Study program: Modern computer technologies

Course title: Mobile Device Programming

Professor/assistant: Slavimir N. Stošović

Type of course: elective

ECTS credits: 5

Pre-requisites: none

Aims of the course:
To prepare students to:
- understand the capabilities of different mobile operating systems,
- understand the basic concepts of developing applications for mobile devices,
- apply the state-of-the-art technology for design of commercial applications for mobile devices,
- use at least one environment for development of applications for mobile devices,
- analyze the complexity of the implemented application and optimize it accordingly.

Learning outcomes:
By mastering the subject, a student will be able to:
- identify different mobile operating systems and explain the difference between them,
- show, formulate and present various types of mobile applications,
- structure, formulate, and design an application for a mobile device of needed complexity using the most efficient methods and technologies,
- develop a mobile application with the required complexity using one selected development platform,
- evaluate and execute complexity analysis and, if necessary, optimize the developed application for the mobile device.

Syllabus

Theoretical part

Introduction to the development of mobile applications, web storefronts and markets, challenges and application architecture. Creating an appropriate user interface and taking care of user experiences. Review and comparison of technical capabilities of the three leading mobile operating systems - Apple (iOS), Google (Android), and Microsoft (Mobile OS). Application connection to server application, communication and information transfer. Installation, development, testing and distribution of mobile applications. Challenge of developing mobile applications for different types and sizes of screens, graphical user interfaces and available devices. User interface, application life cycle, local and remote service processes, geolocation services, sensors on mobile devices, network and Internet access, sound and animation. Understanding the Google Android Software Development Kit (SDK) platform for mobile devices and application development for current devices. Google Mobile

Practical part

: Practice, other forms of study and research work

Practical exercises will follow theoretical lessons. Students will be able to create several small apps that explain the basic concepts of the Android operating system. Through the project task, students will create a mobile application that combines more functionalities. They will learn to test and correct code errors, as well as to use the application's emulator.

Literature

1. James Talbot, Justin McLean, Programiranje Android aplikacija, Addison-Wesley, CET, 2014.
2. Spring for Android Starter, Anthony Dahanne, Packt publishing, 2013.
3. J. Conway, A. Hillegass, iOS Programming, Big Nerd Ranch, 2012.

Number of active classes			Other forms of teaching:
Lectures: 30	Practical classes: 30	Research work:	

Teaching methods

Theoretical and practical classes are performed in the classroom with presentations, simulations and video files. Consultations are an integral form of teaching in this subject.

Grading system (maximum 100 points), **grading scale** from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.

Pre-exam obligations	**points**	**Final exam**	**points**
activity during theoretical lectures	**20**	written exam	**20**
practical training	**20**	oral exam	**10**
colloquium(s)/seminar papers	**30**		
Sum	**70**	**Sum**	**30**