

**Course title: Basics of Electrical Engineering I**

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131001020	Mandatory	I	7.5	3+3

**Study program:**

Basic academic studies, ELECTRICAL ENGINEERING, study program: Power systems and Control (studies last for 6 semesters, 180 ECTS credits).

**Prerequisites:**

No prerequisites required.

**Course aims:**

In this course, students are introduced to basic ideas of general electrical engineering, basic laws describing electrostatic field, and basic ideas and methods for analysis of the circuits with the time constant current

**Teacher(s) and assistant(s):**

PhD Gojko Joksimović, assistant professor – teacher

PhD Ana Jovanović – assistant

MSc Vesna Rubežić - assistant

**Teaching method:**

Lectures (which include exercises). Studying and doing home exercises. Consultations.

**Course synopsis:**

Preliminary weeks	Preparation and semester enrolment.
I week	Introduction. Coulomb's law, electrostatic field, definition of the field intensity vector
II week	Work of the electrostatic field. Conservative and source fields. Potential and voltage.
III week	Conductors in the electrostatic field, concept of the capacitance, capacitors
IV week	Dielectrics in the electrostatic field, electrical displacement vector
V week	Energy of the electrostatic field
VI week	<b>First test</b>
VII week	<b>Free week</b>
VIII week	Electrical resistance, Ohm's law and resistors, Joule's law, I Kirchoff's law
IX week	II Kirchoff's law. Simple resistors' circuits analysis: serial connection, parallel connection, voltage and current divider
X week	Real current and voltage supply. Short circuit and open circuit. Star to triangle transformation.
XI week	Electrical circuits problem solving by implementing Kirchoff's law.
XII week	Contour current method. Nodes' potential method.
XIII week	<b>Second test</b>
XIV week	Linearity and superposition principles. Thevenin's theorem.
XV week	Norton's theorem. Maximum power distribution theorem.
XVI week	<b>Final exam</b>
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

**STUDENT WORKLOAD**

per week	per semester
7.5 credits x 40/30 = 10 hours	<b>Teaching and the final exam:</b> (10 hours) x 16 = 160 hours
<b>Working hours structure:</b>	<b>Necessary preparation</b> (before semester): 2 x (10 hours) = 20hours
3 hours for teaching	<b>Total work hours for the course:</b> 7.5 x 30 hours = 225 hours
3 hour for exercises	<b>Additional hours</b> for preparing correction of the final exam, including the exam taking: up to 30 hours.
4 hours for individual work, including consultations.	<b>Work hours structure:</b>
	160 hours (lectures) + 20 hours (preparation) + 45 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home exercises and both tests.

**Literature:** G.Joksimović, Osnove Elektrotehnike I, handout  
G.Joksimović, Zbirka zadataka iz Osnova Elektrotehnike I

**The forms of knowledge testing and grading:**

- Home exercises carry 5x1 points
- Lessons attendance carries 5 points
- Each test carries 20 points (40 points total).
- Final exam carries 50 points.

Student gets the passing grade by collecting 51 points at least.

**Special remarks for the course:** If needed, the course can also be taught in English.

**Teacher(s) who provided the information:** PhD Gojko Joksimović, assistant professor

**Remark:** Additional information about the course can be found at the site [www.oet.cg.yu](http://www.oet.cg.yu)