

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Management	
Course ID: FM.KKM/072AB/21	Course title: Matematika II
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Course evaluation during the semester: 1.) 4x 10 min. test during online consultations, each for 3 points, without the possibility of writing a substitute test. 2.) 10-min. test at seminars, each for 2 points (min. 8 tests the student should pass, we take into account 2 possible absences) (16 points), without the possibility of writing a substitute test. 3.) 2 written test in the middle and at the end of the semester for 12 points (max. 24 points). The test can be taken in an alternate time during the semester, if the student proves his / her absence by a medicine confirmation. 4.) According to the University Act, a student can have max 2 absences (one on theoretical and one on practical exercises). Next absence will be evaluated by -1 point in the final assessment of each type of exercise. Assessment of the subject during the Examinations period: The final written exam (100 minutes), consists of 4 examples (2 from mathematical analysis and 2 from Linear Programming). (max. 50 points) Exam: a student can complete 1 regular and one corrective term if he / she does not reach the required number of points to complete the course on the regular term. The student completes the course if he / she obtains at least 60% of points (ie 30 points) from the continuous assessment, so that he / she can go to the exam and min. 60% of the exam points (ie 30 points) to pass the exam. The points that the student obtains during the semester and in the exam are included in the final grade of the subject. Scale of assessment (preliminary/final): 50/50	
Learning outcomes: This course follow course Mathematics I and gives to students the possibility to gain mathematical skills in solving optimization problems. In many economic applications, a manager deals with situations where several variables have to be included into the mathematical model, e.g. usually the output depends on a set of different input factors. Therefore, this course deals with optimization problems for functions depending on more than one independent variable. Students will solve some real problem using software Wolfram Mathematica.	
Class syllabus:	

Functions of several variables: partial derivatives, gradient, total differential, competitive and complementary products.
Unconstrained and constrained optimization: optimality conditions, Lagrange multipliers, Kuhn-Tucker conditions.
Linear programming: simplex methods, duality, sensitivity analysis.
Integer linear programming.

Recommended literature:

1. Knor, M.: Mathematics for Managers II, Univerzita Komenského, Bratislava, 2003.
2. Winston, W. L. 2004. Operations Research. Applications and Algorithms. Belmont: Thomson. Brooks/Cole. 2004. ISBN 0-534-52020-0
3. Chiang, A.C.: Fundamentals Methods of Mathematical Economics. McGraw-Hill International Editions., Singapore , 1984
4. Werner, F. – Sotskov, Y. N.: Mathematics of Economics and Business

Languages necessary to complete the course:

english

Notes:

Past grade distribution

Total number of evaluated students: 0

A	ABS	B	C	D	E	FX	M
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Mária Bohdalová, PhD., doc. Ing. Mgr. Urban Kováč, PhD., Mgr. Lukáš Kurinec

Last change: 13.10.2021

Approved by: