**Introduction to electrotechnics 1 (ECTS 6)**

**Language: The course is offered in Serbian and Hungarian**

**Contact person: Dr. Lívia Szedmina (slivia@vts.su.ac.rs)**

Course description:

The course covers the following topics: basic terms, direct currents, alternating currents, Kirchhoff's current law and Kirchhoff's voltage law, Ohm's law, methods for solving electric networks, complex calculations, impedance, calculation of equivalent impedance, three-phase systems, resonant circuits. Exercises include calculations based on the topics.

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

1. Introduction. Direct current.
2. Kirchhoff`s first law.
3. Ohm`s law. Joule`s law. Resistance. Resistors in series and parallel.
4. Voltage source. Kirchhoff`s second law. Generators in series and parallel.
5. Current source. Methods for solving electric networks.
6. Delta and star connections.
7. 1.written examination.
8. Alternating current. Capacitors. Inductors.
9. Kirchhoff`s first and second law in networks with alternating currents. Complex calculations.
10. Power in networks with alternating currents.
11. Impedance and admittance. Impedances in series and parallel.
12. Three-phase electric power systems.
13. Delta and star connections in three-phase systems. Power in three-phase systems.
14. 2.written examination.
15. Repeat. Conclusion of the semester.

Aims:
The goal of the course is to introduce students to elements of electric networks and basic methods for solving networks with direct or alternating currents.

Upon completion, the students should be able to understand how an electric network works and what is the function of different elements. The students should be also able to analyse and solve different electric networks.