

Study program: Information Technologies and Systems			
Type and level of studies: undergraduate studies			
Course unit: Object - Oriented Programming 1			
Teacher in charge: Vladimir Milićević			
Language of instruction: English			
ECTS: 8			
Prerequisites: none			
Semester: 1			
Course unit objective: Introduction to the basic concepts of programming from the perspective of object-oriented programming. The course introduces students to the concepts of object-oriented programming, as well as to procedural programming methods, with the aim of mastering the basics of programming languages. The student is trained to independently develop simpler programs in Java. The course curriculum is aligned with the recommendations of the IEEE Computer Society and ACM.			
Learning outcomes of the course unit <ul style="list-style-type: none"> • Mastery of the basic methods of procedural programming in Java • Understanding, writing, and using methods (subroutines) in Java • Understanding and applying object-oriented programming concepts using Java • Understanding working with arrays • Storing data in text and binary files • Ability to develop simpler programs in Java. 			
Course unit contents			
<i>Theoretical classes</i> Concept and history of programming languages. Program compiling. Data types, arithmetic, relational, and logical operators. Program loops. Methods and return types. One-dimensional and multi-dimensional arrays. Basic Java classes. Inheritance, generalization, and polymorphism. Interfaces. Association, aggregation, and composition relationships in UML language with implementation in Java. Nested classes. Streams, files, and specialization.			
<i>Practical classes</i> Work in a computer lab with at least 2 hours per week and 1 hour of additional forms of instruction in the form of consultations and individual exercises. Work with demonstrative examples. Work with individually assigned tasks. Work on homework assignments. Creation of a project that demonstrates the student has mastered the knowledge and skills of introductory object-oriented programming in Java.			
Literature <ol style="list-style-type: none"> 1. Brady Ellison. 2023. Java for Beginners: A Crash Course to Learn Java Programming in 1 Week, ePUB, 2023 2. 3. David J. Eck. 2021. Introduction to Programming Using Java, CreateSpace - eBook (Creative Commons Licensed, August 2021) 			
Number of active teaching hours			Other classes
Lectures: 45	Practice: 30	Other forms of classes:	Independent work: 15
Teaching methods Teaching materials, which consist of lecture notes, multimedia presentations, exercise texts, and homework assignments, are published on the Teams platform for students before the lecture. Students are required to study the teaching materials before the lecture and discuss the most important aspects during class. The lectures are conducted using multimedia presentations, and exercises are held in computer labs. After every three lectures, students complete a homework assignment, and they also have a project task to work on towards the end of the semester. The course lasts 15 weeks, with 2 hours of lectures, 2 hours of demonstrative examples, and 1 hour of individual problem-solving in Java with consultations with the course instructor and assistant.			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:

Student's activity during lectures	5	oral examination	/
practical classes/tests	/	written examination	40
Seminars/homework	3 x 5 = 15	
Project	40		
Other	/		

Grading system

Grade	No. of points	Description
10	95-100	Excellent
9	85-94	Exceptionally good
8	75-84	Very good
7	65-74	Good
6	55-64	Passing
5	Less than 55	Failing