UNIVERSITY OF MITROVICA "ISA BOLETINI"

Course Curriculum Model (Syllabus)

Faculty:	Faculty of Mechanical and Computer Engineering	
Department:	Computer Science and Engineering	
Level:	VI	
Code of the course:	108-CSE	
Course:	FUNDAMENTALS OF ELECTRICAL ENGINEERING	
Course Status:	Obligatory	(mandatory)
Semester:	I	(autumn)
Number of hours per week:	2+2	
ECTS:	5	
Time / location:		
Year of studies	I	
Lecturer:	Prof. Ass. Dr. Artan Rexhepi	
Assistant:	Msc. Berat Ujkani	
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Content	Basics of electricity. Coulomb's law, Electrostatic field of specific charges, Gauss's low, and field intensity, electric potential and voltage, electrostatic induction, dielectrics, capacitors, electrostatic networks. DC circuits (Ohm's law, Kirchoff's laws, Joul's law. Techniques for solving complex DC circuits (Nodal analysis, Mesh analysis, Thevenen and Norton's theorema). Use software MATLAB for solving DC circuits). Basics of magnetism. Magnetic flux density. Lorentz force. Biot -Savart's law. Generalized Ampere's law. Generalized Ampere's law. Faraday's law. AC circuits (the sinusoidal response, inductor, resistor and capacitor. Electrical power in R, L, C, RL, RC and RLC. Calculation with phasors. Use software MATLAB for solving AC circuits)
Purpose	Students will learn the basic concepts of electromagnetic field, DC and AC circuits. To the student to be included bases of physic notions and technical knowledge of engineering technical subjects of the department.

<table>
<tr><td>Accessibility</td><td colspan="2">On successful completion of the course, students will be able to:
Apply the fundamental laws of electromagnetism to solution of electromagnetic field problems
Understand and apply Kirchhoff's Laws to DC and AC circuit analysis
Analyze DC circuits by following circuit analysis methods and theorems (nodal analysis, mesh analysis, transformation between real source models, Millman's, Thévenin's and Norton's theorems
Understand and apply phasors for sinusoidal steady state AC circuit analysis.
Use software MATLAB for solving DC and AC circuits.
Apply gained knowledge of electromagnetic skills in other fields</td></tr>
<tr><td rowspan="15">Program</td><td>weeks</td><td>Lecture</td></tr>
<tr><td>First week:</td><td>Introduction</td></tr>
<tr><td>Second week:</td><td>Coulomb’s law</td></tr>
<tr><td>Third week:</td><td>Electric potential</td></tr>
<tr><td>Fourth week:</td><td>Electrostatic networks</td></tr>
<tr><td>Fifth week:</td><td>Dielectric polarity</td></tr>
<tr><td>Sixth week:</td><td>Electrostatic circuits</td></tr>
<tr><td>Seventh week:</td><td>The phenomenon of electric current</td></tr>
<tr><td>Eighth week:</td><td>Basics of magnetism</td></tr>
<tr><td>Ninth week:</td><td>The action of the homogeneous magnetic field on the current contour</td></tr>
<tr><td>Tenth week:</td><td>Magneto statics</td></tr>
<tr><td>Eleventh week:</td><td>Magnetic flux density</td></tr>
<tr><td>Twelfth week:</td><td>Generalized Ampere’s law</td></tr>
<tr><td>Thirteenth week:</td><td>Electromagnetic Induction, electromotive force of auto induction, inductance</td></tr>
<tr><td>Fourteenth week:</td><td>Magnetic circuits.</td></tr>
<tr><td>Fifteenth week :</td><td>Nonlinear magnetic circuits</td></tr>
<tr><td>Literature</td><td colspan="2">Principal literature:
[1] N. Orana, Bazat e elektroteknikës I dhe II, Prishtinë, 1996
[2]A. Abazi, R.Sefa, L. Ahma, Përmbledhje detyrash nga Bazat e elektroteknikës, Prishtinë, 2006
[3] Ch. Alexander, M. N. Sadiku, Electric circuits, McGraw Hill, New York, 2000
[4] R. Sefa, Q. Kabashi, Doracak nga Qarqet elektrike, FIEK Prishtinë, 2012

Recommended Literature:</td></tr>
</table>

Teaching methodology	Lectures, numerical exercises, software and practical exercises, discussions and work in groups.

Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)

Activity	Hours	Days/weeks	Total
Lectures	2	15	30
Exercise sessions (with TA)	1	15	15
Practical work	1	15	15
Office hours	0	0	0
Fieldwork	0	0	0
Midterms, seminars	0	0	0
Homework	1	20	20
Self-study	1	15	15
Final exam preparation	1	15	15
Time spent in exams	2	2	4
Projects, presentations, etc	1	11	11
Total			125

Evaluation

Teaching methodology:
(according to the Statute and Regulation for studies of UMIB)

Tests / Colloquia	First assessment (20%), Second assessment (20%), Third assessment (15%)
Home work	(10%),
Attendance	(5%)
Final exam,	30%,

Mitrovica **Course provider:**

(Name Surname)

(Signature)