Information sheet for Mathematics I

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Social and Economic Relations*	
Course unit code: *KEaE/lz2Pd/10*	**Course unit title:** *Mathematics I*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *2 hours of lectures / 2 hours of seminars per week. 28 hours of lectures / 28 hours of seminars per semester. Full-time.*	
Number of credits: *5*	
Recommended semester: *1st*	
Degree of study: *I (Bachelor)*	
Course prerequisites: *none*	
Assessment methods: *During the semester, there will be two written assessments (minimum 50%) and active participation in seminars. In case of 50% of absence in seminars, students are not allowed to take the exam. Assessment: A: 90-100%. B: 80-89%. C: 70-79%. D: 60-69%. E: 50-59%, FX: less than 50%. During the semester, students can get 8 points (first written work: 0-3 points, second written work: 0-3 points, 1 point for 100% attendance in lectures. At the end of semester: Exam. Final grade: achieved average.*	
Learning outcomes of the course unit: *The aim of the course is to unify knowledge in mathematics. Student completing the course will have knowledge about a range of number of mathematical functions. Students will learn and understand basic concepts, methods and algorithms in selected topics of arithmetic and mathematical analysis. Students will be able to apply the knowledge in solving practical problems from the differential calculus in applications in economic tasks.*	
Course contents: *1 Statements, sets, number sets N, Z, Q, R, K, propositional form, quantifiers, maximum, minimum, supremum and infimum range of numbers.* *2 The concept of sequence, the selected sequence. Limit of a sequence.* *3 Fundamental theorems on limit sequence, step-limit sequence.* *4 Function of one real variable, the function concept, methods to determine function. Elementary functions, polynomial, rational, power type, exponential and logarithmic functions, trigonometric and cyclometric function.* *5 Monotone function, periodic function. The odd and even functions. Operations with functions.* *6 Composite function, inverse function, increase of function.* *7 Definitions of limits of function, basic limit theorems on, and rules for calculating the limit function.* *8 Indirect limit function limit in deferend points -∞, ∞, one-sided limits of function.* *9 Continuity of a function, properties of continuous functions on a closed interval, asymptote of graph function.* *10 Derivation of the function. Geometrical meaning of the derivative function. Derivation rules to derive and derivative of elementary functions.* *11 Differential functions, derivatives of higher order. L'Hospital rules.* *12 The use of derivatives to examine the function during the function. Monotony, convexity and concavity features inflection point, maximumand minimum function.* *13 The course of function.*	
Recommended of required reading: *Hricišáková, D.: Matematika. TnUAD, Trenčín 2011* *Hricišáková, D. a kol.: Matematika I. TnUAD, Púchov 2001* *Hricišáková, D.: Podklady, príklady a testy na prijímacie pohovory na školský rok 2008/2009 z*	

ekonómie, ekonomiky, matematiky a cudzích jazykov. TnUAD, Trenčín 2007
Petrušová, D. – Rybičková, L.: Matematika II. Zbierka úloh. TnUAD, Trenčín 2011
http://elearning.tnuni.sk/course/view.php?id =20

Language: *Slovak*

Remarks:
Subject is offered in the winter semester of the first year of full-time studies and external studies. This course is mandatory. The number of students in a seminar group ranges from 20 to 25 students.

Evaluation history:
Total number of students being assessed: *690*

A	B	C	D	E	FX
3.62	2.17	12.9	4.35	57.54	19.42

Lectures: *doc. RNDr. Daniela Hricišáková, CSc., Ing. RNDr. Dagmar Petrušová, PhD., RNDr. Magdaléna Tomanová*

Last modification:

Supervisor: *doc. Mgr. Sergej Vojtovič, DrSc.*