**Electric Drives (ECTS credits: 5)**

Language: the course is offered in Serbian and Hungarian.

**Course description:**

Firstly, the basics of electro-mechanical power converters are presented: principles of different dc motors, induction motors, synchronous motors, BLDC motors, and step motors. Secondly, electronic control of these electro-mechanical power converters is described. Selection criteria of motors and converters are given for different applications.

The following topics are covered:

* Lecture 1. Principles of electromechanical power conversion.
* Lecture 2. Description of DC motors.
* Lecture 3. AC motors and space vectors.
* Lecture 4. Synchronous AC drives.
* Lecture 5. Induction motor drives in the steady state.
* Lecture 6. Speed control of induction motors.
* Lecture 7. Vector control of induction motors.
* Lecture 8. Speed control of step motors and BLDC motors.
* Lecture 9. The economy of motor drives.
* Lecture 10: Adjusting motor drives to process control.

**Aims:**

The goals of the course are the following:

* The students have to get understanding of electro-mechanical power conversion.
* They have to learn the regulation principles of electro-mechanical power converters.
* They have to be familiar with dc motors and their torque speed and position control.
* They have to be familiar with different approaches to the control of synchronous AC and induction motors.
* They will be able to apply step motors and BLDC motors.
* They will be able to construct or select motor drive components.
* They will be able to apply and adjust motor drive modules to a specific application.