

Study program: Engineering Management			
Type and level of studies: Master studies (second level of studies)			
Course unit: Multi-criteria Optimization			
Teacher in charge: Miroslav Radojičić, Jasmina Vesić Vasović			
Language of instruction: English			
ECTS: 5			
Prerequisites: Knowledge of mathematics, organization and operations research			
Semester: Winter			
Course unit objective			
Introducing students to the fundamental theoretical itemized and results of modern multi-criteria optimization which is the basis of modern concepts in the theory of rational decisions.			
Learning outcomes of Course unit			
After passing the exam, the student is able to mathematically and formally model multicriteria optimization problems and solve them by using available software.			
Course unit contents			
<i>Theoretical classes</i>			
1. Introduction to multicriteria optimization. 2. Pareto optimality and efficiency 3. The method of weight coefficients 4. Other methods for obtaining Pareto optimal solutions 5. Multiple criteria linear programming 6. Other concepts of optimality 7. Combinatorial problems of multicriteria optimization. 8. Game Theory in decision-making. 9. Methods of negotiation. 10. Application of fuzzy sets and fuzzy logic in decision making. 11. Information support rational multi-criteria decision making.			
<i>Practical classes</i>			
The exercises involve the use of curriculum that is provided in the program to solve practical problems (tasks) with appropriate software support			
Literature			
1] Triantaphyllou E., Multi-criteria decision making methods: a comparative study. Kluwer Academic, Dordrecht, Netherlands, 2000.			
2] Radojicic M, Vesic Vasovic J., Nestic Z., Application of optimization methods in the function of improving performance of organizational systems, Monograph, Faculty of Technical Sciences Čačak, 2012.			
Number of active teaching hours			Other classes
Lectures: 2	Practice: 2	Other forms of classes:	Independent work:
Teaching methods			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	10	oral examination	
Practical classes/tests	35	written examination	40
Seminars/homework	15	
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	less than 50	Failing	