

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Operations Research						
Head of course	MSc Katarina Volarić Nižić, Lecturer						
Study programme	Professional undergraduate study Information Science						
Status of a course	Elective						
Year of study	2	Semester	IV	ECTS credits	5		
Teaching plan (L + E + S+ Pr)	2 + 0 + 2 + 0						
Goals of a course							
The aim of the course is to introduce and teach students how to use methods that solve some business decision-making problems and methods to optimize them.							
Conditions for enrolling course							
No conditions							
Learning outcomes on a level of a study programme which includes course							
Outcome 11: Apply mathematical and statistical methods in information science.							
Expected learning outcomes on a level of a course							
<ol style="list-style-type: none"> 1. Explain concepts from the basics of linear programming. 2. Solve problems from the basics of linear programming. 3. Explain concepts from the basics of transport problem. 4. Solve problems from the basics of transport problem. 5. Explain concepts from the basics of networks. 6. Solve problems from the basics of networks. 							
Content of a course							
<p>Linear programming problems, simplex method, revised simplex method, dual simplex method, integer linear programming. Problems of transport and distribution. Quadratic programming. Dynamic programming. Network planning. Theory of strategic games. Redundancy models. New areas of operational researches.</p> <p>Application of theoretical tenets presented during lectures, through some tasks. Students, working in teams, have to present a problem selected from environment. The usage of specific software packages is supported.</p>							
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes			<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____			
Comments							
Students' obligations							
Grading, evaluation and monitoring of students' work continuously during lectures and exams							
Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.							
Continuous check-up:							
Outcomes	Pre-exam I	Pre-exam 2	Pre-exam 3	Test 1	Test 2	Threshold	Max
Outcome 1				16%		8%	16%
Outcome 2	20%	25%				22,5%	45%

Outcome 3					10%	5%	10%
Outcome 4			19%			9,5%	19%
Outcome 5					4%	2%	4%
Outcome 6			6%			3%	6%
Percentage of ECTS	1	1,25	1,25	0,8	0,7	-	-
Total	20%	25%	25%	16%	14%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1		16%	16%
Outcome 2	45%		45%
Outcome 3		10%	10%
Outcome 4	19%		19%
Outcome 5		4%	4%
Outcome 6	6%		6%
Percentage of ECTS	3,5	1,5	
Total	70%	30%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. H. Pašagić: Matematičke metode u prometu, Fakultet prometnih znanosti, Zagreb 2003.
2. Materials from lectures and exercises

Additional literature

1. H. Pašagić, B. Ivanković, N. Kapetanović: Operacijska istraživanja u prometu, zbirka zadataka, 2013.
2. D. Barković: Operacijska istraživanja, Ekonomski fakultet Osijek, 2002.
3. Z. Babić: Linearno programiranje, Ekonomski fakultet Split, 2005.
4. D. Kalpić, V. Mornar: Operacijska istraživanja, Drip, Zagreb 1996.

