Information sheet for the course
Computer Modelling I (Adams, Marc)

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *PP-PV-6*	**Course unit title:** *Computer Modelling I (Adams, Marc)*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *Seminar: 2 hours weekly/26 hours per semester of study; face to face*	
Number of credits: *2*	
Recommended semester: *3rd semester in the 2nd year full-time* *3rd semester in the 2nd year part-time*	
Degree of study: *the 1st degree of study (Bachelor's degree)*	
Course prerequisites: *none*	
Assessment methods: *Creation of semester task. The final test.*	
Learning outcomes of the course unit: *The student is familiar with the basic theoretical knowledge analysis solutions and synthesis of bonded mechanical systems (BMS) and also with the principles of operation of the algorithm of the program, which solves the dynamics of a system of bodies MSC.ADAMS, where are the problems of design and optimization solved by virtual prototyping, which presenting the future product. Student is familiar with the working environment and the fundamental tools of the program MSC.ADAMS, demonstrations of analysis and synthesis of mechanisms with a combination of rigid and flexible bodies, in consideration of work resistance, contact forces, friction and control systems in various industrial applications.*	
Course contents: *Getting to know the environment of ADAMS / View program. Example for solution kinematics and dynamics of a fixed point. A falling stone, oblique throw. Instance for solving the dynamics of the body. Movement of the body on an inclined plane, pendulum. Instance of the inverse dynamic analysis. Methods of modeling in MSC.ADAMS. The robot - manipulator. Sensitivity analysis. The Design study method. Instance of gravity conveyor and orientation of cylindrical parts.*	
Recommended of required reading: *1. ORLANDEA, N., ChACE, M.A., CALAHAN, D.A. 1976: A Sparsity Oriented Approach to the Dynamic Analysis and Design of Mechanical Systems, 1976.* *2. WIELENGA, T.J. 2001. Analysis Methods and Model Representation in ADAMS, Mechanical Dynamics Inc. (MDI), 1987.* *3. PALČÁK, F. 1993. Teória mechanizmov. 2.vydanie, ES STU Bratislava, l993.* *4. PALČÁK, F. 2008 Mechanika viazaných mechanických systémov (VMS), Glossary, www.sjf.stuba.sk, Pracoviská > ATC for MSC.ADAMS > Mechanika VMS > Prednášky.* *5. DANKO, B., PALČÁK, F. 2008. Počítačová mechanika - Virtuálna simulácia mechanických sústav,TU vo Zvolene, ISBN 978-80-1956/5, 2008* *6. ERDMAN, A.G., SANDOR, G.N, KOTA, S. 2001. Mechanism Design, Analysis and synthesis, Prentice Hall, NJ 2001.8. Documentation for MD.ADAMS.*	

7. De Jallón, J. G., BAYO, E. 1994. Kinematic and Dynamic Simulation of Multibody Systems: The Real-Time Challenge, Springer-Verlag, New-York, 1994, ISBN 0-387-94096-0.
8. SCHIEHLEN, W. 1994. Symbolic Computations in Multibody Systems. In: Computer-Aided Analysis of Rigid and Flexible Mechanical Systems, M. F. O. S. Pereira and J. A. C. Ambrosio (eds.). Dordrecht: Kluwer Academic Publishers 1994, S. 101-136.
9. DEKÝŠ,V. – SÁGA, M. – ŽMINDÁK, M.2004. Dynamika a spoľahlivosť mechanických sústav, VTS pri ŽU v Žiline, 2004, ISBN 80-969165-2-1.
10. SÁGA, M. – VAVRO, J. – KOPECKÝ, M. 2003. Počítačová analýza a syntéza mechanických sústav, ZUSI Žiline, 2003, ISBN 80-968605-4-2.

Language: *Slovak*

Remarks:

Evaluation history:

A	B	C	D	E	FX

Lecturers: *doc. Ing. Jan Krmela, PhD., doc. Ing. Alžbeta Sapietová, PhD.*

Last modification: *31.03.2015*

Supervisor: *doc. Ing. Ján Vavro, PhD.*