course discusses the newest insulation materials and insulation used in different parts of power system. Influence of climatic conditions on outdoor or indoor insulators and aging processes in solid dielectrics are discussed. A significant part of the lecture is the presentation of diagnostic methods, especially partial discharge measurements. The fault location in underground cables will be shown as examples of practical engineering.
- Lecture:

<i>Particular lectures contents</i>		<i>Number of hours</i>
1.	Solid dielectrics and their influence on electric insulation structure. Gaseous and liquid dielectrics.	2
2.	Conduction mechanism in dielectrics. Mechanical and electrical stresses of outdoor insulators, pollution flashover.	2
3.	Laboratory and field tests of outdoor insulators. Indoor switchgear insulation.	2
4.	Composite insulators, influence of insulator profile.	2
5.	Insulators selection and insulation coordination. Power arc protection.	2
6.	Underground cables.	2
7.	Cable diagnostics and fault location.	2

8.	Insulation of electrical apparatuses and machines.	2
9.	Transformer diagnostics	2
10.	Gas insulated substations and lines	2
11.	Aging processes and partial discharge measurements	2

- Basic literature:

1. Looms J.S.T., Insulators for high voltages. Peter Peregrinus 1988
2. Gacek Z., Wysokonapięciowa Technika Izolacyjna, Wydawnictwo Politechniki Śląskiej, Gliwice 1996 r.

- Additional literature:

1. Tanaka T., Advanced power cable technology. Testing...Vol. 1, 1983
2. Haddad A., Warne D., Advances in High Voltage Engineering. Institution of Electrical Engineers 2004

- Conditions of the course acceptance/creditation: Passed exam

\* - depending on a system of studies