Study programme(s): Information Technologies	
Level: Bachelor	
Course title: Object-Oriented Programming 1	
Lecturer: Aleksandra Đ. Klašnja-Milićević	
Status: obligatory	
ECTS: 7	
Requirements: completed course of Introduction to programming	

Learning objectives

Introducing students to the principles and techniques of object-oriented programming, and enabling them to apply the proven solutions and contemporary tools in the development of a wide spectrum of applications.

Learning outcomes

Minimum: At the end of the course, successful students should be able to demonstrate the ability to understand and analyze problems, as well as the design and realization of the solution in a concrete object-oriented programming language.

Desirable: At the end of the course, successful students should be able to understand, analyze and define problems based on logical foundations, as well as creative design and realization of solutions using the object-oriented style of programming.

Syllabus

Theoretical instruction

Object-oriented methodology: design and programming. Basic elements of object-oriented programming: classes, inheritance, dynamic bounding. Object-oriented programming language. Structure and parts of the program. Referential data types. Interfaces. Enumerated data types. Packages. Exceptions. Strings. Collections. Developing graphical user interfaces.

Practical instruction

Use of illustrative examples as the means of studying all of the presented theoretical concepts. Structure of a program in a particular object-oriented language. Testing of finished solutions, tools, discussion on the possibilities of application and the like. Individual practical tasks: classes, objects, inheritance, abstract classes, interfaces, arrays, modifiers, initializers, nested classes, working with strings, input and output streams, packages, exceptions, collections, graphical user interfaces.

Literature

Recomended

Vohra, D., Baesens, B., Backiel, A., & vanden Broucke, S. (2015). *Beginning Java Programming: The Object-oriented Approach*. John Wiley & Sons.

Мирјана Ивановић, Зоран Будимац, Милош Радовановић, Дејан Митровић, (2016). *Објектно-оријентисано програмирање и програмски језик Јава*, Сигра стар, Нови Сад.

Weekly teaching load				
Lectures: 2	Exercises: 2	Practical Exercises: 2	Student research:	Other:

Teaching methodology

The lectures comprise classical methods of teaching with the projector. In solving problems or analysing illustrative examples when conducting theoretical exercises, students try to model own solutions. During the practical classes students independently apply the techniques mastered by making a variety of applications, whose complexity increases during the semester. Knowledge of students is tested through colloquiums and practical tasks. In the oral part of the exam, the student demonstrates a comprehensive understanding of the principles of object-oriented programming.

Grading method (maximal number of points 100)

Pre-exam obligations	points	Final exam	points
Colloquia	**20**	Oral exam	40
Practical tasks	**40**		