Information sheet for the course
Applied Informatics

University: *Alexander Dubček University of Trenčín*

Faculty: *Faculty of special technology*

Course unit code: *ŠST /B/1-22/d* | **Course unit title:** *Applied Informatics*

Type of course unit: *compulsory*

Planned types, learning activities and teaching methods:
2 hours of exercises per week

Number of credits: *2*

Recommended semester: *2st semester in the 1st year of study /full-time /*
3st semester in the 2st year of study /part-time /

Degree of study: *I. (bachelor)*

Course prerequisites: *MŠT(ŠST)/B/1-21/d Informatics*

Assessment methods:
Continuous assessment: 100% participation in exercises, meet the goals set exercises, correctly semester work, demonstrates knowledge of subject course in written examination.

Learning outcomes of the course unit:
The student obtained basic knowledge in the work with tools of MATLAB in computations, programming, modeling, simulation of kinematics and dynamics of mechanical systems.

Course contents:
A brief introductory overview of the overall work in MATLAB. Screenshots m-files. Overview of data types. Fields, structures, matrix. Scripts and functions. Programming m-files. Working with input and output files. Working with polynomials. Data visualization. Toolbox symbolic mathematics. Calculation of derivatives and integrals. Solving differential equations. Numerical linear algebra, eigenvectors, finding roots and introduction to optimization. The dynamics of mechanical systems. Animation and simulation. Calculations, modeling and simulation of specific mechanical systems.

Recommended of required reading:
KARBAN, P.: Výpočty a simulace v programech MATLAB a SIMULINK. Computer Press, 2006, 2007, ISBN 80-251-1301-9.
YAKIMENKO, O. A.: Engineering Computations and Modeling in MATLAB/SIMULINK. American Institute of Aeronautics and Astronautics, Reston, Virginia, 2011, ISBN 978-1-60086-781-1.
DUFFY, D. G.: Advance Engineering Mathematics with MATLAB. Chapman & Hall/CRC, NY, 2003, ISBN 1-58488-349-9.
BARTKO, R., MILLER, M.: MATLAB I. Algoritmizácia a riešenie úloh. Digital Graphics, Trenčín, 2000, ISBN 80-968337-3-1.
WILSON, H. B., TURCOTTE, L. H., HALPERN, D.: Advanced Mathematics and Mechanics Applications Using MATLAB, Chapman & Hall/CRC, NY, 2003, ISBN 1-58488-262-X.

Language: *Slovak*

Remarks:
Course is obliged.

Evaluation:
Total number of students being evaluated 119 divided by notes

A	B	C	D	E	FX
26,05	44,54	14,29	6,72	3,36	5,04

Lecturers: *Ing. Milan Jus, PhD.*

Last modification: *15.4.2014*

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