COURSE DESCRIPTION

University: *University of Presov*	
Faculty/university workplace: *Faculty of Management and Business*	
Code: 7KFUM/MATHE-ER/24	**Course title:** *Mathematics*
Type, scope and method of educational activity: *Type of educational activities: lecture and seminar* *Scope of educational activities: 1 hour lecture / 1 hour seminar per week* *Method of educational activities: combined; distance form represents max 30%, via MS Teams, LMS Moodle or other applications and platforms.*	
Number of credits: *5*	
Recommended semester: *summer*	
Study grade: *1.*	
Prerequisites: -	
Conditions for passing the course: *Continuous evaluation:* - *Continuous written examination (maximum of 30% - A student can take the exam only if he / she gets at least 15%)* *Final evaluation:* - *Final written test (exam) (maximum of 70%).* *The overall evaluation will consist of the sum of points (%) from continuous evaluation and points (%) from final written test (exam).* *Criteria of success (percentage expression of results in the evaluation of the course) are for the classification levels as follows: A: 100,00 – 90,00%; B: 89,99 – 80,00%; C: 79,99 – 70,00%; D: 69,99 – 60,00%; E: 59,99 – 50,00%; FX: 49,99 and less %.* *Passing the course is conditioned by successful passing of all mentioned conditions and fulfillment of the conditions of participation according to the Study Regulations of University of Presov.*	
Learning outcomes: *Knowledge:* *The graduate knows, in the range of knowledge given by the brief syllabus, to define and formulate basic theoretical concepts and methods in the field of linear algebra, theory of the function of one real variable, differential and integral calculus of a function of one variable and some managerial applications. Based on the acquired knowledge, he / she is able to understand the mathematical apparatus of statistics and other professional management disciplines of quantitative character, which he / she has to complete during his / her studies. At the same*	

time, the acquired mathematical knowledge becomes part of his general intellectual basis for life and the building of his integrated personality.

Skills:
The graduate of the course is able to creatively apply the acquired generally valid mathematical knowledge in solving specific mathematical problems in general, as well as to apply them to solve those problems from management theory and practice that necessarily lead to the solution of mathematical problems. Building on the already acquired knowledge, he can creatively and independently acquire other theoretical knowledge from mathematical theory and mathematical methods, apply them in other disciplines of a quantitative nature and use them creatively in practice.

Competences:
The graduate is able to use the acquired knowledge and skills during the study and in practice by demonstrating the ability of thorough analysis of specific situations, the ability of logical thinking and critical thinking, the ability of self-discipline and self-control, creativity and the ability to positively pose to the new challenges.

Course content:

1. *n-dimensional arithmetic vectors, definition, operations with the vectors, linear dependence and independence of the group of vectors.*
2. *Matrix algebra, basic concepts, operations with matrices, range of the matrix.*
3. *Determinants definition, properties, calculation of determinants.*
4. *Systems of the linear equations, Frobeni theorem, solving the systems using the Cramer's rule and Gauss's elimination method.*
5. *Real function of one real variable, domain, range and graph of the function.*
6. *Elementary functions.*
7. *Limits and continuity of the function. Differential calculus of the function with one variable. Zero points, stationary and inflex points of the function.*
8. *Monotony, local and global extremes of the function.*
9. *Convexity and concavity of the function. Applications.*
10. *Indefinite integral (antiderivative, table of the indefinite integrals, methods of the integration of the elementary functions).*
11. *Definite integral, definition.*
12. *Newton – Leibniz formula.*
13. *Area of the plane part.*

Recommended literature:

HEFFERON, J., 2020. Linear Algebra. Vermont: Saint Michael's College Colchester. Available at: http://joshua.smcvt.edu/linearalgebra
KUBEN, J., 2012. Differential Calculus for Functions of a Single Variable. Brno: Investment into Development and Education.

Language which is necessary to complete the course: *English*

Notes:

Student burden distribution:
40% workload - direct teaching activity
20% workload - solving homework and preparing for ongoing inspections
40% workload - self-study, preparation for the exam

An individualized approach is provided for students with special needs based on the recommendation of the faculty coordinator for students with special needs.

Course evaluation

Total number of students evaluated: *2*

A	B	C	D	E	FX
50%	0%	50%	0%	0%	0%

Lecturers: *Lectures and seminars: doc. PhDr. Petra Vašaničová, PhD.; RNDr. Igor Petruška, CSc.*

Date of last change: *12.04.2024*

Approved by: prof. Ing. Róbert Štefko, Ph.D.