**Electronics 1 (ECTS credits: 6)**

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

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**Course description:**

The course covers basic components and circuits of Analog electronics. In the first part, electronic components are described and analyzed. In the second part, basic analog electronic circuits are introduced. Discrete and integrated implementations are discussed.

The following topics are covered:

* Lecture 1. Passive components: resistors, inductors, capacitors
* Lecture 2. Passive components: batteries, electro mechanics, sensors
* Lecture 3. Active components: diodes, bipolar transistors
* Lecture 4. Active components: junction FETs and MOSFETs
* Lecture 5. Active components: SCR and IGBT
* Lecture 6. Active components: optoelectronics
* Lecture 7. Passive circuits, circuit analysis
* Lecture 8. Passive circuits: simple RC and RLC circuits
* Lecture 9. Active circuits: simple logic circuits
* Lecture 10. Active circuits: basics of amplifiers, feedback
* Lecture 11. Active circuits: operational amplifier circuits
* Lecture 12. Active circuits: discrete amplifiers
* Lecture 13. Active circuits: construction and real parameters of operational amplifiers
* Lecture 14. Active circuits: nonlinear analog circuits
* Lecture 15. Active circuits: further analog circuits and recapitulation

**Aims:**

The goals of the course are the following:

* The students have to get understanding of electronic components' data sheets.
* They have to learn the analysis of electronic circuits by hand and to simulate their behavior on digital computer.
* Through laboratory practice they have to become familiar with implementation of electronic circuits on protoboard.
* They have to learn taking measurements with digital oscilloscope and multimeter.