

Study Programme: Information technology – Software engineering
Course Unit Title: Mobile technologies and programming
Course Unit Code: OAS223
Name of Lecturer(s): Assistant Professor Predrag Pecev, PhD
Type and Level of Studies: Bachelor Academic Degree
Course Status (compulsory/elective): Compulsory
Semester (winter/summer): Winter
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 6
Prerequisites: None
<p>Course Aims:</p> <p>The goal of the course is to acquire basic knowledge and skills in the field of computer software and the Internet, as essential prerequisites for further study of information and communication technologies and programming in general. Getting acquainted with the basics of programming on mobile devices and training students to design, create, and maintain applications for mobile platforms with an accent on the Android platform in the Android Studio development environment using the JAVA programming language, and KOTLIN programming language in the future. The course introduces students to the programming of mobile smartphones and tablets.</p>
<p>Learning Outcomes:</p> <p>Students will, upon completion of the course, master knowledge and skills that will enable them to efficiently use the Android mobile application development platform. Within the course will be discussed the theory of mobile application development, as well as concrete programming for devices. Students will be introduced to the Android Software Development Environment (Android SDK), with features, advantages and limitations that are specific for mobile application development. As a result the course, the student is able to create mobile applications in the Android Studio development environment using the JAVA or KOTLIN programming language. These applications will run in emulators as well as on state-of-the-art mobile devices, mobile phones and tablets on Android platforms.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>The role of mobile devices in information technology, Advantages and disadvantages of different types of mobile devices, Familiarization with the specifics of the development of software products for mobile devices. Working with basic graphic components, working with graphics, animation, working with touch screen, working with changing the screen from portrait to landscape and vice versa, working with notifications, recording and loading data in the memory of the mobile device, working with web content, web services (REST , JSON) and databases (MySQL, MSSQL, MongoDB). Specific Features of Android Platform, JAVA for Android, Display Development, Data Work, Using and Searching Your Content Providers, The Future Of Android Applications.</p> <p><i>Practice</i></p> <p>Building a RESTful service and an Android application that uses services of an aforementioned RESTful service. Working with notifications, sharing data, working with permissions, checking internet connectivity, preparing an Android application for Google Play Store, APK and AAB.</p>

Required Reading:

1. Ian F. Darwin: " Problems and Solutions for Android Developers 2nd Edition" O' Reilly 2012
2. Dawn Griffiths, David Griffiths: "Head First Android Development, 2nd Edition", O' Reilly 2017,
3. Rick Boyer, Kyle Mew: "Android Application Development Cookbook - 2nd Revised Edition", Packt Publishing, 2016.

Weekly Contact Hours: 5**Lectures:** 2**Practical work:** 2+1**Teaching Methods:**

Lectures and Practical work that include various verbal-textual, illustrative-demonstrative, laboratory-experimental methods. Dialogue, conversation, presentations, tasks, software demonstrations, computer experiments, software development are also a part of Lectures and Practical work.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	20
Practical test (on the computer)	20	oral exam	20
Seminar(s)	20		