

Óbuda University John von Neumann Faculty of Informatics				Institute of Software Engineering	
Name and code: Kotlin for Android Development (NSVKADEBNE)				Credits: 3	
Computer Science BSc				Daytime 2020/21 year I. semester	
Subject lecturers: Krisztina Erdélyi					
Prerequisites: (with code)					
Weekly hours:		Lecture: 0	Seminar: 0	Lab. hours: 0	Consultation: 2
Way of assessment:		Examination			
Course description					
<i>Goal:</i> The aim of the course is to get acquainted with the specialty of Kotlin programming language and the basics of programming of mobile devices. Kotlin language provides effective solutions for current development difficulties (efficiency, code security, data handling...). It also provides tools for using state-of-the-art software development paradigms (test driven development, design patterns...). Acquiring the knowledge to apply these solutions students will be able to develop maintainable mobile applications in good quality.					
<i>Course description:</i> Kotlin language basics, the Kotlin ecosystem, development environment (building test environment). The Kotlin type system (nullability, values and variables), functions (top-level functions), properties and their extensions, classes (data classes), objects, interfaces. Lambda expressions. Handling collections, accessing and converting data. Generics and delegates. Architecture components of Android apps (resources, activities, services, broadcast receivers, content providers). User interface development (layouts, controls, event handling, themes and styles).					

Lecture schedule	
Education week	Topic
1	Kotlin language basics, the Kotlin ecosystem
2	The Kotlin type system (nullability, values and variables)
3	Functions (top-level functions)
4	Properties and their extensions,
5	Classes (data classes), objects, interfaces
6	Architecture components of Android apps
7	Resources, activities
8	Services, broadcast receivers
9	Content providers
10	Lambda expressions
11	Handling collections, accessing and converting data.
12	User interface development (layouts, controls, event handling)
13	User interface development (themes and styles)
14	Presentations and replacement
Midterm requirements	
Getting the knowledge goes on e-learning base with consultations once a month.	
Students write tests at the end of each month to present that they have acquired the theoretical knowledge.	
Students who did not fulfill all tests can replace them at the end of the semester provided that they have fulfilled at least one test before it.	
Midterm Test Scheduling	
Education week	Topic
5	The Kotlin language
9	Architecture of Android Apps
13	Accessing, handling and presenting data
14	Replacement
Midterm grade calculation methods	
Signature is acquired in case of fulfilling ($\geq 50\%$) all tests of the three topics.	
Acquiring the signature can be replaced in case of fulfilling ($\geq 50\%$) at least one test of the three topics.	
Signature is denied in case of fulfilling ($\geq 50\%$) no test.	
Method of replacement	
Writing another test about the topics of failed tests.	
Type of exam	
Oral. Student develops a mobile app with previously approved functionality at home and presents it at the exam. He or she explains his/her decisions made during the development. The examiner asks questions about the app (which method or pattern was used).	

Exam grade calculation methods

Weights for points:

1st test result: 15

2nd test result: 15

3rd test result: 15

Functionality and the quality of developed app: 20

Answers to theoretical questions: 20

Development environment that was built: 15

0-50%	failed (1)
51-62%	satisfactory (2)
63-75%	average (3)
76-88%	good (4)
89-100%	excellent (5)

References

Obligatory:

Course materials on the e-learning webpage of the course.

Recommended:

Dmitry Jemerov, Svetlana Isakova: Kotlin in Action, 2017, Manning

Antonio Leiva: Kotlin for Android Developers, 2019, LeanPub

Others: