

Information sheet for the course
Fundamentals of Numerical Mathematics and Statistics

University: Alexander Dubček University of Trenčín					
Faculty: Faculty of special technology					
Course unit code: ŠST/B/4-05/d			Course unit title: Fundamentals of Numerical Mathematics and Statistics		
Type of course unit: compulsory					
Planned types, learning activities and teaching methods: Lectures 2 hours per week / laboratory exercises 1 hour per week					
Number of credits: 4					
Recommended semester: 3 st semester in the 2 st year of study /full-time / 3 st semester in the 2 st year of study /part-time /					
Degree of study: I.					
Course prerequisites: none					
Assessment methods: 100% participation in exercises, fulfilling the objectives set exercises, min. 60% attendance at lectures, special credit písomiek and achieve at least 60% of the total score, demonstrate knowledge of subject content in written and oral examination.					
Learning outcomes of the course unit: The student will learn the basic concepts of probability theory and random variable. Based on this knowledge with the ability to independently process and analyze statistical files with emphasis on hypothesis testing. They will learn basic methods for the numerical solution of problems of mathematical analysis. Acquire skills in application software MATLAB, STATISTICA.					
Course contents: Random phenomena, phenomena algebra, probability definition. Basic properties of probability. Random variables, probability distribution of discrete and continuous random variables, distribution function. Random variables. Basic probability distributions of discrete random variables and continuous random variables. Shuffle - frequency distribution, selective characteristics. Processing shuffle. Statistical hypothesis. Multivariate statistical files. Linear and non-linear regression. Approximation of functions. Interpolation functions. Function approximation method of least squares. Approximate solution of nonlinear equations. Numerical calculation of definite integrals. Numerical solution of differential equations.					
Recommended of required reading: RIEČANOVÁ a kol.: Numerické metódy a matematická štatistika, ALFA Bratislava, 1987 BOŠJAK, Š. -MICHALKO, J.: Základy štatistiky. Skriptá, Trenčianska univerzita Alexandra Dubčeka, 2006, 185 s., ISBN 80-8075-125-0 KOVÁČIK, O.: Základy pravdepodobnosti a matematickej štatistiky, Žilinská univerzita, ES ŽU, 1996, 94 s., ISBN 80-7100-378-6 CHAJDIAK, J: Štatistické úlohy a ich riešenie v Exceli. - Bratislava: STATIS, 2005. - 262 s. ISBN 80-85659-39-5 BUŠA, J. - PIRIČ, V. - SCHROTER, Š.: Numerické metódy, pravdepodobnosť a matematická štatistika. Košice 2006, FEI TU Košice, 166 s. ISBN 80-8073-632-4					
Language: Slovak					
Remarks: The subject is provided in the winter semester of the second year of full-time study. Subject is required					
Evaluation history Total number of students being evaluated: 226					
A	B	C	D	E	FX
26,99	26,55	28,32	7,53	9,73	0,88
Lecturers: Assoc. Mgr. Daniela Hricišáková, PhD. - lecturer					

Ing. Lenka Rybičková, PhD. - lecturer, instructor

Last modification: 15.4.2014

Supervisor: *prof. Ing. Jiří Balla, CSc., guarantee of the study program “Special Mechanical Engineering Technology”.*