DESCRIPTION OF THE COURSES

- Course code: ELR1108
- Course title: HIGH VOLTAGE ENGINEERING 1
- Language of the lecturer: Polish

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

- Level of the course (basic/advanced):
- Prerequisites: Materials engineering fundamentals.
- Name, first name and degree of the lecturer/supervisor: Janusz Fleszyński, professor D.Sc., B.Eng.
- Names, first names and degrees of the team's members:
  Adam Tymań, Ph.D, B.Eng.
  Krystian Chrzan, Ph.D, B.Eng.
  Maciej Jaroszewski, Ph.D, B.Eng.
  Krzysztof Wieczorek, Ph.D, B.Eng.
- Year:.II..... Semester:....3.....
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course):
  Acquiring of basic knowledge, which is necessary for high voltage insulation skills and maitenance of high voltage power equipment and installation.
- Form of the teaching (traditional/e-learning): traditional
- Course description:

Course presents high voltage engineering problems from electrical power engineering needs point of view. Syllabus of lecture includes following items: voltage hazards of insulation of high voltage electric devices, electric field in high voltage insulation systems, breakdown processes in gases, air and SF6 electric strength characteristics, surface discharges on technicaly clean and dirty insulators, discharges in overhead transmission lines.

- Lecture:

Particular lectures contents	*Number of hours*
1. Introduction, significance of high voltage for power engineering development.	*2*
2. Basic definitions and terms. Working voltage hazards.	*2*
3. Overvoltage hazards: external and internal.	*2*
4. Electric field in insulation systems.	*2*

5. Processes of electric discharges development in gases.	*2*
6. Electric strength of air and SF6.	*2*
7. Surface discharges in air	*2*
8. Corona discharges in power transmission lines	*1*

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
- Project – the contents:
- Basic literature:
  1. Z. Flisowski, Technika Wysokich Napięć, WNT, Warszawa, 1999, 2005.
  2. Praca zbiorowa, Laboratorium wysokonapięciowe w dydaktyce i elektroenergetyce, J. Fleszyński (red.), Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 1999.
- Additional literature:
  1. Praca zbiorowa po redakcją Z. Pohla, Napowietrzna izolacja wysokonapięciowa, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 2003,
  2. Praca zbiorowa po redakcją R. Kosztaluka, Technika badań wysokonapięciowych, t. 1, WNT, Warszawa, 1985,
  3. Praca zbiorowa po redakcją H. Mościckiej-Grzesiak, Inżynieria wysokich napięć w elektroenergetyce, Wydawnictwo Politechniki Poznańskiej, t.1 - 1996, t.2 - 1999.

- Conditions of the course acceptance/credition:
  Positive grade written test.

***** - depending on a system of studies