GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mobile applications programming , PG_00060230		
Field of study	Technical Physics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Theoretical Physics and Quantum Computing -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Syty	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	0.0	0.0	45

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	45	5.0	25.0	75

Subject objectives

The aim of the course is to acquaint students with methods of creating mobile applications for Android system.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U02] Can analyze and solve simple scientific and technical problems, based on possessed knowledge, using analytical, numerical, simulation and experimental methods.	The student is able to use their knowledge to create a mobile application on a selected topic.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_U10] Can determine their own study field interests and develop them.	The student is able to identify their interests related to their field of study and develop them in the context of mobile application programming.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
[K6_W05] Has knowledge of programming methodology and techniques, and the use of selected IT tools in physics and technology.	The student has knowledge related to methods, tools, and languages for programming mobile applications and is able to apply them in practice.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

1. Preliminary issues. Overview of operating systems (Android, iOS, Windows Phone/10, Symbian), intended for mobile devices.
2. General overview and presentation system. System architecture. The Kotlin programming language.
3. The development environment. Emulator system. ADB. 9. The process of application development. The first application.
4. Anatomy of applications. The use of the manifesto.
5. Resource management applications. Preparing applications in different languages and for different hardware configurations (tablets, smartphones, etc.).
6. User interface design.
7. Working with the SQLite database.
8. The use of notification, sound and vibration. Creating widgets.
9. Dissemination applications.
10. Discussion of sample applications.

Course content – laboratory

Familiarization with the programming environment. Selection of applications for implementation. Application design. Application implementation. Testing and evaluation of applications. Presentation of the code and functionality of the completed application.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">The ability to object-oriented programming.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Evaluation of final project</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Evaluation of the work in the classroom</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Myles Bennett, Scalable Android Applications in Kotlin, BPB Publications 2024
Mounir Boussetta, Building Kotlin Applications, BPB Publications 2023</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">J. Horton, "Leraning JAVA by Building Android Games", PACKT, 2015</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Create a mobile application, executing simple mathematical / simulation/ technical problems.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
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