



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Mobile Applications [N1AiR2>PO4-AM]

Course

Field of study

Automatic Control and Robotics

Year/Semester

3/6

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

elective

Number of hours

Lecture

10

Laboratory classes

20

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

Knowledge: The student should have knowledge of the basics of computer science and programming.

Skills: The student should have the ability of programming and designing of simple applications. The student should have the ability to obtain information from literature. Student should have the ability to actively participate in organized lectures for a large group of people, be aware of the need to expand theoretical and practical knowledge and constantly update acquired knowledge due to dynamic technological and changes in modern technology. **Social Competences:** The student should also understand the need to expand their competences and constantly update the acquired theoretical and practical knowledge due to the dynamic development of modern technology. Student should be ready to cooperate as part of a team carrying out a laboratory exercise or a joint project.

Course objective

Course objective is to provide students with basic knowledge about mobile applications and its possibilities in control systems.

Course-related learning outcomes

Knowledge:

Student has structured knowledge of mobile applications.

Skills:

Student is able to design and implement mobile applications. Student is able to use advanced programs to support project design and is able to solve engineering tasks.

Social competences:

Student is aware of the need for a professional approach to technical issues, familiarization with the documentation and environmental conditions in which the devices and their components can function; Student is ready to comply with the principles of professional ethics and to require this from others, respecting the diversity of views and cultures.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Rating:

- a) in the scope of lectures, verification of learning outcomes is carried out by: assessment of knowledge and skills demonstrated during the written test exam (30 questions, 1 point per question).
- b) in the scope of laboratories - the average grade from two parts of laboratories. Grades from individual parts based on current grades from laboratory exercises.

Assessment rules (for passing the lecture and tutorials):

- 3.0 at least 50% points,
- 3.5 at least 60% points,
- 4.0 at least 70% points,
- 4.5 at least 80% points,
- 5.0 at least 90% points.

Programme content

The lecture presents a key subject related with programming mobile applications.

Course topics

The lecture program covers the following topics:

1. Introduction. Presentation of the basic issues in the field of programming mobile applications
2. Architecture of mobile applications for Android or iOS.
3. Cooperation of mobile applications with built-in sensors and cooperation with the user.
4. Communication in mobile applications, for example network services, wireless communication.
5. Security in mobile applications.
6. Mobile applications in the issues of automation and robotics.

Laboratory classes are conducted in the form of 2-hour exercises that take place in the laboratory, preceded by an instructional session at the beginning of the semester. As part of the laboratories, the student will learn how to design and implement mobile applications. Exercises are carried out in groups of 2-4 people. Laboratory classes are divided into two thematic parts and relate to the issues discussed in the lecture. Classes are conducted in the form of 2-hour exercises during which calculation tasks are solved. Part of the above mentioned program content is implemented in the student's own work.

Teaching methods

Teaching methods:

1. lecture: multimedia presentation, examples on the mobile applications.
2. laboratories: application programming, solving algorithmic problems, application design, discussion, team work, multimedia show

Bibliography

Basic:

1. Marcin Płonkowski, Android Studio Tworzenie aplikacji mobilnych, Wydawnictwo Helion, 2018

2. Bill Phillips, Chris Stewart, Kristian Marsicano, Programowanie aplikacji dla Androida, Wydawnictwo Helion, 2018
3. Emil Atanasov, Poznaj Swifta, tworząc aplikacje: profesjonalne projekty dla systemu iOS, tłumaczenie Robert Górczyński, Helion, 2019

Additional:

1. Benjamin Bähr, Prototyping of User Interfaces for Mobile Applications, Springer International Publishing AG, 2017
2. Joshua Kerievsky, Refactoring to patterns, Addison-Wesley, 2012
3. Robert C. Martin, Czysty kod : Podręcznik dobrego programisty, tłumaczenie Paweł Gonera, Helion, 2014

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	45	2,00