

Study program: Modern computer technologies /Communication technologies			
Course title: Object-oriented Programming			
Professor/assistant: Zoran Veličković / Miloš Stošić			
Type of course: elective			
ECTS credits: 6			
Pre-requisites: -			
Aims of the course: Prepare students to: - adopt basic concepts of object-oriented programming such as: capsulation, inheritance, polymorphism, classes, objects and packages; - learn the basics of the Java programming language and the specifics of the Javascript executable environment; - learn how to solve practical problems by programming platform-independent applications.			
Learning outcomes: It is expected that after passing the exam students can: - describe the basic components of portable Java applications; - use open-source development tools to design platform-based independent applications in Java; - compare practical solutions with standard solutions and offer suggestions for improvement, analyze and evaluate the quality of the implemented software solution.			
Syllabus <i>Theoretical part</i> Basic programming techniques. Basic principles of object-oriented programming. Abstraction, capsulation, inheritance and polymorphism. Classes and objects. Modeling problem classes. Object-oriented programming language Java. Data types, variables, and strings in Java. Operators and program flow control in Java. Classes and facilities in Java. Methods, constructors and destructors. Inheritance in Java. Removing garbage from memory. Packages and interfaces. Event processing. Exception processing. Multiple programming. Graphic programming in Java. Classes Applet, AWT and Swing. Input-output flows. Java libraries. Collections in Java. Network programming in Java. Servlets. <i>Practical part:</i> Practical classes follow lectures and are carried out by demonstrating a series of simple examples. Exercises refer to application programming in the integrated development environment of Eclipse. Application of basic classes in Java. Inheriting, overlapping and redefining methods and constructors. Exception processing. Multiple programming. Programming the parameter applets and placing them on a web page. Programming simple server applications in Java.			
Literature 1. H. Schildt, Java: The Complete Reference, J2SE 5 Edition, McGraws-Hill/Osborne, 2005. 2. I. Horton, Beginning Java 2 JDK 5, Wiley, 2005. 3. Z. Veličković, Internet programming: Practicum laboratory exercises, Niš, 2008.			
Number of active classes			Other forms of teaching:
Lectures: 30	Practical classes: 30	Research work:	
Teaching methods Combination of interactive approach with practical problem solving.			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	10	written exam	30
practical training	20	oral exam	
colloquium(s)/seminar papers	20+20		
Sum	70	Sum	30