Specification for the book of courses

Study program			Electrical Engineering and Computer Science	
Module			Communications and Information Technologies - Communications and Information Processing	
Type and level of studies			Undergraduate Academic Studies	
The name of the course			Programming on development platforms	
Lecturer (for lectures)			Milić N. Dejan, Ćirić G. Dejan, Milošević D. Nenad	
Lecturer/associate (for exercises)			Anastasov A. Jelena, Eferica M. Predrag	
Lecturer/associate (for OFE)			Anastasov A. Jelena, Eferica M. Predrag	
Number of ECTS	5	**Course status (obligatory/elective)**	Elective	
Prerequisites				
Course objectives	Qualifying students to work with the most widely used development boards in order to be able to use them for realization of more complex projects.			
Course outcomes	- Students will be qualified to choose an appropriate development platform suitable for a specific task according to specified requirements - They will have an insight and develop ability to choose a software part for the development system - Students will gain practical experience in programming of widely used platforms, such as Arduino and Raspberry Pi (R-Pi) - Students will practice on abilities and limitations of development platforms.			
Course outline				
Theoretical teaching	Introduction to Arduino. Connecting and communicating with a computer. Integrated development environments; installation and settings. Arduino language dialect. Structure and execution of the program. Groups of commands and their purpose. Libraries and the usage of thereof. Basics of R-Pi, construction, functions, connections. Operating system. Python programming. Language structure, variables, commands, Visualisation. Application of platforms in digital signal processing. DSP algoritms implementation and basic blocks realisation. Limitations of hardware and software conserning the digital processing. Practical implementation of platforms in communications and signal processing context.			
Practical teaching (exercises, OFE, study and research	Practical exercises related to programming of development platforms (Arduino and R-Pi) - specific characteristics, syntax, examples. Pracitcal work and programming of development boards from their connection to a computer to realisation of real-life mini projects.			
Textbooks/references				
1	A. Dennis, Raspberry Pi Home Automation with Arduino, Pack Publishing, 2013			
2	J. Blum: Exploring Arduino - Tools and techniques for engineering wizardry, Willey, 2013.			
3	B. Evans: Beginning Arduino programming - Writing code for the most popular microcontroller boards in the world, Apress, 2011.			
4	M. Geddes: Arduino project handbook, No Starch Press, 2016.			
5	W. Donat: Learn Raspberry Pi programming with Python, Apress, 2014.			
Number of classes of active education per week during semester/trimester/year				
Lectures	**Exercises**	**OFE**	**Study and research work**	**Other classes**
2	1	2	0	0
Teaching methods	Lectures. Consultations. Student research projects.			
Grade (maximum number of points 100)				
Pre-exam duties	**Points**	**Final exam**	**Points**	
Activity during lectures	10	**Written exam**	30	
Exercises	30	**Oral exam**	20	
Colloquia	10			
Projects				