**Energetics electronics (ECTS credits 6)**

Language: the course is offered in English, Serbian and Hungarian.

**Course description:**

In the first part, the course covers behavior of basic Power Electronic circuits: rectifiers, dc-dc converters, inverters, ac-ac converters, and resonant converters. In the second part, applications of these circuits are described and analyzed: power supplies, motor control, battery circuits, welding current sources and high voltage equipment.

The following topics are covered:

* Lecture 1. Basic power converter electronic circuits.
* Lecture 2. Description of rectifiers.
* Lecture 3. Description of dc-dc converter circuits.
* Lecture 4. Description of inverters.
* Lecture 5. Description of ac-ac converters: phase control circuits, frequency changers, cycloconverters.
* Lecture 6. Construction of power converters.
* Lecture 7. Analysis of motor control circuits.
* Lecture 8. Other applications of power electronic circuits.

**Aims:**

The goals of the course are the following:

* The students have to get an understanding of electronic power conversion principles.
* They have to learn the analysis tools of power electronic circuits.
* They have to be familiar with waveforms of inductor currents and capacitor voltages in the power converters.
* They have to be familiar with power inductors.
* They will be able to construct or select power supplies from the market.
* They will be able to construct or select motor control circuits and other power converter modules from the market.