Title **Electromechanical Drive Systems**	Code **1010325211010320827**
Field **Electrical Engineering**	Year / Semester **1 / 1**
Specialty **-**	Course **core**
Hours Lectures: **2** Classes: **10** Laboratory: **-** Projects / seminars: **-**	Number of credits **4**
	Language **polish**

Lecturer:

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Status of the course in the study program:

> Obligatory subject, Faculty of Electrical Engineering, Field: Electrical Engineering, Full-time second-degree studies

Assumptions and objectives of the course:

> The student should obtain knowledge of the method of simulation of electromechanical system and electrical drive and methods of their control.

Contents of the course (course description):

> Magnetic circuits. Non-linear and variable structure circuits. Sommerfeld theory: energy and co-energy. Analogies of electrical, magnetic and mechanical systems. Electromagnetic forces and torques ? virtual work principle. Forces in linear and non-linear systems. Forces in alternating current circuits. Mechanical system dynamics: the Hamilton?s principle and Lagrange?s equations. Unified coordinates; unified energy and co-energy. Lagrange equations for electromechanical systems. Linear movement electromagnetic actuators: basic structures; the steady-state characteristics; dynamics.
> Mathematical models of driving systems. The circuits models: natural and transformed current coordinates. Transformation of multi-phase systems. Transformation of the rotary systems.
> The symmetrical components model.

Introductory courses and the required pre-knowledge:

> Basic knowledge about electrical and magnetic circuits theories. The knowledge of the principles of electrical machines

Courses form and teaching methods:

> Multimedia supported lectures, classes exercises related to practical problems

Form and terms of complete the course - requirements and assessment methods:

> Verification of knowledge during the classes, tests

Basic Bibliography:

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Additional Bibliography:
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