

DESCRIPTION OF THE COURSES

- Course code: ELR2402
- Course title: **Electrical receiver**
- 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		1		
<i>Number of hours/semester*</i>	30		15		
<i>Form of the course completion</i>	class test		class test		
<i>ECTS credits</i>	2		1		
<i>Total Student's Workload</i>	60		30		

- Level of the course (basic/advanced): advanced
- 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:
Marek Szuba, PhD
Ryszard Zacirka, PhD
Marek Jaworski, PhD
- Year: 3 Semester: 6
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course): Recognize physical phenomenon in equipment, which conversion of electric energy on the useful energy forms: light and heat.
- Form of the teaching (traditional/e-learning): traditional
- Course description:

Conversions of electric energy on the useful energy forms. Universal operating characteristics of the electroheat equipment. Thermogeneration and thermokinetic process. Electric light source. Ergonomic illumination systems of the communal and industrial object. Regulation of illumination. Base of the electrothermal conversions. Resistance, electrode, arc, induction furnace. Microwave oven and infrared radiator. Electroheat equipment in the communal object. Electrochemical devices.

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
1. Conversions of electric energy on the useful energy forms.	2
2. Thermogeneration and thermokinetic process. Heat losses.	2
3. Three-dimensional distribution of the luminous flux.	2
4. Electric light source.	2
5. Criteria of quality illumination.	2
6. Ergonomic illumination design. Point-by-point and efficiency	2

method.	
7. Regulation of illumination.	2
8. Electrothermal resistance conversion.	2
9. Resistance direct-heat and indirect-heat furnace.	2
10. Direct arc and indirect arc furnace.	2
11. Induction furnace.	2
12. Radial method of preheat.	2
13. Microwave oven, plasma and electron devices.	2
14. Temperature regulation and control electroheat equipment.	2

- Classes – the contents:

- Seminars – the contents:

- Laboratory – the contents:

1. Luminous flux measurements.
2. Investigation of electric light sources and electric light fitting.
3. Investigation of arc furnace model.
4. Investigation of heating and self-cooling process of resistance furnace.
5. Investigation of spot-welding machine.
6. Investigation of microwave oven.

- Project – the contents:

- Basic literature:

[1] Masny J., Teresiak Z.: Przemiany energii elektrycznej. WNT, Warszawa 1985

[2] Hering. M.: Podstawy elektrotermii. cz.1. WNT, Warszawa, 1992

[3] Hering. M.: Podstawy elektrotermii. cz.2. WNT, Warszawa, 1998

- Additional literature:

[1] Rodacki T.: Urządzenia elektrotermiczne. Warszawa 2002

- 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