

Study programmes: PhD studies - Informatics				
Course name: R410 - Design and analysis of algorithms - Advanced Concepts				
Lecturers: Miodrag Živković and other teachers of the Department of Computing and Informatics				
Status: Electoral				
ECTS: 9				
Attendance prerequisites: There are no prerequisites				
Course aims: To acquire basic knowledge of data structures, fundamental algorithms, algorithm analysis and algorithm design techniques.				
Course outcome: Upon completion of the course, the student has basic knowledge of data structures, algorithm design techniques and algorithm analysis. He is able to apply adopted knowledge to solve new problems.				
Course content: Mathematical induction as a method of algorithm design. Analysis of algorithms. Basic data structures. Algorithms on arrays and sets. Graphs. Geometric algorithms. Algebraic algorithms. Reductions of polynomial complexity and estimation of lower bound complexity. NP completeness. Parallel algorithms.				
Literature: 1. Miodrag Živković, Algoritmi, Matematički fakultet, Beograd, 2000. (the teacher can choose another relevant current literature)				
Number of hours: 10	Lectures: 4	Tutorials: -	Laboratory: -	Research: 6
Teaching and learning methods: Frontal, group and practical.				
Assessment (maximal 100 points)				
Course assignments	points	Final exam	points	
Lectures	-	Written exam	-	
Exercises / Tutorials	-	Oral exam	-	
Colloquia	-	Written-oral exam	70	
Essay / Project	30			