

Title <b>Electrical Machines in Automatics and Robotics</b>	Code <b>1010331141010320290</b>
Field <b>Control Engineering and Robotics</b>	Year / Semester <b>2 / 4</b>
Specialty -	Course <b>core</b>
Hours Lectures: - Classes: - Laboratory: <b>2</b> Projects / seminars: -	Number of credits <b>2</b>
	Language <b>polish</b>

**Lecturer:**

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**Status of the course in the study program:**

Obligatory subject, Faculty of Electrical Engineering, Field: Automatics and Robotics, Full-time first-degree studies

**Assumptions and objectives of the course:**

The student should obtain knowledge of the constructions, performances and mathematical models of transformers, induction motors, synchronous motors, commutator machines and electronically commutated motors.

**Contents of the course (course description):**

Magnetic circuits. Transformers: equivalent circuit, transformer on load, three-phase transformers. Rotating machines-basic concepts: rotating magnetic field, electromotive force, winding factors. Induction machines: basic theory and construction, equivalent circuit, speed-torque curves, squirrel-cage rotor, speed control. Single-phase motors. Synchronous machines: basic theory and construction, phasor diagram, steady state operating characteristics, effect of salient poles, permanent magnet machines, starting of synchronous motors. Direct current commutator machines: basic theory and construction, commutation, armature reaction, motor characteristic, motor speed control. Alternating current commutator motors. Stepper motors. Brushless direct current motors.

**Introductory courses and the required pre-knowledge:**

Basic knowledge about electrical and magnetic circuits theories.

**Courses form and teaching methods:**

Laboratory exercises

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

Verification of knowledge during laboratory exercises, verification of exercises reports

**Basic Bibliography:**

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**Additional Bibliography:**

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