

Study program: Communication Technologies			
Course title: Electrical Engineering 2			
Professor/assistant: Dejan Blagojevic / Natasa Bogdanovic			
Type of course: compulsory			
ECTS credits: 6			
Pre-requisites:			
Aims of the course:			
<ul style="list-style-type: none"> • get acquainted with the basic laws, principles and terminology in the field of electromagnetism, • get acquainted with time-varying current, • become familiar with the calculation of basic variables in electromagnetic circuits, • become familiar with the basic variables in the AC circuit. 			
Learning outcomes:			
Student is able to:			
<ul style="list-style-type: none"> • calculate the basic parameters of the electromagnetic field of homogeneous symmetric structures, • solve simple magnetic circuits, • solve simple circuit alternating current, • establish an active, reactive and apparent power in the car AC, • improve the power factor in single-phase and three-phase drives, • determine the resonance and anti-resonance frequency and apply this knowledge in related professional subjects. 			
Syllabus			
<i>Theoretical part</i>			
Electromagnetism. Electromagnetic force and the magnetic field vector. Magnetic field of stationary currents in vacuum. Ampere's law. Magnet flux and magnet field in the material environment.			
Faraday's law of EM. Induction. Magnetic circuit. Self-induction of magnetic and energy fields. Mutual induction. Alternative current, general equation. Circuits with sinusoidal currents. Phases and complex calculation. Simple RLC circuits.			
Methods of solving complex AC circuits. Systems with coupled coils. Basic concepts of transient (RC and RL, RLC circuit) analysis.			
<i>Practical part</i>			
Practical classes follow the theory; laboratory exercises are a practical assessment of the basic laws and principles that drive alternating current: Ohm's law, Kirchhoff laws, power factor correction, setting the resonant and anti-resonant frequency.			
Literature			
1. Vukčević, B., Fundamentals of Electrical Engineering 2 electromagnetism and AC, Branko Miljkovic, Niš, 2006.			
2. Vukcevic, B., Textbook of laboratory exercises in Fundamentals of Electrical Engineering 1, Branko Miljkovic, Niš, 2006.			
3. Surutka, J., Electrical Fundamentals, Electromagnetism Scientific Book, Belgrade.			
Number of active classes 60			Other forms of teaching:
Lectures: 30	Practical classes: 30	Research work:	
Teaching methods			
Theoretical and practical teaching in combination with interactive teaching with practical problem solving.			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	10	written exam	50
practical training	10	oral exam	
colloquium(s)/seminar papers	30		
Sum	50	Sum	50