

DESCRIPTION OF THE COURSES

- Course code: **ELR3103**
- Course title: **ELECTRICAL MACHINES II**
- 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>	<i>Exam</i>		<i>Completion of lab. exercises</i>		
<i>ECTS credits</i>	<i>3</i>		<i>2</i>		
<i>Total Student's Workload</i>	<i>90</i>		<i>60</i>		

- Level of the course (basic/advanced):
- Prerequisites: Courses Electrical machines I
Name, first name and degree of the lecturer/supervisor: Jan Zawilak Ph.D., D.Sc.
Ludwik Antal Ph.D., D.Sc., Ignacy Dudzikowski Ph.D., D.Sc., Olgierd Kasaty Ph.D.,
Roman Kramarski Ph.D., Piotr Zieliński Ph.D.,
- Names, first names and degrees of the team's members:
- Year: III Semester: V
- 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: Synchronous machines: construction, principle of operation, phasor diagrams. Synchronous generators: performance characteristics, synchronizing, operating on the system, active and reactive power control. Transients in synchronous machines: transient reactance, short-circuit. Synchronous motors: starting, performance characteristics, compensator operation. DC-machines: construction, principle of operation, commutation, armature reaction. Shunt- and series machines: motoring, generating and braking, performance characteristics, starting, speed control.
- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
<i>1. Synchronous machines: construction, principle of operation, armature reaction.</i>	<i>2</i>
<i>2. Synchronous machines: parameters, equivalent circuits, phasor diagrams.</i>	<i>2</i>
<i>3. Synchronous generator: performance characteristics, synchronizing, operating on an infinite busbar, synchronous motor.</i>	<i>2</i>
<i>4. Transients in synchronous machine: transient reactance, short-circuit</i>	<i>2</i>
<i>5. D.C. machines: construction, principle of operation, armature reaction</i>	<i>2</i>
<i>6. D.C. machines: armature windings and commutation.</i>	<i>2</i>
<i>7. Types and characteristics of D.C. generators.</i>	<i>1</i>
<i>8. Types and characteristics D.C. motors, starting and speed control.</i>	<i>2</i>

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents: Testing of performance and steady-state characteristics of synchronous machines and D.C. machines.
- Project – the contents:
- Basic literature:
 - Latek W.: *Zarys maszyn elektrycznych*. WNT W-wa 1974 r.
 - Plamitzer A. M.: *Maszyny elektryczne*. WNT W-wa 1976 r.
 - Dąbrowski M.: *Projektowanie maszyn elektr. prądu przemiennego* WNT W-wa 1994 r.
 - Jezierski E.: *Transformatory* WNT Wa-wa 1983 r.
 - Bajorek Z.: *Maszyny elektryczne*. WNT 1976 r.
 - Antal L., Janta T., Zieliński P.: *Maszyny elektryczne. Ćwiczenia laboratoryjne*. Of. Wyd. PWr, Wrocław 2001.
- Additional literature:
 - Latek W.: *Maszyny elektryczne w pytaniach i odpowiedziach*. WNT Wa-wa 1978 r.
- Conditions of the course acceptance/creditation:
 - Passing of the exam and completion of the laboratory exercises.

* - depending on a system of studies