Study programmes: Bachelor studies - Mathematics

Course name: RM04 - Object-oriented programming

Lecturers: Vladimir Fiilipović, Aleksandar Kartelj and other teachechers from Department for Computer Science and Informatics

Status: Compulsory

ECTS: 5

Attendance prerequisites: RM01, RM02

Course aims: Aquiring general and specific knowldege in Object-oriented programming.

Course outcome: Upon finishing this course, student have basic knowledge of object-oriented programming. He/she understands concepts of programminng, algorithm and program, as well as various parogramming paradigms. Student is capable for programming, testing and debugging in Java programming language using both integrated development environment and command line tools. Student is able to use object, classes and inheritance in the process of problem solving. He/she also should know how to work with abstract classes and interfaces. Student should sucessfuly work with enumerated types and ato work with existing and create new generic types and methods. He/she should be able to use exceptions, to write into and read from data streams attached to the file. Student should have knowledge of reflection, and also the basic knowledge of multi-threaded programming. Upon finishing the course, student should be able to write programs tahat use GUI.

Course content: - Object-oriented paradigm.
- Objects, classes, inheritance.
- Programming language Java.
- Classes and inheritance in Java language.
- Packeges.
- Inner classes.
- Exceptions.
- Enumerated types.
- Generic types and methods.
- Reflection.
- Annotations.
- Collections.
- Multi-threaded programming.
- Input and output.
- Serialization.
- JavaFX.

Literature:
1. Cay Horstmann, Garry Cornell: Core Java 2 Volume 1 - Fundamentals, Sun Miscrosystems, 2008.
2. Carl Dea: Java FX 2.0 - Introduction by Examples, Apress, 2011.
(teacher can some select other adequate books)

Number of hours: 4	**Lectures: 2**	**Tutorials: 2**	**Laboratory: -**	**Research: -**

Teaching and learning methods: Frontal, group, individual and practical.

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	-	Oral exam	-
Colloquia	30	Written-oral exam	70
Essay / Project	-		