

<b>Study program:Artificial intelligence</b>			
<b>Name of the subject: Graph Theory</b>			
<b>Teacher(s): Miloš Stojaković, Boris Šobot</b>			
<b>Status of the subject:elective</b>			
<b>Number of ECTS credits:6</b>			
<b>Conditions: none</b>			
<b>Subject goal</b>			
<ul style="list-style-type: none"> <li>- Understanding and using various results and techniques in Graph Theory, including some of the standard algorithms on graphs.</li> <li>- Ability to prove simple statements, as well as to select appropriate algorithms for a given problem.</li> </ul>			
<b>Outcome of the subject</b>			
<ul style="list-style-type: none"> <li>- Knowledge of basic concepts of graph theory, and understanding of standard theorems along with their proofs.</li> <li>- Familiarity with basic algorithms on graphs.</li> <li>- Comprehending the covered topics as a whole; ability to solve standard problems that were not encountered before</li> </ul>			
<b>Subject content</b>			
<i>Theory</i>			
Graphs and basic graph structures, weighted graphs. Flows in graphs, min-max theorem. Vertex connectivity and edge connectivity. Planar graphs, their basic properties. Stable sets and cliques. Vertex colorings. Matchings, algorithms. Edge colorings. Hamiltonian paths.			
<i>Practical learning</i>			
Solving and understanding problems in the covered topics in Graph Theory. Studying standard algorithms for dealing with mentioned graph structures. Choosing, modifying and implementing algorithms on the way to solution of more complex problems.			
<b>Literature</b>			
Main:			
1. J.A. Bondy, U.S.R. Murty: Graph Theory, Springer, Berlin, 2008.			
Textbooks (additional):			
2. V. Petrović, Teorija grafova, PMF, Novi Sad, 1998.			
3. R. Diestel, Graph Theory, Springer, Heidelberg, 2010.			
<b>Number of active teaching classes</b>	<b>Theoretical teaching:2</b>	<b>Practical teaching:3</b>	
<b>Method of carrying out the teaching</b>			
Lectures through standard lecturing methods, mostly on blackboard. Exercises include practicing the techniques shown in lectures, discussing the possible applications on concrete problems, possibly including a modification of the approach used; active students' participation in problem solving.			
<b>Evaluation of knowledge (maximum number of points 100)</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Colloquia	50	Oral exam	50