

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

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>	
<b>Faculty:</b> <i>Faculty of Industrial Technologies in Púchov</i>	
<b>Course unit code:</b> <i>PP-PV-9</i>	<b>Course unit title:</b> <i>Computer Modelling II (Adams, Marc)</i>
<b>Type of course unit:</b> <i>compulsory</i>	
<b>Planned types, learning activities and teaching methods:</b> <i>Seminar: 2 hours weekly/26 hours per semester of study; face to face</i>	
<b>Number of credits:</b> <i>2</i>	
<b>Recommended semester:</b> <i>4<sup>th</sup> semester in the 2<sup>nd</sup> year full-time 4<sup>th</sup> semester in the 2<sup>nd</sup> year part-time</i>	
<b>Degree of study:</b> <i>the 1<sup>st</sup> degree of study (Bachelor's degree)</i>	
<b>Course prerequisites:</b> <i>PP-PV-6</i>	
<b>Assessment methods:</b> <i>Creation of semester task. The final test.</i>	
<b>Learning outcomes of the course unit:</b> <i>Following the subject Computational modeling I the student can solve various tasks in the program MSC.ADAMS and MCS.MARC.</i>	
<b>Course contents:</b> <i>Import of CAD files into the environment MSC.ADAMS. The gravity orienter. Optimization Methods: Design of Experiments and Design Optimization. Instance of conveyor and feeder of cylindrical parts. Modeling VP system bodies in the environment ADAMS / Flex. Instance of a robot - manipulator with flexible members. Entering. Program MCS.MARC – introduction, discretization, preprocessing, solution, postprocessing.</i>	
<b>Recommended of required reading:</b> <ol style="list-style-type: none"> <li>1. I. ORLANDEA, N., ChACE, M.A., CALAHAN, D.A. 1976: <i>A Sparsity Oriented Approach to the Dynamic Analysis and Design of Mechanical Systems</i>, 1976.</li> <li>2. WIELENGA, T.J. 2001. <i>Analysis Methods and Model Representation in ADAMS</i>, Mechanical Dynamics Inc. (MDI), 1987.</li> <li>3. PALČÁK, F. 1993. <i>Teória mechanizmov. 2.vydanie</i>, ES STU Bratislava, 1993.</li> <li>4. PALČÁK, F. 2008 <i>Mechanika viazaných mechanických systémov (VMS), Glossary</i>, <a href="http://www.sjf.stuba.sk">www.sjf.stuba.sk</a>, Pracoviská &gt; ATC for MSC.ADAMS &gt; Mechanika VMS &gt; Prednášky.</li> <li>5. DANKO, B., PALČÁK, F. 2008. <i>Počítačová mechanika - Virtuálna simulácia mechanických sústav</i>, TU vo Zvolene, ISBN 978-80-1956/5, 2008</li> <li>6. ERDMAN, A.G., SANDOR, G.N, KOTA, S. 2001. <i>Mechanism Design, Analysis and synthesis</i>, Prentice Hall, NJ 2001.</li> <li>7. De Jallón, J. G., BAYO, E. 1994. <i>Kinematic and Dynamic Simulation of Multibody Systems: The Real-Time Challenge</i>, Springer-Verlag, New-York, 1994, ISBN 0-387-94096-0.</li> <li>8. SCHIEHLEN, W. 1994. <i>Symbolic Computations in Multibody Systems</i>. In: <i>Computer-Aided Analysis of Rigid and Flexible Mechanical Systems</i>, M. F. O. S. Pereira and J. A. C. Ambrosio (eds.). Dordrecht: Kluwer Academic Publishers 1994, S. 101-136.</li> <li>9. DEKÝŠ, V. – SÁGA, M. – ŽMINDÁK, M. 2004. <i>Dynamika a spoľahlivosť mechanických sústav</i>, VTS pri ŽU v Žiline, 2004, ISBN 80-969165-2-1.</li> </ol>	

10. SÁGA, M. – VAVRO, J. – KOPECKÝ, M. 2003. *Počítačová analýza a syntéza mechanických sústav*, ZUSI Žilina, 2003, ISBN 80-968605-4-2.
11. BRÁT, V. 1981. *Maticové metódy v analýze a syntéze priestorových väzaných mechanických systémů*. Academia, Praha, 1981.
12. HAUG, E. J. 1989. *Computer-Aided Kinematics and Dynamics of Mechanical Systems, Volume I: Basic Methods*, Allyn and Bacon, 1989.
13. SEGLA, Š.- CIUPITU, L.-REICH, S. 2006. *Optimization of a spring balancing mechanism for parallelogram robot mechanisms*. *Journal of Mechanisms and Manipulators*. Vol. 5, Nr. 2, 2006, pp.43-48

**Language:** Slovak

**Remarks:**

**Evaluation history:**

A	B	C	D	E	FX

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

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