

Specification for the book of courses

Study program		Electrical Engineering and Computer Science		
Module		Common		
Type and level of studies		Doctoral studies		
The name of the course		Optimization and Design of Analog Circuits		
Lecturer (for lectures)		Andrejević-Stošović V. Miona		
Lecturer/associate (for exercises)				
Lecturer/associate (for OFE)				
Number of ECTS	10	Course status (obligatory/elective)	Elective	
Prerequisites				
Course objectives	Extending knowledge from the analog electronics, analog integrated circuits and design of analog integrated circuits, studied in courses in bachelor and master studies.			
Course outcomes	Acquiring the knowledge required for the doctoral dissertation.			
Course outline				
Theoretical teaching	Wideband transistor models. Operational amplifiers in bipolar, CMOS and NMOS technology and their basic cells. Transconductance, quarter-quadrant analog multipliers and PWAM. Analog (PLL) and digital (DLL) architecture, components and key parameters. SC filters.			
Practical teaching (exercises, OFE, study and research)	Acquired theoretical knowledge students need to apply by optimizing and designing analog integrated circuits using the professional software package for design of integrated circuits -Cadence.			
Textbooks/references				
1	Baker R. Jacob, CMOS: circuit design, layout, and simulation, Fourth Edition. John Wiley & Sons, 2019. ISBN 9781119481515.			
2	B. Razavi, "Design of Analog CMOS Integrated Circuits", McGraw-Hill International Edition, ISBN: 0-07-118815-0, 2001.			
3	Hans Camenzind, Designing Analog Chip, Copyright 2004, 2005.			
4				
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	Exercises	OFE	Study and research work	Other classes
3	0	0	0	0
Teaching methods	Lectures, practice exercises, research.			
Grade (maximum number of points 100)				
Pre-exam duties	Points	Final exam	Points	
Activity during lectures		Written exam		
Exercises		Oral exam	50	
Colloquia				
Projects	50			