

Study programme(s): Computer Science				
Level: master				
Course title: Combinatorial structures in Computer Science				
Lecturer: Dragan Mašulović, Maja Pech				
Status: elective				
ECTS: 6				
Requirements: ---				
Learning objectives In this course students shall acquire advanced knowledge in combinatorics and will understand different combinatorial structures and methods, together with their theoretical background.				
Learning outcomes At the end of the course a successful student will be able to formulate and solve a variety of advanced combinatorial problems, to apply different combinatorial methods to examples and to explain applications.				
Syllabus The course covers some of the following topics: <input type="checkbox"/> Number series in Combinatorics (such as e.g. Stirling, Fibonacci, Catalan, etc.) <input type="checkbox"/> Systems of distinct representatives <input type="checkbox"/> Latin squares <input type="checkbox"/> Codes and designs <input type="checkbox"/> Generating functions <input type="checkbox"/> Permutations <input type="checkbox"/> etc. Each topic will include basic definitions and results, fundamental techniques and advanced results and applications.				
Literature P. J. Cameron: "Combinatorics: Topics, Techniques, Algorithms", 2nd Ed, Cambridge University Press 1996 J. H. van Lint, R. M. Wilson: „A Course in Combinatorics", 2nd Ed, Cambridge University Press 2001				
Weekly teaching load				Other: 0
Lectures: 2	Exercises: 2	Practical Exercises: 0	Student research: 0	
Teaching methodology Lectures are presented using classical teaching methods supported by beamer presentations and continuous interaction with students. The ability of application of theoretical knowledge is checked through independent solving of exercises on two colloquia. The final exam is oral and a student is supposed to demonstrate general understanding of the presented theoretical material.				
Grading method (maximal number of points 100)				
Pre-exam obligations	points	Final exam	points	
<i>Colloquium 1</i>	30	<i>Oral exam</i>	40	

<i>Colloquium 2</i>	30		
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