

Institute of Applied Mathematics			Semester 2. of the curriculum 2025-26-2			
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
Optimization methods	NMXOM1EMNF	5	full-time	2	2	0
Responsible person for the subject: Prof. Dr. TAKACS Márta			Classification: professor			
Subject lecturer(s): Fleiner Balázs						
Prerequisites:						
Way of the assessment: exam						
Course description						
Goal:	The subject presents the most important methods of optimization problems, which can be used on economy, industrial, scientific area					
Course description:	Operational methods, Geometry of linear programming, simplex method, duality, integer programming, network optimization, Game theory					

Lecture schedule	
Education week	Topic
1.	Operational research, optimization
2.	Geometry of linear programming
3.	Simplex method 1.
4.	Simplex method 2.
5.	Duality 1.
6.	Duality 2.
7.	1st midterm
8.	Integer programming 1.
9.	Integer programming 2.
10.	Network optimization 1.
11.	Network optimization 2.
12.	Game theory
13.	2nd midterm
14.	Retake
Mid-term requirements	
Conditions for obtaining a mid-term grade/signature	50% of the midterms in average
Assessment schedule	
Education week	Topic
7	Weeks 1-6
13	Weeks 8-12
14	Test retake
Method used to calculate the <i>mid-term grade</i> (to be filled out only for subjects with mid-term grades)	
Type of the replacement	
Type of the replacement of written test/mid-term grade/signature	Retake of the midterm on week 14.

Type of the exam (to be filled out only for subjects with exams)	
Written exam	
Calculation of the exam mark (to be filled only for subjects with exams)	
Final grade calculation methods:	
0-49%: fail (1) 50-61%: pass (2) 62-73%: satisfactory (3) 74-85%: good (4) 86-100%: excellent (5)	
References	
Obligatory:	Dimitris Bertsimas, John N. Tsitsiklis: Introduction to Linear optimization
Recommended:	Optimization Methods in Metabolic Networks
Other references:	Lecture notes uploaded to the e-learning system of the university