

Study programme(s): Computer Science				
Level: master				
Course title: Graph Theory				
Lecturer: Mirjana D. Mikalački				
Status: obligatory				
ECTS: 6				
Requirements: Discrete Structures 1, Discrete Structures 2				
Learning objectives Teaching students to understand and use various results in graph theory, and to master basic algorithms on graphs.				
Learning outcomes <i>Minimal:</i> At the end of the course, it is expected that students know all basic concepts of graph theory and understand standard theorems. Also, they should be familiar with basic algorithms on graphs. <i>Desirable:</i> At the end of the course, it is expected that successful students are able to prove more complex theorems, as well as to comprehend the covered topics as a whole, and solve some standard problems that they have not encountered before.				
Syllabus Graphs and basic graph structures, weighted graphs, trees and search algorithms on trees. Flows in graphs, min-max theorem. Vertex connectivity and edge connectivity. Planar graphs - basic properties. Stable sets and cliques. Vertex colorings. Matchings, algorithms. Edge colorings. Hamiltonian cycles.				
Literature <ul style="list-style-type: none"> • J.A. Bondy, U.S.R. Murty: Graph Theory, Springer, 2008. • D.B. West, Introduction to Graph Theory, Prentice Hall, 2001. 				
Weekly teaching load				Other: 0
Lectures: 3	Exercises: 1	Practical Exercises: 0	Student research: 0	
Teaching methodology Blackboard lectures, blackboard exercises.				
Grading method (maximal number of points 100)				
Pre-exam obligations	points	Final exam	points	
<i>Colloquia</i>	30	<i>Oral exam</i>	70	