

Study program: Environmental Protection			
Course title: Electrical Engineering with Electronics			
Professor/assistant: Dejan Blagojević / Natasa Bogdanović			
Type of course: compulsory			
ECTS credits: 5			
Pre-requisites: -			
Aims of the course: Prepare students to: adopt the basic concepts, laws and methods of analysis, electrical circuit time constant and time-variable electric currents, adopt the laws that describe the electrostatic field and magnet from the qualitative and quantitative point of view, adopt the principles of operation and solving electronic circuits in light of management processes.			
Learning outcomes: Student will be able to: calculate the basic parameters of electric and electromagnetic fields of homogeneous symmetric structures, solve simple electric and magnetic circuits, solve simple circuits alternating current, determine the active, reactive and apparent power in the car AC, improve the power factor in single-phase and three-phase drive, determine the resonance and ant resonance frequency and apply this knowledge in related vocational subjects.			
Syllabus			
<u>Theoretical part</u> Electrostatics. Coulomb's law, electrostatic field, electrostatic potential. Electrostatic discharge prevention measure, capacitors, kinetics of direct currents. Ohm's Law, Joule's Law, Kirck laws, simple DC circuits, complex circuits. Current methods for solving them, terms adjustments. The basic laws of electromagnetism field wires flux of magnetic fields, inductance, Faraday's law of EM induction, energy magnetic field, magnet circuits, alternating current. Phase representation, impedance, power AC, RLC circuits, complex circuits and methods of solving circuits alternating, current, electric machines. Fundamentals of semiconductor technology. Fundamentals of sensory techniques. Touch screen control.			
<u>Practical part</u> They are based on computational exercises related to classical exercises, labs related to measurement of relevant electrical quantities, implementation of appropriate programs for the simulation of electronic circuits and visits to manufacturing organizations.			
Literature			
<ol style="list-style-type: none"> 1. Mitic, D., Vukcevic, B., Fundamentals of Electrical Engineering 1, College of Applied Technical Sciences of Niš, 2004 2. Nikolic, A., Fundamentals of electronics, Punta, Niš, 2006 3. Vukcevic, B., Fundamentals of Electrical Engineering, Branko Miljkovic, Niš, 2006 			
Number of active classes			Other forms of teaching:
Lectures: 2	Practical classes: 1	Research work: 1	
Teaching methods Combination of interactive approach with practical problems 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	70
practical training	20	oral exam	-
colloquium(s)/seminar papers			
Sum	30	Sum	70