Study programme: Bachelor with honours in Geography
Course title: Introduction to programming
Teacher(s): dr Vladimir R. Kostić
Status: elective
ECTS: 6
Requirements: none

Learning objectives

Enabling the student to understand the concepts of (computer) programming;
Problem analysis;
Implementation in a concrete procedural language.

Learning outcomes

At the end of the course, students are expected to demonstrate understanding of the concepts of (computer) programming, ability to understand problems and the implementation of solutions in a concrete programming language. Understanding of object-oriented concepts.

Syllabus

Theoretical part:

History of development of programming languages. First programming language. Structure and parts of a program. Simple data types, enumeration type, interval type. Assignment, expressions. Control and iteration statements. Structured data types, arrays, records, sets. Procedures and functions. Input and output. Introduction to algorithms. Iterative and recursive approaches. Introduction to abstract data types. Example implementation of an abstract data type. Implementation using arrays. Object-oriented methodology: design and programming. Basic elements of object-oriented programming: classes, inheritance, dynamic bounding. Packages. Exceptions.

Practical part:

Practicing the understanding of basic principles of the programming using suitable programming language. Practicing control and iteration statements, as well as simple, structured, and abstract data types. Practical implementation of algorithms using an appropriate editor and compiler. Working with strings, input and output streams, classes, objects, inheritance, abstract classes, interfaces, arrays, packages, exceptions.

Literature

1. M. Ivanović, M. Bađonski, Z. Budimac, D. Pešović: *Programski jezik Java*, Univerzitet u Novom Sadu, Departman za matematiku i informatiku, Novi Sad, 2006.
2. Z. Budimac, M. Ivanović, Đ. Paunić: *Uvod u programiranje i programski jezik Modula-2*, Feljton – Departman za matematiku i informatiku, Novi Sad, 2004.
3. Mount, N.(2007): Visual Basic and Geographic Information Systems, John Wiley and Sons Ltd
4. Z. Budimac, N. Ibrajter, M. Ivanović: Uvod u Delphi, Računari u univerzitetskoj praksi, Novi Sad, 2004.

Weekly teaching load 4 (60)	Lectures 2	Exercises 2

Methods of Teaching

Frontal lectures using multimedia presentations. Exercises with individual work on the computer.

Grading method (maximu 100 points)

Pre-examination assignments	points	Final examination	points
Activities during lectures	**0-6**	Written examination	
Activities during exercises	**0-6**	Oral examination	**0-40**
Colloquia	**0-48**	....	
Seminar paper			