

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Basics of Electrical Engineering and Electronics				
Head of course	Associate Professor, PhD Vitomir Komen				
Study programme	Professional undergraduate study Road Transport Professional undergraduate study Railroad Transport				
Status of a course	Obligatory				
Year of study	1.	Semester	II	ECTS credits	5
Teaching plan (L + E + S+ Pr)	2+2+0+0				
Goals of a course					
Introduce students to the physical basics, explanations and approaches for analyzing the electrical and magnetic effects of electrical circuits, and the use and application of direct current and alternating current circuits and electronic circuits. To enable students to independently analyze and determine basic electrical quantities in circuits from real drive cases. To prepare students for independent analysis and application of electrical circuits, especially in the field of traffic systems.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 1: Use mathematical and statistical methods in traffic engineering and traffic research. Outcome 3: Use standards that cover the subject area when designing transport projects and implementing technological and service processes in the field of road /railroad transport. Outcome 9: Link engineering principles and technical principles in transport systems.					
Expected learning outcomes on a level of a course					
<ol style="list-style-type: none"> 1. To define a system of spatial planning in Republic of Croatia. 2. Explain the content of spatial plans. 3. Define stages in development of transport study. 4. Evaluate spatial and other possibilities of planning and locating transport infrastructure. 5. Create a specific segment of a transport plan, graphically. 6. Prepare a solution and orally represent it as a part of the assigned spatial plan's presentation. 					
Content of a course					
Electric charges, force, field, capacity. Electric influence. Electric potential energy. Electric potential. Voltage. Condensers. Connecting of condensers. Electrical field energy. Electric current: Intensity. Density. Electric resistance. Dependence of resistance on temperature. Voltage sources. Electromagnetic force. Work and strength of electric current. Resistors. Electric current magnetic field. Magnetic induction and flow. Permeability. Conductors in magnetic field. Impact of electric current on electric current. Electromagnetic induction. Alternate current: Indicated value. Electric circuits. Jet resistances. Resonance in alternate electric circuit. Alternate current strength and energy. Three-phase system. Transformers. Pn diodes. Transformers. Voltage regulators. Transistors. Basic amplifying connections with transistors. Thyristors. Basic converting connections with power components. Linear integrated assemblies. Basic amplifying connections with linear integrated assemblies.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					

Grading, evaluation and monitoring of students' work continuously during lectures and exams

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Pre-exam I	Pre-exam 2	Seminar work	Home assignments	Threshold	Max
Outcome 1	10%				5%	10%
Outcome 2	10%			4%	7%	14%
Outcome 3	10%				5%	10%
Outcome 4	10%			5%	7,5%	15%
Outcome 5		17%			8,5%	17%
Outcome 6		13%		7%	10%	20%
Outcome 7		10%	4%		7%	14%
Percentage of ECTS	2,0	2,0	0,2	0,8		
Total	40%	40%	4%	16%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1	7%	3%	10%
Outcome 2	10%	4%	14%
Outcome 3	7%	3%	10%
Outcome 4	11%	4%	15%
Outcome 5	12%	5%	17%
Outcome 6	14%	6%	20%
Outcome 7	10%	4%	14%
Percentage of ECTS	3,5	1,5	
Total	71%	29%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature
1. Teaching materials 2. Brodić T.: Osnove elektrotehnike i elektronike, Veleučilište u Rijeci, 2007. god.
Additional literature
1. Brodić T.: Osnove primijenjene elektrotehnike i elektronike, Veleučilište u Rijeci, 2009. god. 2. Furčić N. i drugi: Osnove elektrotehnike 1, Osnove elektrotehnike 2, Neodidacta Zagreb, 2009. god. 3. Tehnički priručnici

