Study Program: Mathematics

Type and level of studies: Bachelor studies, V semester

Course name: Linear programming

Lecturer: Vladica S. Stojanović

Status: elective

ECTS: 8

Attendance Prerequisites: none

Course aims

Acquiring knowledge about the application of linear programming in solving practical problems, as well as on the software implementation of appropriate optimization algorithms.

Course outcome

Solving various problems based on the principles of linear programming.

Course contents

1. Introduction (the concept of convex set, polygon and polyhedral domains, systems of linear inequalities, basic solutions, convex sets, value of linear function on convex set)
2. Linear programming (mathematical modelling via linear programming, some examples of LP modeling, effective procedures for finding the optimal solution, graphical and simplex method, special tasks of linear programming: standard mixed problems of maximum and minimum)
3. Transport problem (general form of transport problem, determination of initial basic solution, optimization of transport program, the problem of degeneration in transport problem, open transport model, some modifications of transport model)
4. Game theory (mathematical game model, game classification, matrix games with pure and mixed strategies, 2x2 matrix games, the graphical method of solving matrix games, matrix games and linear programming)

Literature

1. Божиновић М., Стојановић В.: *Математичке методе и модели у економији предузећа*, ВЕШ, Лепосавић, 2003
2. Стојановић В.: *Математичко програмирање-збирка решених проблема и задатака*, ПМФ, К. Митровица, 2012

Number of active classes				Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	Students' research work	

Teaching methods

Lectures, auditory practice, laboratory, term tests, consulting, homework, written exam.

Assessment (maximum 100 points)

Course assignments	**points**	Final exam	**points**
activity during lectures	**10**	written exam	
practical classes	**10**	oral exam	**40**
term test(s)	**40**	.....	
seminar(s)			
Total	**60**		**40**