



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
MOBILE APPLICATIONS DEVELOPMENT TECHNIQUES	

Academic staff	Core academic unit(s)
Coordinating: Martas Ambraziūnas	Vilnius University, Kaunas Faculty Muitinės str.. 8, LT-44280, Kaunas

Study cycle	Type of the course unit
I (first)	Lithuanian/English

Mode of delivery	Semester or period when it is delivered	Language of instruction
Auditoria/Remote	3	Lithuanian/English

Requisites	
Prerequisites: Basic coding (programming) knowledge	Co-requisites (if relevant):

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	130	52	78

Purpose of the course unit		
To acknowledge students with the principles of mobile applications development, development tools and coding languages. Ensure basic understanding about mobile devices, mobile applications markets and trends.		
Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Ability to develop and deploy Android applications using Android Studio IDE and Java/ Kotlin languages. Knowledge about mobile devices and mobile applications markets as well as existing trends in this area.	Lectures, exercises, individual work	Lab exercises Synopses Midterm Exam Exam
Ability to think creatively and critically as well as evaluate the risks of improper use of information systems.	Lectures, exercises, individual work	Lab exercises Synopses Midterm Exam Exam
Ability to analyze IT-related problems, propose and apply secure (from a cybersecurity perspective) information system solutions in practice.	Lectures, exercises, individual work	Lab exercises Synopses Midterm Exam Exam
Ability to understand computer architecture and basic elements of mobile devices.	Lectures, exercises, individual work	Lab exercises Synopses Midterm Exam Exam

Content	Contact hours							Individual work: time and assignments	
	Lectures	Tutorials	Seminars	Workshops	Laboratory work	Internship	Contact hours, total	Individual work	Tasks for individual work
Definition of mobile device, mobile devices history, market share, mobile Apps trends.	2			2			4	6	Literature studies; preparation for midterm exam lab exercises; synopses presentations preparation for exam
Introduction to Android Studio IDE and Git versions control system (VCS).	2			2			6	8	
Android application Activity. Activity's life cycle and usage.	2			2			5	6	
Android application layouts and other GUI elements.	2			2			5	6	
Storage options for Android application (local and remote).	2			2			5	6	
Android application frames. Frame's life cycle and usage.	2			2			6	6	
Usage of asynchronous tasks in Android application.	2			2			5	6	
Automated Unit and GUI testing in Android.	2			4			7	7	
Android SqlLite database and ROOM library.	2			2			5	6	
Usage of device's sensors and features in Android application.	2			2			6	6	
Introduction to Kotlin language.	2			2			5	8	
Driver/Navigator/Observer exercise for writing custom application.	2			4			5	7	
Total:	24			28			52	78	

Assessment strategy	Weight %	Deadline	Assessment criteria
Lab. exercise 1	10 %	3 week.	Exercise with Android Studio. Setup and "Hello world" application. Assessed in grades 1-10 based on quality of implementation and delivery time.
Lab. Exercise 2	10 %	5 week.	Exercise with Android Studio. Develop word counter application. Assessed in grades 1-10 based on quality of implementation and delivery time.
Lab. Exercise 3	10 %	7 week.	Exercise with Android Studio. Develop calculator application. Assessed in grades 1-10 based on quality of implementation and delivery time.
Lab. exercise 4	10 %	8-11 week.	Exercise with Android Studio. Develop application with multiple activities, intents and local data storing. Assessed in grades 1-10 based on quality of implementation and delivery time.
Midterm exam	15%		Ten open questions from theoretical part. Assessed in grades 1-10
Lab. Exercise 5	10%	9 week.	Exercise with Android Studio. Develop application with Async tasks and data parsing from WEB service. Assessed in grades 1-10 based on quality of implementation and delivery time.
Lab. Exercise 6	10 %	11 week.	Exercise with Android Studio. Create Unit and GUI tests for Android application. Assessed in grades 1-10 based on quality of implementation and delivery time.

Synopsis	10 %	During semester	Investigation and presentation of selected mobile application or investigation and presentation of selected mobile device.
Exam	15%	Session	Ten open questions theoretical part. Assessed in grades 1-10
Extern exam assessment strategy			Not applicable
AI usage			Usage of these tools is not restricted in this course and might be used by the students in order to help to solve complex tasks and make efforts more efficient.

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
Griffiths, Dawn & Griffiths, David	2021	Head first Android development: a brain-friendly guide 3rd ed		Sebastopol [Calif.]: O'Reilly Media.
Horton, J.,	2021	Android Programming for Beginners		Birmingham: Packt Publishing.
Recommended reading				
Google		https://developer.android.com/		Interactive
Martas Ambraziūnas		https://emokymai.vu.lt/		Interactive