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

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

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**Course description:**

The course covers the basic aspects of electrotechnics.

This course would cover the following topics, both as lectures and exercises:

1. Basic concepts of electricity
2. Time constant currents.
3. Alternating currents.
4. Kirchhoff's laws
5. Ohm's law
6. Methods for solving electrical networks, complex calculus
7. Three-phase systems
8. Resonant circuits
9. Coulomb's law, electric field, potential, voltage.
10. Gauss's law, electric field energy, magnetic forces, Biot-Savart's law
11. Ampere's law
12. Materials in magnetic field, magnetic circuits
13. Faraday's law, magnetic field energy, hysteresis losses
14. Examples will be solved in the order of lectures

**Aims:**

Student will acquire knowledge of the basics in electrical engineering.

They will be given introduction to individual elements in the electrical network in order to comprehend methods for solving alternating current networks in stationary mode and also to comprehend methods for solving electrical networks with direct currents.  
Students will also develop basics for understanding the functioning of electrical and electronic devices.