COURSE DESCRIPTION CARD - SYLLABUS

Course name
Programming of Mobile Terminals [S2EiT1E-TIT>PTM]

Course

Field of study
Electronics and Telecommunications

Year/Semester
1/2

Area of study (specialization)
Information and Communication Technologies

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes
15

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

4,00

Coordinators

dr inż. Marcin Rodziewicz
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Lecturers

Prerequisites

The student should possess a basic knowledge on programming, architecture of computer systems and operating systems. The student should also have knowledge on current wireless communications systems. The student should be able to implement basic algorithms and be able to find necessary information from different resources. The student should also be able to work in a team.

Course objective

The main goal of the course is to develop student"s skills in programming of mobile terminals. After completing the course students will be able to implement their own application, ready for release in Internet markets. Particular attention will be put on the devices using Android system.

Course-related learning outcomes

Knowledge:
1. Possesses the grounded knowledge in the area of programming of mobile terminals.
2. Possesses the knowledge about the possibilities of usage of various modules and resources available in nowadays mobile terminals.

Skills:
1. Possesses the skills of using various resources available in Internet (usually in English).
2. Is able to prepare the complete application together with the required documentation.

Social competences:
1. Is aware of his/her knowledge and skills limitations; understand the need of further study.
2. Is aware of the need for professional treatment of the problems to be solved and for taking responsibility for proposed solutions.
3. Is aware of his/her responsibilities for the developed systems.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Theoretic knowledge (based on the lectures) will be checked during a test or oral verification scheduled on the last lecture.
The test consists of pen and multiple-choice questions. Passing grade threshold: 50%.

The oral verification of knowledge is based on answering 3-5 questions. Each question will be graded using the 2-5 scale. The final grade will be the average of grades for individual questions. The passing grade is given if the average is higher than 3.0.

Laboratories will be credited based on the tasks assigned during laboratories or by submitting a project. Each task will be graded
using the 2-5 scale. The final grade will be the average of grades for individual tasks or the grade given for the project.

Programme content

1. Development environment
2. Kotlin language
3. User interface development
4. Basic components of applications
5 . Storing data in applications
6. Network operations
7. Popular libraries used in programming of Android devices

Course topics

The lecture program includes:
1. Discussion of the programming environment for the Android platform.
2. Introduction to the Kotlin language.
3. Discussion of the application project structure and resources used.
4. Discussion of the principles of creating the appearance of an application and the various graphic layouts and basic elements of the application's appearance associated with it.
5. Discussion of the concept of “activity” and its life cycle.
9. Discussion of the concept of intent and navigation using a navigation graph.
10. Discussion of the application manifest.
11. Discussion of the principles of working with threads and processes.
12. Discussion of data storage methods, including the Room library.
13. Discussion of communication methods using HTTP.
14. Discussion of selected additional tools useful for application development: Google Services, Firebase.

The laboratory program includes:
1. Familiarization with the Android Studio development environment
2. Learning the basics of creating the appearance of an application
3. Learning the principles of creating application components and using a database
4. Learning about libraries that enable communication with REST API

Teaching methods

1. Lecture: Multimedia presentation and discussion
2. Laboratories: Performing tasks given in instructions provided by the supervisor
3. Tutorials: Presentation with code and application examples

Bibliography

https://developer.android.com

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	70	3,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00