

Mobile technologies and applications - course description

| General information | |
|---------------------|--|
| Course name | Mobile technologies and applications |
| Course ID | 11.3-WE-INF-D-MobTechnol.Apl-Er |
| Faculty | Faculty of Computer Science, Electrical Engineering and Automatics |
| Field of study | Computer Science |
| Education profile | academic |
| Level of studies | Second-cycle Erasmus programme |
| Beginning semester | winter term 2022/2023 |

| Course information | |
|---------------------|---|
| Semester | 3 |
| ECTS credits to win | 3 |
| Course type | optional |
| Teaching language | english |
| Author of syllabus | <ul style="list-style-type: none">dr inż. Jacek Bieganskidr inż. Jacek Tkacz |

| Classes forms | | | | | |
|----------------|--------------------------------|----------------------------|--------------------------------|----------------------------|--------------------|
| The class form | Hours per semester (full-time) | Hours per week (full-time) | Hours per semester (part-time) | Hours per week (part-time) | Form of assignment |
| Laboratory | 30 | 2 | - | - | Credit with grade |

Aim of the course

To provide knowledge about cross-platform mobile development tools and frameworks. To extend skills in programming of touch interfaces. To provide knowledge about limitation in programming of mobile devices.

Prerequisites

Fundamentals of programming.

Scope

Introduction to the design of multiplatform mobile applications (e.g. React Native, Flutter, Xamarin, Apache Cordova, PhoneGap, Ionic). Configuration of the programming environment. Build on target system. Work with emulators and devices. Design and implementation of user interfaces. Access to the data. Service Oriented Applications. Access and synchronization with external data sources. Reading information from the sensors built into the device. Methods of communication using wireless technologies: Bluetooth, IrDA, NFC. JSON and XML as universal data exchange formats.

Teaching methods

Laboratory: laboratory exercises, discussion, consultation.

Learning outcomes and methods of their verification

| Outcome description | Outcome symbols | Methods of verification | The class form |
|--|-----------------|---|--|
| Posiada umiejętność zaprojektowania i implementacji mobilnej bazy danych funkcjonującej w mocno ograniczonym środowisku mobilnym | | <ul style="list-style-type: none">a projecta quizan ongoing monitoring during classes | <ul style="list-style-type: none">Laboratory |
| Has the ability to analyze the application code in both the emulated environment and the real device. | | <ul style="list-style-type: none">an ongoing monitoring during classes | <ul style="list-style-type: none">Laboratory |
| Is able to design a multiplatform mobile application | | <ul style="list-style-type: none">a projectan evaluation testan observation and evaluation of the student's practical skillsan ongoing monitoring during classes | <ul style="list-style-type: none">Laboratory |
| Can work individually and in a team | | <ul style="list-style-type: none">an observation and evaluation of the student's practical skills | <ul style="list-style-type: none">Laboratory |

| Outcome description | Outcome symbols | Methods of verification | The class form |
|---|-----------------|--|--|
| Has the ability to create mobile user interfaces, while separating the presentation layer from the application logic layer. | | <ul style="list-style-type: none"> • a project • an observation and evaluation of the student's practical skills • an ongoing monitoring during classes | <ul style="list-style-type: none"> • Laboratory |
| Is able to prepare and configure a programming environment for developing mobile applications. | | <ul style="list-style-type: none"> • a project • an observation and evaluation of the student's practical skills • an ongoing monitoring during classes | <ul style="list-style-type: none"> • Laboratory |

Assignment conditions

Laboratory – the passing condition is to obtain positive marks from all laboratory exercises to be planned during the semester.

Calculation of the final Grade: laboratory 100%

Recommended reading

1. Biessek A.: Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2, Packt Publishing, 2019.
2. Eisenman B.: Learning React Native. Building Native Mobile Apps with JavaScript. 2nd Edition, O'Reilly Media, 2017.
3. Gerber A., CraigC.: Learn Android Studio: Build Android Apps Quickly and Effectively, Apress, 2015.
4. Daniel S. F.: Mastering Xamarin UI Development. Second edition, Packt Publishing, 2018.
5. Taskos G.:Xamarin: Cross-Platform Mobile Application development, Packt Publishing, 2016.
6. Griffith C.: Mobile App Development with Ionic, Revised Edition. Cross-Platform Apps with Ionic, Angular, and Cordova, O'Reilly Media, 2017.
7. Manning, J., Buttfield-Addison, P.: Unity Game Development Cookbook: Essentials for Every Game, O'Reilly, 2019.

Further reading

Notes

Modified by dr inż. Jacek Bieganski (last modification: 21-04-2022 12:05)

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