

Óbuda University John von Neumann Faculty of Informatics		Institute of Applied Mathematics		
Name and code: <i>Engineering computational methods II</i> <i>NMXMS2PMNE</i>		Credits: 5		
<i>Applied Mathematics MSc</i>		<i>2019/20 academic year, spring</i>		
Subject lecturers: dr. János Fülöp				
Prerequisites (with code):		Optimization methods NMXOM1PMNE		
Weekly hours:	Lecture: 2	Seminar.: 0	Lab. hours: 2	Consultation:
Way of assessment:	exam			
Course description:				
<i>Goal:</i> Knowledge of the numerical methods of optimization				
<i>Course description:</i> Convex sets and functions, convex optimization problems, duality, applications, unconstrained optimization, constrained optimization, interior point methods, stochastic programming, nonconvex optimization, optimization software tools				

Lecture schedule			
<i>Education week</i>	<i>Topic</i>		
1.	Convex sets and functions		
2.	Convex optimization problems		
3.	Duality		
4.	Applications and optimization software tools		
5.	Unconstrained optimization 1		
6.	Unconstrained optimization 2		
7.	Constrained optimization 1		
8.	Constrained optimization 2		
9.	Interior point methods 1		
10.	Interior point methods 2		
11.	Stochastic programming 1		
12.	Stochastic programming 2		
13.	Nonconvex optimization		
14.	Optimization software tools		
Midterm requirements			
	<i>Education week</i>	<i>Topic</i>	

Final grade calculation methods

Achieved result	Grade
89%-100%	excellent (5)
76%-88<%	good (4)
63%-75<%	average (3)
51%-62<%	satisfactory (2)
0%-50<%	failed (1)

Type of exam

Type of replacement

References

Mandatory:

S. Boyd, L. Vandenberghe, Convex Optimization, Cambridge University Press, 2004
C.P. Lopez, MATLAB Optimization Techniques, Springer, 2014.

Recommended:

J. Nocedal, S. Wright, Numerical Optimization, 2nd ed., Springer, 2006
<http://web.stanford.edu/class/ee364a/videos.html>