

I049	Mobile Applications Development	L	S	E	ECTS
		2	1	2	7

Course objectives. Learn fundamental theory and technology needed for mobile application development together with design principles of developing mobile applications on Android and iOS platforms.

Course prerequisites. Introduction to Computer Science. Object Oriented Programming.

Syllabus.

1. Overview of mobile application development. Mobile applications in business strategies. Design aspects and considerations in mobile applications development.
2. Android application development: Environment for development (Eclipse, Android Studio), Programming language for development (Java).
3. Android navigation and interface design.
4. Persistent data in Android: SQLite, SharedPreferences.
5. Lists in Android: navigation and information display.
6. Maps and location in Android: using Google Maps API and geolocation sensors
7. Hardware and sensor access in Android
8. iOS application development: Environment for development (Xcode), Programming language for development (Swift).
9. iOS navigation and interface design.
10. Persistent data in iOS: CoreData and SQLite.
11. Tables in iOS: navigation and information display.
12. Maps and location in iOS
13. Accessing hardware and sensors in iOS
14. Monetizing strategies in mobile applications. Publishing application in Google Play and AppStore.

EXPECTED LEARNING OUTCOMES:

No.	LEARNING OUTCOMES
1.	To demonstrate a broad variety of software engineering techniques for mobile applications. Applying the mentioned techniques to mobile application development.
2.	To describe the architecture and design of a mobile application.
3.	To be able to select the appropriate programming technique and tool to meet the application specifications.
4.	To identify challenges in creating an effective user interface.
5.	To be able to identify differences and similarities between Android and iOS systems.
6.	To implement a mobile application which meets the specifications.

COUPLING OF THE EXPECTED LEARNING OUTCOMES, TEACHING PROCESS ORGANIZATION AND THE EVALUATION OF THE TEACHING OUTCOMES

TEACHING PROCESS ORGANIZATION	ECTS	LEARNING OUTCOMES**	STUDENT ACTIVITY *	EVALUATION METHOD	SCORE	
					min	max
Lecture attendance	1	1-5	Class attendance, discussion, solving the problems individually and in a team	Lists with signatures, observing the activity during the lectures	0	10
Homework	2	1-5	Solving the problems individually	Grading	18	30
Repeated exams	2	1-5	Preparation for the written exam	Grading	16	30
Final exam	2	1-6	Seminar presentation	Oral exam	16	30
TOTAL	5				50	100

Teaching methods and student assessment. During the semester, students will learn theoretical and technological aspects of design and implementation of mobile applications. In computer-based laboratory exercises students will be involved in practical assignments of mobile application development in means of homework and mid-term exam assessment. The final exam consists of successful participation in homework assignments and mid-term exams together with a public seminar presentation of mobile application programming project.

Can the course be taught in English: Yes

Basic literature:

1. J. Iversen, „Learning Mobile App Development: A Hands-on Guide to Building Apps with iOS and Android“, Addison-Wesley Professional; 1Ed, 2013.

Recommended literature:

1. B. Phillips, “Android Programming: The Big Nerd Ranch Guide”, Big Nerd Ranch Guides; 2 Ed, 2016.
2. P. Buttfield-Addison: „Learning Swift: Building Apps for OS X and iOS“, O'Reilly Media; 1Ed, 2016.
3. Boyer, R., Mew, K.: „Android Application Development Cookbook - Second Edition“, Packt Publishing, 2016
4. M. Neuburg, „iOS 10 Programming Fundamentals with Swift: Swift, Xcode, and Cocoa Basics“, O'Reilly Media; 1Ed, 2016.