Specification for the book of courses

Study program		Electronics and Microsystems		
Module		Electronics and Microsystems		
Type and level of studies		Master studies		
The name of the course		Integrated Microsystems		
Lecturer (for lectures)		Prijić P. Aneta		
Lecturer/associate (for exercises)		Prijić P. Aneta, Stojković S. Aleksandra		
Lecturer/associate (for OFE)		Stojković S. Aleksandra		
Number of ECTS	5	**Course status (obligatory/elective)**	Elective	
Prerequisites				
Course objectives	Objectives of the course are focused on: - Introduction to the structure of integrated microsystems; - Introduction to the concept of integrated microsystems based on Programmable System on Chip (PSoC); - Understanding the specific characteristics of individual families of PSoC chips (PSoC3, PSoC4, PSoC5LP); - Possibilities for realization of various applications with PSoC chips; - Mastering the software development tool PSoC Creator; - Mastering work with different development kits with PSoC.			
Course outcomes	Learning outcomes allow a student to: - Describe the architecture of integrated microsystems based on a Programmable System on Chip (PSoC); - Explan the reconfiguration property of PSoC chips; - Distinct the particularities of individual families of PSoC chips (PSoC3, PSoC4, PSoC5LP); - Demonstrate the principle of creating projects within the PSoC Creator software development tool; - Design a variety of applications using different PSoC development kits.i			
Course outline				
Theoretical teaching	Introduction. Characteristics of PSoC architecture. Central subsystem. PSoC3 chip with an 8-bit processor. PSoC4 chip with 32-bit ARM Cortex M0 processor. PSoC5 chip with 32-bit ARM Cortex M3 processor. Analog subsystem. Digital Subsystem. System wide resources. Subsystem for communication with the environment. Communication between the subsystems. Specific PSoC modules (SC/CT, LCD driver, CapSense driver). Built-in components. Software development environment of the PSoC (PSoC Creator). Development kits with PSoC. Rules from practice for work with PSoC.			
Practical teaching (exercises, OFE, study and research	Laboratory exercises using PSoC development kits: work with acceleration, capacitive, temperature and proximity sensors; state indication and peripheral management; communication with PC; working with capacitive sliders and buttons; digital logic; generation of precise analog signals.			
Textbooks/references				
1	W. Weidinger, "System Investigation of Programmable Systems on Chip (PSoC)", VDM Verlag Dr. Mueller e.K., 2008.			
2	A. R. Kansal, "A Study on Programmable System on Chip", IOSR Journal of VLSI and Signal Processing, Vol. 4, No. 5, 2014.			
3	R. Ashby, "My First Five PSoC3 Designs", Cypress Semiconductor Corporation, 2010-2012, Online available: https://www.cypress.com/documentation/other-resources/my-first-five-psoc-3-designs.			
4	DVK - Development kits guides			
5				
Number of classes of active education per week during semester/trimester/year				
Lectures	**Exercises**	**OFE**	**Study and research work**	**Other classes**
2	2	1		
Teaching methods	Theoretical lectures - using slides; Practical demonstration of typical projects; Laboratory exercises with development kits and PC.			

Grade (maximum number of points 100)			
Pre-exam duties	**Points**	**Final exam**	**Points**
Activity during lectures	20	**Written exam**	40
Exercises	40	**Oral exam**	
Colloquia			
Projects			