



University of Split

Department of Professional Studies

ELECTRONIC CIRCUITS

COURSE SYLLABUS

COURSE DETAILS		
<i>Type of study programme</i>	Professional study - 180 ECTS	
<i>Study programme</i>	ELECTRONICS	
<i>Course title</i>	Electronic Circuits	
<i>Course code</i>	SEL011	
<i>ECTS (Number of credits allocated)</i>	6	
<i>Course status</i>	Core	
<i>Year of study</i>	Second	
<i>Semester</i>	Third (fall)	
<i>Course Web site</i>	http://www.oss.unist.hr/	
<i>Total lesson hours per semester</i>	Lectures	30
	Practicals	15
	Laboratory exercises & practical demonstration	30
<i>Prerequisite(s)</i>	None	
<i>Lecturer(s)</i>	Department of Electrical Engineering faculty: Tonko Kovačević, Mr. Sc., senior lecturer, Barbara Džaja, Ph.D., lecturer, Jakša Vatavuk, associate.	
<i>Language of instruction</i>	Croatian, English	

COURSE DESCRIPTION	
<i>Course Objectives:</i>	<ul style="list-style-type: none"> • knowledge of the basic principles of electronic circuits operation, • calculation and measurement of parameters for electronic circuits, • designing electronic circuits, • performance analysis of electronic circuits.
<i>Learning outcomes</i> <i>On successful completion of this course, student should be able to:</i>	<ol style="list-style-type: none"> 1. explain the theoretical principles essential for understanding the operation of electronic circuits, 2. measure the characteristics of electronic circuits and present experimental results 3. analyze electrical circuits and calculate the main parameters, 4. develop, design and create simple analogue and digital electronic circuits, 5. choose an engineering approach to solving problems, starting from the acquired knowledge essential for the design of electronic circuits.
<i>Course content</i>	<p>Introduction. Basic concepts of amplifiers: current and voltage sources. Basic amplifier circuits with bipolar and field-effect transistors: DC stage, current and voltage amplification, input and output resistance, lower and upper cut-off frequency. Multistage amplifiers: current and voltage amplification. Darlington amplifier. Differential amplifier. Power amplifiers: class A, B and AB. Negative and positive feedback. Oscillators. Filters. AM and FM modulators and demodulators. Operational amplifiers: inverting, non-inverting, summing and differential. RC integrators and derivators. Multivibrators: bistable, monostable, astable and Schmitt trigger. Generator of saw-tooth and staircase waves. Basic logic circuits - AND, OR, NOT. Compound logic circuits – NAND, NOR. TTL and CMOS technology. Counters. A/D and D/A conversion. Programmable logic components.</p>

CONSTRUCTIVE ALIGNMENT – Learning outcomes, teaching and assessment methods

Alignment of students activities with learning outcomes		
Activity	Student workload ECTS credits	Learning outcomes
<i>Lectures</i>	30 hours / 1 ECTS	1,2,4,5
<i>Practicals</i>	15 hours / 0.5 ECTS	4,5
<i>Laboratory work</i>	30 hours / 1 ECTS	3,4
<i>Preparation, laboratory mid-term exam</i>	20 hours / 0.66 ECTS	3,4
<i>Practical demonstration</i>	5 hours / 0.18 ECTS	1,5
<i>Two mid-term exams (preparation and delivery)</i>	30 hours / 1 ECTS	1,2,4,5
<i>Self-study</i>	30 hours / 1 ECTS	1,2,4,5
<i>Office hours and final exam</i>	20 hours / 0.66 ECTS	1,2,4,5
TOTAL:	180 hours / 6 ECTS	1,2,3,4,5

CONTINUOUS ASSESSMENT		
Continuous testing indicators	Performance A_i (%)	Grade ratio k_i (%)
<i>Class attendance and participation</i>	70 - 100	10
<i>Laboratory work</i>	100	10
<i>Laboratory mid-term exam</i>	50-100	10
<i>First mid-term exam</i>	50-100	35
<i>Second mid-term exam</i>	50-100	35

FINAL ASSESSMENT		
Testing indicators – final exam (first and second exam term)	Performance A_i (%)	Grade ratio k_i (%)
<i>Practical exam (written)</i>	50 - 100	40
<i>Theoretical exam (written and/or oral)</i>	50 - 100	50
<i>Previous activities (all continuous testing indicators included)</i>	50 - 100	10
Testing indicators – makeup exam (third and fourth exam term)	Performance A_i (%)	Grade ratio k_i (%)
<i>Practical exam (written)</i>	50 - 100	50
<i>Theoretical exam (written and/or oral)</i>	50 - 100	50

PERFORMANCE AND GRADE		
Percentage	Criteria	Grade
50% - 61%	<i>basic criteria met</i>	sufficient (2)
62% - 74%	<i>average performance with some errors</i>	good (3)
75% - 87%	<i>above average performance with minor errors</i>	very good (4)
88% - 100%	<i>outstanding performance</i>	outstanding (5)

ADDITIONAL INFORMATION

Teaching materials for students (scripts, exercise collections, examples of solved exercises), teaching record, detailed course syllabus, application of e-learning, current information and all other data are available by MOODLE system to all students (<https://moodle.oss.unist.hr/>).