Information sheet for Mathematics II

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Social and Economic Relations*	
Course unit code: *KEaE/lz12Pd/10*	**Course unit title:** *Mathematics II*
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 week. Full-time.*

Number of credits: *4*

Recommended semester: *2nd*

Degree of study: *I (Bachelor)*

Course prerequisites: *Mathematics I*

Assessment methods:
During the semester, there will be two written credit tests (min. 50%). Active participation in seminars will also be taken into account. 50% absence means that students are not allowed to take the test. 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 obtain 8 bonus points (first written assignment: 3 points, second written assignment: 3 points, 1 point for 100% attendance in lectures, 1 point for 100% active participation. At the end of semester: Exam. Final grade: achieved average.

Learning outcomes of the course unit:
After successful course completion, students will acquire knowledge of linear algebra, integral calculus and functions of n - variables (two variables). Students will be able to solve linear equations using matrices and determinants. Students will understand and be able to solve the tasks of integral calculus, thus calculate the area bounded by the curves and calculate the length of the curve.

Course contents:
1. Polynomials and algebraic equations.
2. The concept of the vector in the plane and in space. Linear combination of vectors, linear dependence and independence of vectors.
3. The concept of matrix, basic types of matrices, operations with matrices.
4. The rank of a matrix, inverse matrix.
5. The concept of determinant, properties determinant under 1, 2, and level 3. Calculating the determinant development by row or column.
6. The system of linear equations. Frobenius theorem. Solving systems of linear equations (Gauss elimination method, by solving the inverse matrix and Cramer's rule).
7. The notion of primitive functions, indefinite integral, basic formulas.
8. The integration by per partes, integration by the substitution method.
9. Definite integral, methods for calculating the definite integral.
10. Decomposition of rational functions in partial fractions. Solution vague and definite integrals of rational functions. Applications of the definite integral.
11. Function of n real variables (two variables). Limit, continuity nreálnych variables (two variables).
12. Partial functions and partial derivatives of functions of two variables.
13. Local extremes, extremes overall function of two variables.

Recommended / required reading:
Hricišáková, D.: Matematika. TnUAD, Trenčín 2011
Hricišáková, D.: Podklady, príklady a testy na prijímacie pohovory na školský rok 2008/2009 z ekonómie, ekonomiky, matematiky a cudzích jazykov (časť Matematika). TnUAD, FSEV, Trenčín 2007

Hricišáková, D. a kol.: Matematika I. TnUAD, Púchov 2001
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 summer semester of the first year of full-time study and part-time study. This course is mandatory. The number of students in a seminar group ranges from 20 to 25.

Evaluation history:
Total number of students being assessed: *514*

A	B	C	D	E	FX
3.31	3.7	13.81	6.81	52.14	20.23

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

Last modification:

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