The Technical University of Košice, Faculty of Mechanical Engineering

Course unit title:	**STATISTICAL DATA PROCESSING**
Course code:	**23005413**
Study programme:	**Automotive Production** **Mechanical Engineering**
Study period:	**2nd year, ST 2024/2025**
Faculty:	**Faculty of Mechanical Engineering**
Level of study:	**Bachelor**
Form of study:	**Full time**
Evaluation:	**Graded credit test**
Number of credits:	**2**
Guaranteeing department:	**DEPARTMENT OF APPLIED MATHEMATICS AND INFORMATICS**
Guarantor:	**prof. RNDr. Martin BAČA, CSc.**

Week	Lectures Number of hours: 2 per week	Tutorials Number of hours: 2 per week
1.	Combinatorics. Random events and random variables. The conditional probability. Total probability.	Combinatorics. Total probability.
2.	The random variable. Distribution function. Numerical characteristics of random variables.	The random variable. Distribution function. Numerical characteristics of random variables.
3.	Selected distributions of discrete random variables.	Selected distributions of discrete random variables.
4.	Selected distributions of continuous random variables.	Selected distributions of continuous random variables.
5.	Descriptive statistics - basic statistical concepts. Statistical classification. Numerical characteristics of the statistical file.	The determination of the number of classes. Numerical characteristics of the statistical file.
6.	Graphic representation of the statistical file. The theory of the estimation.	Graphic representation of the statistical file. The point and interval estimations of the parameters of the basic population.
7.	Testing of hypotheses. Basic terms of testing of hypotheses. One-sample hypothesis tests.	*Test.*
8.	Two-samples hypothesis tests. Tests of extreme values.	One-sample hypothesis tests.
9.	Tests of the good compliance (Pearson test, Kolmogorov test).	Two-samples hypothesis tests. Tests of extreme values.
10.	Tests of the good compliance (Kolmogorov-Smirnov test). Regression analysis. Linear regression.	Tests of the good compliance (Pearson test, Kolmogorov test).
11.	Nonlinear regression.	Tests of the good compliance (Kolmogorov-Smirnov test). Linear regression.
12.	Correlation analysis.	Nonlinear regression. Correlation analysis.
13.	Spearman's rank correlation coefficient. Multiple regression.	*Test.*

Recommended reading:

1. Hines, W.W., Montgomery, D.C.: Probability and Statistics in Engineering and Managenment Science, John Wiley & Sons, New York, 1990.
2. Knežo, D., Andrejiová, M., Ižaríková, G.: Základné štatistické metódy, TU, SjF, Košice, 2011 (in Slovak).
3. McClave, J.T., Benson, P.G.: Statistics for Business and Economics, Dellen Publ. Company, San Francisco, 1985.
4. Morrison, S.J.: Statistics for Engineers: an Introduction, Wiley, Chichester, 2009.

Evaluation:

EVALUATION

1st test:	**50 points**
2nd test:	**50 points**
Graded credit test:	**total points 100, required minimum 51**

The necessary condition for obtaining a course credit is to write down homework assignments.

Attendance of lectures and classes is compulsory.

Košice, 6th February, 2025

Signature of guarantee

You can find these information on webpage
http://www.sjf.tuke.sk/kamai/vyucba/predmety-v-letnom-semestri/sjf-ls