

## SYLLABUS

<b>The basic course information:</b>			
<b>Academic unit:</b>	<b>Faculty of Engineering and Informatics</b>		
<b>Title of the subject:</b>	<b>Basics of Electrotechnics with Electronics</b>		
<b>Level:</b>	<b>Bachelor</b>		
<b>Course Status:</b>	<b>Core</b>		
<b>Year of studies:</b>	<b>II</b>		
<b>Number of hours per week:</b>	<b>3</b>		
<b>Value of Credits - ECTS:</b>	<b>5</b>		
<b>Time / location:</b>			
<b>Course lecturer:</b>	<b>Prof. As. Dr. Fakije Zejnullahu</b>		
<b>Contact details:</b>	<a href="mailto:fakije.zejnullahu@ushaf.net">fakije.zejnullahu@ushaf.net</a>		
<b>Course description:</b>			
	<i>This course will inform students about the phenomena of electricity, electrical engineering, energy, automation, etc.</i>		
<b>Objectives of the course:</b>			
	<i>The aim of this course is to provide students with sufficient knowledge with general laws of electricity and creating greater access to industrial technology which is related to the laws of electronics.</i>		
<b>Learning outcomes:</b>			
	<p><i>After successful completion of the course, students will be able to:</i></p> <ul style="list-style-type: none"> <li><i>• know the physical manifestation of electricity,</i></li> <li><i>• know the orientation of the various schemes of electro, energy and electronics.</i></li> <li><i>• recognize modern automation processes, measurement, electric and electronic adjustments.</i></li> <li><i>• apply measurements of different sizes of electrical and electronic devices.</i></li> </ul>		
<b>Contribution to the student load (which must correspond with learning outcomes)</b>			
<b>Activity</b>	<b>Hour</b>	<b>Day/week</b>	<b>In total</b>
Teaching (Lectures and exercises)	3	15	45
Internship			
Contacts with teacher / consultations	1	4	4
Field exercises			
Midterm, seminars and projects.	2	4	8
Homework			
Self-learning time student (at the library or at home)	3	15	45
Final preparation for the exam	3	5	15
Time spent on evaluation (tests, quiz	2	2	4

and final exam)			
Projects and presentations.	2	2	4
<b>Total</b>	<b>125</b>		
<b>Teaching methodology:</b>			
	<i>Lectures and exercises combined with tutorials and classroom exercises</i>		
<b>Assessment methods:</b>			
	<i>First assessment 40%</i> <i>Second assessment 40%</i> <i>Project task 20%</i> <b>Or thorough final exam</b> <i>Project task 20%</i> <i>Final exam 80%</i>		
<b>Literature</b>			
<b>Basic Literature:</b>	<ol style="list-style-type: none"> <li>1. Prof. Dr. Sc Nexhat Orana, <i>Bazat e Elektroteknikës I dhe II , Fakulteti i Elektroteknikës Prishtinë,</i></li> <li>2. Prof.Mr. Sc. Isa Haxhiu, <i>ELEKTRONIKA I dhe II, Fakulteti i Elektroteknikës Prishtinë</i></li> </ol>		
<b>Supplementary Literature:</b>	<ol style="list-style-type: none"> <li>3. Prof.Dr. Nenad Marinoviq „<i>Eletroteknika e përgjithëshme dhe Elektronika</i>” <i>Skolska Kniga, Zagreb</i></li> <li>4. Bozo Luboja, <i>Senad Cetic dhe Zivko Marjanoviq, Bazat e Elektronikës, telekomunikacionit dhe Automatikës</i></li> </ol>		
<b>Designed learning plan:</b>			
<b>Week</b>	<b>Lectures and exercises to be held</b>		
<b>Week one:</b>	<i>Course objectives – Syllabus</i> <i>Understanding electricity and the electrical properties of matter. Electrostatic field in empty space; Coulomb’s Law; Definition of intensity of electric field. Electric potential, the work of forces on the elctrostatic field. Electric tension.</i>		
<b>Week two:</b>	<i>Electrostatic field in transmission line. Condition of electrostatic equilibrium in transmission bodies. Electrostatic induction, electricity of transmission bodies. Electrostatic generator. Electric capacity and capacitors. Capacitor circuits: Series, parallel and mixed capacitor circuits.</i>		
<b>Week three:</b>	<i>Electrostatic field in dielectric mater. Dielectric polarization,. Energy of electrostatic field, forces in electrostatic field.</i>		
<b>Week four:</b>	<i>Basic notions of electrical current; Electrical current in metals; Intensity and density of electrical currents; Basic laws; Kirchhoff’s current law (1st Law), Ohm’s law; Electrical resistance and resistors; Simple electric circuit;</i>		

<b>Week five:</b>	<i>Electrical resistance and resistors, Resistor circuit. Jaoul's law. Simple electric circuit. Electric work and power.</i>
<b>Week six:</b>	<i>Electric work and power; Complex electrical circuit, Kirchhoff's second law; Electric current in liquids; Electric current in gas</i>
<b>Week seven:</b>	<i>First assessment</i>
<b>Week eight:</b>	<i>Basic understanding of magnetization. Magnetic fields; Electromagnetic force, magnetic induction and magnetic flux. Biot-Savart law. Ampere's law.</i>
<b>Week nine:</b>	<i>Magnetic properties of matter. Magnetic field in matter. Magnetisation of matter, generalized law of Ampere, magnetic permeability, magnetic separation. Electromagnetic induction. Application of electromagnetic induction. Measurement instruments of tension and power.</i>
<b>Week ten:</b>	<i>General information on alternating-current circuits, controlling alternating-current circuits three-phase electric power systems.</i>
<b>Week eleven:</b>	<i>Lidhja P-N, Transistorët bipolar; Principi i punës së transistorëve. Karakteristika statike e transistorit P-N connection, bipolar transistors; Working principle of transistors. Static characteristics of transistors,</i>
<b>Week twelve:</b>	<i>Transistors with electrical field effect FET, Transistors JFET and MOSFET, Thyristor.</i>
<b>Week thirteen:</b>	<i>Study visit to a company</i>
<b>Week fourteen:</b>	<i>Project presentation</i>
<b>Week fifteen:</b>	<i>Second assessment .</i>

**Academic policies and rules of conduct:**

*Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.*