

Study programme(s): Mathematics M3, M4			
Level: Bachelor			
Course title: Programming 2 (M13)			
Lecturer: Đorđe D. Herceg			
Status: elective			
ECTS: 7			
Requirements: none			
Learning objectives Acquiring advanced knowledge and skills in object-oriented programming in C#. Solving real world mathematical and programming problems on the computer. Development of algorithmic reasoning and precise formulation of concepts related to object-oriented programming. Use of the integrated development environment and debugger.			
Learning outcomes <i>Minimal</i> Students will be able to clearly state problems, develop algorithms and solve programming problems. They will learn the principles of standalone application development through requirement specification, implementation of data structures and algorithms. <i>Desired:</i> Students will learn the object-oriented paradigm. They will learn to use classes, inheritance and advanced data structures; develop applications with a graphical user interface; trace program flow and use the debugger to correct errors; develop software components and libraries; apply object-oriented programming to selected topics in mathematics.			
Syllabus <i>Theory</i> Data structures. Generic data types. Inheritance and its applications. Garbage collection. Development of GUI based applications. File operations. Component library development. Computer graphics. Advanced applications of object oriented programming. <i>Exercises</i> Exercises are conducted on the computer and they follow the theoretical classes.			
Textbooks and resources 1. John Sharp, Microsoft Visual C# 2008 korak po korak, CET (Microsoft Press), Beograd, 2009, ISBN 978-86-7991-335-7. 2. Microsoft Developer Network online документација, msdn.microsoft.com			
Weekly teaching load			Other: 0
Lectures: 3	Exercises: 3	Other forms of teaching: 0	Student research: 0
Teaching methodology Lectures supported by examples on the computer. Exercises and practical tests in a computer lab. Final exam is comprehensive and based on theoretical lectures.			
Grading (maximum number of points 100)			
Pre-exam obligations	points	Final exam	points
Colloquia	50	Oral exam	50