

DESCRIPTION OF THE STUDY SUBJECT

Title

PROGRAMMING MOBILE ANDROID APPS
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Scope of the subject

Semester	Mode of studies	Structure*				Total number of hours	Number of credits	Group and type of subjects
		L	Lw	C	S			
V	Full-time	14	52	12	89	246	9	Subjects for deepening in the branch
VI		12	21	6	40			
VI	Part-time	10	26	42	89	246	9	
VII		2	16	21	40			

*L – lectures, PS – practical activities, seminars, LW – laboratory work, PR – practice, CP – course paper, C – consultations, S – self-study

Aim of the subject

To understand and apply object-oriented programming techniques and principles, to be able to use basic properties of object-oriented programming paradigm, means of program design and implementation. To learn to develop mobile applications for *Android* environment, to apply main API interfaces of *Android* environment.

Necessary background knowledge for studying the subject

Students shall have heard subjects basics of algorithmization, basics of programming and object-oriented programming.

Content of the subject

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
1. The concept of object-oriented programming. The structure of the object-oriented programming language. The overview, comparison of object-oriented programming languages. The structure and syntax, the alphabet, main commands of the Java language.	2	-	-	-	2
Laboratory work. Preparation of the programme using various types of variables of the Java language.	-	4	1	5	10
2. Branching algorithms, duplication organization, usage of functions. Choice of alternatives. Cycles. Functions.	2	-	-	-	2
Laboratory work: preparation of the Java program that uses commands If, Case, For, While.	-	10	2	6	18
3. Information exchange between the user and the program. User interfaces. Forms.	2	-	-	-	2
Laboratory work: Implementation of the user interface form.	-	8	2	4	14
Test No. 1	-	2	-	10	12
4. Storage and handling of information in files. Organisation of files and folders. Reading and writing to files.	2	-	-	-	2
Laboratory work: Preparation of the Java program that reads and writes information from / to a file.	-	8	1	8	17
5. Storage and handling of information in DB. Usage of DBMS commands in the program. Organisation of connection between the DB and the user's program.	2	-	-	-	2
Laboratory work: Preparation of the Java program that implements input and management of information in MySQL DB.	-	10	2	8	20
6. Classes and objects. Comparison of objects, identification of the object and class, inheritance, cloning.	2	8	-	-	10
Test No. 2	-	2	1	12	15
Project. To implement the program in the Java programming language, using the SQL database management system to store data, which contains: at least 2 classes connected by the inheritance connection, at least one function which has the same description (definitions are different) in class-ancestor and class-offspring, at least one virtual function in the base class, several overlapping functions in one of the classes. To prepare diagrams, development possibilities of program architecture.	-	-	3	26	29
V semester. Preparation for the defence of the project and its defence	2	-	-	10	12
V semester. Total number of hours	14	52	12	89	167

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
1. Android platform Basics of mobile applications, compatibility of equipment, management of system rights, artificial intelligence.	2	-	-	-	2
2. Components of mobile applications. Processes, services, threads. Laboratory work: creation of a mobile application.	2	-	-	-	2
3. Resources Laboratory work: usage of resources in a mobile application.	-	5	1	8	14
4. Graphic user interface. Layout of components, input components, menu components, dialogues Laboratory work: the use of components in the graphical user interface.	2	-	-	-	2
Preparation for the defence of laboratory works and their defence No.1	-	4	1	4	9
5. Animation and graphics Laboratory work: creation of animation	2	-	-	-	2
6. Media and camera Laboratory work: application of media elements in the mobile application	-	4	1	8	13
Preparation for the defence of laboratory works and their defence No.2	-	2	-	4	6
VI semester. Total number of hours	12	21	6	40	79
Total number of hours	26	73	18	129	246

Assessment of learning outcomes

Ten-point criteria-based assessment system as well as cumulative assessment using individual cumulative index (ICI) are applied. The overall grade is the sum of grades for intermediate accountings multiplied by weighted coefficients.
 V semester. $ICI1 = 0,25 T1 + 0,25 T2 + 0,5 PR$, kur T1, T2 – test, PR – project
 VI semester. $ICI2 = 0,5 DLw1 + 0,5 DLw 2$, kur DLw – defence of laboratory works
 Final assessment. $ICI = 0,6 ICI1 + 0,4 ICI2$

Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠSC library	Other premises	Other libraries *
1.	2012 2011	Riškus A. Programavimas JAVA. Pirmoji pažintis.	Technologija	6	-	33
2.		Java Books, Free Books on Java Script		http://www.techbooksforfree.com/java.shtml		
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2014	John Lewis, Joseph Chase. Java Software Structures. Designing and Using Data Structures	Harlow			
2.	2013	Mačernis M. Objektinis programavimas: teorija, Java, Android: ką žino profesionalūs programuotojai ir kas mėgėjams nėra aišku!	lulu.com			
3.	2013	Nudelman, Greg. Android Design Patterns: interaction design solutions for developers	John Wiley&Sons			
4.	2012	Deitel P. J., Deitel H.M. Java for programmers: [contains 200+ examples, covers Java SE 7]	Upper Saddle River (N.J.): Prentice Hall			
5.	2005	Belevičius R. JAVA technologijas	Technika			

* ŠAVB – Šiauliai Region Povilas Višinskis Public Library, ŠU – library of Šiauliai University

Required material resources and their short description

- **Equipment (devices):** computers (16 units), computers connected to the local network and connected to the Internet, multimedia projector, printer.
- **Software:** JAVA software (JDK7, Android Studio).

The description prepared by:

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