(Table 5.2) Course unit description

Study program : **MATHEMATICS**				
Type and level of studies: **MASTER ACADEMIC STUDIES**				
Course unit: MATHEMATICAL PROGRAMMING 1				
Teacher in charge : Full-time professor, PHD LJILJANA PAVLOVIC				
Language of instruction: **English**				
ECTS: **10**				
Prerequisites:				
Semester: **Winter Semester**				
Course unit objective Course unit objective is transferring to students the necessary theoretical knowledge and mathematical methods from mathematical programming 1. This creates the basis for making mathematical models for different problems and for finding their optimal solutions.				
Learning outcomes of Course unit Student acquired the necessary theoretical knowledge from mathematical programming 1 and conquered appropriate mathematical methods for analysis different optimization problems.. Student is qualified to perceive mathematical aspect of these problems, to make their mathematical models, to choose corresponding method for their resolving and to get optimal solution.				
Course unit contents *Theoretical classes* Farcas' lemma. Linear Programming. Duality. The primal and dual simplex algorithm. Transportation problem. Game theory. Matrix and bimatrix games. Pure and mixed strategies. Equlibrium strategies. Minimax theorem. Simetric games. Search games. Calculaion of optimal strategies. Discrete programming. Integer programming. Totally unimodular matrices. Cut's method. Gomory's cuts. Branch and bound's method. Dynamic programming. *Practical classes* are from the same units contest as for theoretical classes				
Literature 1. Bernhard Korte, Jens Vygen, Combinatorial Optimization (Theory and Algorithms), Springer-Verlag Berlin Heidelberg, 2008. 2. G. Nemhauser, L. Wolsey, Integer and Combinatorial Optimization, J. Willey and Sons, London, 1988. **3**. A. Schrijver, *Linear and Integer Programming*, Amsterdam, J. Willey and Sons, New York –Chichester - Brisbane-Toronto-Singapore, 1986.				
Number of active teaching hours				**Other classes**
Lectures: **4**	Practice: **3**	Other forms of classes: Mentoring system: **2**	Independent work: **2**	**0**
Teaching methods Professor's lectures, case studies, home work, discussion, seminar.				
Examination methods (maximum 100 points)				
Exam prerequisites	**No. of points:**	**Final exam**	**No. of points:**	
Student's activity during lectures	**6**	oral examination	***50***	
practical classes/tests	**44**	written examination		
Seminars/homework	**20**	.....		
Project				
Other				

Grading system		
Grade	**No. of points**	**Description**
10	**91-100**	Excellent
9	**81-90**	Exceptionally good
8	**71-80**	Very good
7	**61-70**	Good
6	**51-60**	Passing
5	**0-50**	Failing