

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Electronics - Electronic Circuits and Embedded Systems		
<b>Type and level of studies</b>		Undergraduate Academic Studies		
<b>The name of the course</b>		Mobile Devices Programming		
<b>Lecturer (for lectures)</b>		Đorđević Lj. Goran		
<b>Lecturer/associate (for exercises)</b>		Jovanović D. Milica		
<b>Lecturer/associate (for OFE)</b>		Stojanović Z. Igor		
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>	Object oriented programming			
<b>Course objectives</b>	The course objective is to provide students with a fundamental understanding of mobile device programming. The aim is to introduce students to the basics of the mobile device programming and elements of the hardware and software platforms, with emphasis on Java programming for Android platforms.			
<b>Course outcomes</b>	After successful completion of the course, students are expected to be able to successfully use hardware and software mobile platforms, including: a) understand of platforms; b) understand of resource limitations and energy-efficiency, and c) development of the mobile applications.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	Introduction to mobile devices. Mobile device characteristics. Hardware platform overview. Operating systems for mobile devices. Introduction to mobile application development. Development environments and programming languages for mobile devices. Application architecture. Developing limited resource applications. Introduction to Java programming language. New project and new window (Activity) creation. Introduction to basic standard GUI interface elements. Access to the peripherals. Mobile service development: Android Activity and Android Intent. Android fragments. Android threads and connection to the network and internet. Data storage: synchronisation, work with Content provider. Data protection. Work with multimedia content. Energy-efficiency of the applications.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Ten laboratory exercises will be assigned with focus on Android programming: 1) design flow for Android application; 2) Android studio; 3) GUI development; 4) Android Activity; 5) Android intent; 6) Android Fragments; 7) Android Threads and connection to the Internet; 8) data storage; 9) Android applications based on content providers and broadcast receivers 10) android service background applications.			
<b>Textbooks/references</b>				
1	B. Phillips, C. Stewart, B. Hardy, and K. Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 3rd edition, 2017			
2	Thomas J. Duffy, Programming with Mobile Applications: Android(TM), iOS, and Windows Phone 7, Course Technology, 2012			
3				
4				
5				
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
2	1	1	0	0
<b>Teaching methods</b>	Lectures, exercises, laboratory exercises, homework, consultations			
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>	<b>Points</b>	<b>Final exam</b>	<b>Points</b>	
<b>Activity during lectures</b>		<b>Written exam</b>	20	
<b>Exercises</b>	40	<b>Oral exam</b>	20	
<b>Colloquia</b>	20			
<b>Projects</b>				