Óbuda University				Institute of Software Engineering			
John von Neumann Faculty of Informatics				Institute of Software Engineering			
Name and code: Kotlin for Android Development (NSVKADE)			NSVKADEBNE	b) Credits: 3			
Computer Science BSc			Da	Daytime 2019/20 year II. 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							
Goal: 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.							
Course description: 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, classe							
(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 l	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	Education Topic				

WCCK					
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:	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:							