Information sheet for the course
Statistical Methods for Experiments

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *MI-I-P-11*	**Course unit title:** *Statistical Methods for Experiments*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *Lecture: 3 hours weekly/39 hours per semester of study; face to face* *Seminar:0* *Laboratory tutorial:0*	
Number of credits: *3*	
Recommended semester: *2nd semester in the 1st year full-time* *4th semester in the 2nd year part-time*	
Degree of study: *the 2nd degree of study (Engineer's degree)*	
Course prerequisites: *none*	
Assessment methods: *Lecturers*	
Learning outcomes of the course unit: *The students will acquire in-depth knowledge and practical skills in the planning and evaluation of experiments, computer analysis and processing of empirical data. The goal is to teach students to process and analyze experimental results.*	
Course contents: *Design of Experiments - principle and purpose. One-factorial experiments. Factorial, multifactorial experiments. Regression and covariance analysis. The use of statistical methods in processing experimental data - random variables, the model distribution, normal distribution and sampling distribution, interval estimation and weighted average. Errors static measurements - definition error, boundary errors of measuring instruments, the basic tasks of the theory of errors, error indirect method of measurement. The use of hypothesis testing in the processing of experimental results. Uncertainties direct and indirect measurements - standard uncertainty of type A, B, combined and expanded uncertainty estimate covariance matrix. Regression models, the principle of generalized least squares method, point and interval estimates of the regression model, the reliability of the band and tolerance band - their meaning and interpretation. Fitting of experimental data.*	
Recommended of required reading: *Ronald A. Fisher:The Design of Experiments (1935).* *Anděl, J.: Matematická statistika, Praha: SNTL, 1985.* *Török, Cs.: Úvod do teórie pravdepodobnosti a matematickej štatistiky. Košice: TU, 1991.* *Hines, W.W., Montgomery, D.C.: Probability and Statistics in Engineering and Management Science. John Wiley @ Sons, 1980.* *Bartko, R., Miller, M.: Matlab I. Digital Graphic, Trenčín.*	
Language: *Slovak*	

Remarks:					
Evaluation history:					
A	B	C	D	E	FX
Lecturers: *doc. RNDr. Ladislav Matejíčka, CSc.*					
Last modification: *31.03.2014*					
Supervisor: *prof. Ing. Darina Ondrušová, PhD.*					