

Specification for the book of courses

Study program	Electrical Engineering and Computer Science			
Module	Electron Devices and Microsystems			
Type and level of studies	Undergraduate Academic Studies			
The name of the course	Modeling and Simulation of Microelectronic Circuits			
Lecturer (for lectures)	Pejović M. Milić			
Lecturer/associate (for exercises)	Pejović M. Milić			
Lecturer/associate (for OFE)	Marjanović B. Miloš			
Number of ECTS	5	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Basics of SPICE and Proteus software packages. Types of analysis: DC, AC simulations. Static models of electronic components. Models accuracy and convergence. Temperature effect modeling. Noise modeling. Frequency domain analysis. Software modeling of RLC elements, PN diode, bipolar and MOS transistors and power components. Sensor models. Application of SPICE libraries. Extraction of model parameters from experimental data. Modeling and simulation of various electronic systems based on microcontrollers using Proteus software package			
Course outcomes	Understanding of basic concepts dealing with analysis of electronic circuits using various software packages. Analysis of electronic circuits using computer simulation.			
Course outline				
Theoretical teaching	Basic concepts of SPICE and Proteus software packages. Static models of electronic components. Simulation of electronic systems based on microcontrollers.			
Practical teaching (exercises, OFE, study and research)	Simulation and design of analog and digital electronic circuits of various purposes. Models of PN diode, bipolar and MOS transistors and power components.			
Textbooks/references				
1	ISIS Intelligent system Input System user manual, Labcenter Electronics			
2	SPICE A guide to circuit simulation and analysis using pspice, Paul W. Tuinenga			
3				
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
2	1	1	0	0
Teaching methods	Lecturers consist of oral presentation and laboratory classes.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures	10	Written exam	25	
Exercises	30	Oral exam	25	
Colloquia	10			
Projects				