Study programme(s): Mathematics (MA), Applied Mathematics (MB), Master in Mathematics Teaching (MP)

Level: master

Course title: Operations research (MB-14)

Lecturer: Sanja Đ. Rapajić

Status: elective for MA,MB and MP

ECTS: 7

Requirements: none

Learning objectives

Acquiring knowledge on mathematical models related to some optimization problems from economy, industrial engineering and other fields. Introduction to basic operations research methods, which could be used for solving these problems. Introduction to the well-known optimization software.

Learning outcomes

Basic knowledge about constrained optimization problems. Acquiring skills of different techniques in specific fields of operations research and their applications in practice by using the appropriate software.

Syllabus

Theoretical instruction

Methodology of operations research. Linear programming. Duality. Transportation problems. Quadratic programming. Multi-criteria programming. Network models. Dynamic programming. Game theory.

Practical instruction

Exercises that follow the theoretical lessons.

Literature

1. K. Surla, Z. Lozanov-Crvenković, *Operaciona istraživanja*, PMF, Novi Sad, 2002.
2. S. Krčevinac, M. Čangalović, V. Kovačević-Vujčić, M. Martić, M. Vujošević, *Operaciona istraživanja 1 i 2*, FON, Beograd, 2004.
3. W. L. Winston, *Operations Research-Applications and Algorithms,* Duxbary Press, 2003.
4. F. S. Hillier, G. J. Lieberman, *Introduction to Operations Research,* McGraw -Hill Science, 2005.

Weekly teaching load				
Lectures: 4	Exercises: 2	Other forms of teaching: 0	Student research: 0	Other: 0

Teaching methodology

Lectures are presented using classical teaching methods. Exercises are used to practice and analyse typical problems and their solutions. Optimization software will be available to students. The ability of application of theoretical knowledge is checked through independent solving of exercises on written exam. The final exam is oral and a student is supposed to demonstrate general understanding of the presented theoretical material.

Grading (maximum number of points 100)

Pre-exam obligations	**points**	**Final exam**	**points**
Written exam	50	Oral exam	50