

DESCRIPTION OF THE COURSES

- Course code: ELR2405
- Course title: **Electromagnetic fields protection**
- 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>1</i>
<i>Number of hours/semester*</i>	<i>15</i>				<i>15</i>
<i>Form of the course completion</i>	class test				Seminar project
<i>ECTS credits</i>	<i>1</i>				<i>1</i>
Total Student's Workload	<i>30</i>				<i>30</i>

- Level of the course (basic/advanced): advanced
- Prerequisites: Credited Electrical devices
- 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: 5 Semester: 10
- Type of the course (obligatory/optional): optional
- Aims of the course (effects of the course): Recognize sources of the electromagnetic fields, methods of the identification and reduction ELF and HF.
- Form of the teaching (traditional/e-learning): traditional
- Course description:
Quasi-static and high frequency electromagnetic fields. Sources of the electromagnetic fields in the industry and power industry. Measurements and analytical identification of electromagnetic fields. Danger evaluation. Electromagnetic fields protection – regulation and guidelines. Methods of protection of the electromagnetic fields impact. Methods of reduction of the electromagnetic fields generated by the high voltage overhead lines and high current circuits. Theory and technical aspect of the fields shielding. Electromagnetic fields protection in the investment operation.

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
1. Sources of the electromagnetic fields of low and high frequencies.	2
2. Measurements and analytical identification of electromagnetic fields ELF and HF.	2
3. Distribution of the electromagnetic fields generated by the high voltage	2

power lines and substation.	
4. Influence of the electromagnetic fields on biological systems. Types and effect of influences. Methods of investigation.	2
5. Electromagnetic fields protection. Regulation and guidelines.	2
6. Methods of reduction of the electromagnetic fields generated the work station.	2
7. New trends of the ELF fields protection technique.	2

- Classes – the contents:

- Seminars – the contents:

The methods and instruments for distribution of the electromagnetic fields investigation. Measurements of electromagnetic fields. Computer programs for the distribution of the electromagnetic fields. Experimental investigation of the influence of electromagnetic fields on biological systems. Reduction technique of the ELF. Work on the high voltage.

- Laboratory – the contents:

- Project – the contents:

- Basic literature:

[1] PSE S.A.: Linie i stacje elektroenergetyczne w środowisku człowieka. Informator – wyd. 3, Warszawa 2005.

[2] Korniewicz H.: Elektrotermia. Higiena pracy w polach wielkiej częstotliwości. WNT, Warszawa 1979

- Additional literature:

[1] Pola elektromagnetyczne 50 Hz w środowisku człowieka. Mat. Konferencyjne, Poznań 2003

- Conditions of the course acceptance/creditation:

Completion of the course is confirmed on the basis of class test covering the whole material as well as on the seminar project

* - depending on a system of studies