

Faculty: FACULTY OF TELECOMMUNICATIONS AND MANAGEMENT
Department: INFORMATION TECHNOLOGIES
Professional Field: 5.3 COMMUNICATION AND COMPUTER TECHNOLOGY
Specialty: COMMUNICATION NETWORKS AND CYBERCRIME INVESTIGATION
Educational-qualification degree: MASTER

LEARNING COURSE DESCRIPTION

- 1.Course title:** Java Programming
- 2.Course code:** M.06.013.3
- 3.Type of the course:** Optional
- 4.Level:** Master
- 5.Year of study:** first
- 6.Semester:** second
- 7.Number of credits:** 6
- 8.Name of the lecturer:** Assoc. Prof. Strahil Sokolov, Eng. PhD
- 9.Course learning outcomes:**

The aim of the course is to provide master students with Java knowledge for creating programs and for them to become familiar with modern integrated development environments.

Students completed their training in the discipline should acquire:

Basic knowledge of implementing algorithms into Java programs; troubleshooting and handling exceptions.

Practical skills for using Java in an IDE, debugging and troubleshooting Java programs.

Competences:

- to explain concepts and principles related to modern programming languages;
- read code written in Java or another modern programming language such as C #;
- use a development environment;
- to identify and eliminate major malfunctions in compiling Java code.

11. Prerequisites:

Operating Systems, Computer architecture.

12. Course contents:

Introduction to Java. Basic concepts. Java virtual machine. Components of a Java computer program. Compilation of Java Programs. Bytecode. Variables. Primitive data types in Java. Java operators and expressions. Using the console for input and output in Java. Java control structures. If statement, If-else; if-else if statement; switch statement. Java loops. For-loop; while loop. Usage and specifics. Reference data types. Data structures and arrays. Multidimensional arrays in Java. Using lists and collections. The concept of Method. Entry point for a Java program. Numbering systems and representations in Java. Using classes and objects in Java. Reference to Object-Oriented design. Java String and text processing. Regular expressions. Handling exceptions in Java. Using modules and libraries. Working with files in Java. Connection to database with JDBC.

13. Bibliography

Basic literature:

1. Bart Baesens, Aimee Backiel, Seppe vanden Broucke, „Beginning Java Programming: The Object-Oriented Approach“, John Wiley & Sons, 2015. ISBN 1118739493, 9781118739495
2. Terrill Brett Spell, „ Pro Java Programming: Experts voice in Java“, ISBN: 1430200324, 9781430200321 , Apress, 2006
3. Andrea Maglie, „Reactive Java Programming“, ISBN 1484214285, 9781484214282, Apress, 2016

Additional literature:

1. Mark Lassooff, “Java Programming for Beginners is an introduction to Java programming, taking you through the Java syntax and the fundamentals of object-oriented programming.”, ISBN:1788299043, 9781788299046, Packt Publishing Ltd, 2017

2. Anghel Leonard, “Java Coding Problems: Improve your Java Programming skills by solving real-world coding challenges”, ISBN 1789800501, 9781789800500, Packt Publishing Ltd, 2019.

14. Assessment methods and criteria:

This course ends with an exam.

The final grade for the course is formed by a final test. The written test covers open and closed questions on the material indicated in the syllabus and presented at the lectures on the course. The criteria are: completeness, accuracy and thoroughness in answering the questions in the test. The discipline test consists of up to 100 questions. The answer to each question of the test is evaluated. Comprehensive, accurate and thorough development of one question from the test is evaluated with 10 points. Maximum number of points - 100.

The grade obtained from current control (formed by the points from the practical exercises and the conducted control works for checking the theoretical and practical mastery) and the grade from the written exam are transformed into a final grade according to the six-point system.

15. Language of instruction: English