Discipline	Object Oriented Programming, part 2 code: 19 summer semester
Specialty	SOFTWARE AND INTERNET TECHNOLOGIES
ECTS credits: **6**	Form of assessment: Examination
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Department	SOFTWARE AND INTERNET TECHNOLOGIES
Faculty	Faculty of Computer Sciences and Automation

Annotation: Using the main conceptions and principles of object-oriented programming, the students learn programming language Java and get knowledge and skills on Java programming. The course is considered the basic language statements and constructions. Such topics as Declaring Classes, Declaring Member Variables, Defining Methods, Constructors for Classes Providing, Passing Information to a Method or a Constructor, Creating Objects, Using Objects Inner Class Example and so on are discussed.

Learning objectives:

- Abstract classes
- Packages
- Generics
- Interfaces
- Inheritance

CONTENTS:		
Training Area	Hours lectures	Hours seminar exercises
Topic 1. Introduction to Java 　　1.1. Virtual Machine (JVM). 　　1.2. Static specification. 　　1.3. Main program. Command line arguments.	2	
Topic 2. Data Types 　　2.1. Primitive Data Types. 　　2.2. Reference types.	2	

2.3. Summary of Variables. Variable Initialization.		

Topic 3. Arrays.
   3.1. Array algorithms.
   3.2. Sequential search. Insertion sort.
   3.3. Basic 2-dimensional arrays
	2	

Topic 4. Strings
   4.1 Characters, Strings, Converting Between Numbers and Strings
   4.2 Manipulating Characters in a String, Comparing Strings and Portions of Strings
   4.3 The *StringBuilder* Class.
	2	

Topic 5. Classes
   5.1 Object, Class, Declaring Classes, Declaring Member Variables
   5.2 Providing Constructors for Classes, Using the this Keyword
   5.3 Creating Objects, Using Objects.
	2	

Topic 6. More on Classes
   7.1. Defining Methods. Returning a Value from a Method
   7.2. Understanding Instance and Class Members, Initializing Fields.
   7.3. Controlling Access to Members of a Class
	2	

Topic 6. Inheritance, Abstract class, Interface Classes and Objects
   6.1. Super class, super class Constructors
   6.2. Passing Information to a Method or a Constructor
   6.3. Abstract class, Interface
	2	

Topic 8. Nested Classes
   8.1 Inner Class
   8.2 *Enum* Types
	2	

Topic 9. *Exceptions*
   9.1 Concept of *Exceptions*
   9.2 Custom exceptions
	2	

Topic 10 Collections
   10.1 List interface
   10.2 Set interface
   10.3 Map interface
	4	

Topic 11. Input/Output system in Java
   11.1 Input/Output streams classes
   11.2 Reader and Writer classes
   11.3 Layering.
	4	

Topic 12. File operations	2	

Topic 13. Object-Oriented Programming Concepts
   13.1 Object-oriented modelling
   13.2 OOP paradigms
	2	

Topic 1. Installation and work environment configuration. Writing, Compiling and Running of Java-programs		2
Topic 2. Working with Primitive Data Types		2

Topic 3. Arrays		2
Topic 4. Character and String. StringBuilder		2
Topic 5. Classes and Objects		2
Topic 6. Methods in classes		2
Topic 7. Inheritance		2
Topic 8. Overriding and Hiding Methods, Hiding Fields, Using the Keyword *super*		2
Topic 9. Abstract Methods and Classes		2
Topic 10 Interfaces		2
Topic 11 Exceptions		2
Topic 12 Collections		2
Topic 13 Input/Output system in Java		2
Topic 14 File operations		2
Topic 15 OOP modelling		2
TOTAL: 60 h	**30**	**30**