

**Information sheet for the course**  
**Selected Chapters from Computer Modelling of Solid Body Systems**

<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>MI-I-PV-47</i>	<b>Course unit title:</b> <i>Selected Chapters from Computer Modelling of Solid Body Systems</i>
<b>Type of course unit:</b> <i>optional</i>	
<b>Planned types, learning activities and teaching methods:</b> <i>Teaching method:</i> - <i>face to face method.</i>  <i>This subject represents one of the subjects relating to the final state exam.</i>	
<b>Number of credits:</b> <i>2</i>	
<b>Recommended semester:</b> <i>the 4<sup>th</sup> semester in the 2<sup>nd</sup> year of the full-time form of study,</i> <i>the 6<sup>th</sup> semester in the 3<sup>rd</sup> year of the part-time form of study.</i>	
<b>Degree of study:</b> <i>the 2<sup>nd</sup> degree of study (Engineering degree)</i>	
<b>Course prerequisites:</b> <i>accomplishment of all compulsory as well as optional subjects with the reference to the given study programme and the study field involving MI-I-PV-11F (Computer Modelling of Solid Body Systems I).</i>	
<b>Assessment methods:</b> <i>Student is obliged to be present at the lessons with the reference to specifications introduced in the study rules for the given study programme. He/she is also obliged to solve all predetermined tasks leading to successful accomplishment of the given subject because this subject is one of the other subjects which are closely connected with successful accomplishment of the final state exam.</i>	
<b>Learning outcomes of the course unit:</b> <i>Student is able to solve the specific tasks using basic or fundamental principles relating to knowledge on computer modelling of solid body systems. Furthermore, student increases his/her chance to accomplish the final state exam.</i>	
<b>Course contents:</b> <i>Structural analysis of the mechanical systems. Analytical kinematics. Kinematics of the point and solid body in the matrix formulation. Fundamental or basic kinds of motion. Kinematic analysis of linked mechanical systems with the lower pairs. Analysis of the position, velocity or speed and acceleration. Kinematic analysis of robots and manipulators. Analytical statics. Principle of the virtual models. Static analysis of the solid body systems. Dynamic analysis of the solid body systems. Dynamic analysis of the mechanism with the elastic constituent parts. Plane motion of elastic beam constituent part. Elastic model of four axes articulated mechanism. The software systems including Working model 3-D, Adams and Solid Works and their application for kinematic and dynamic analysis of solid body systems.</i>	
<b>Recommended or required literature:</b> <ol style="list-style-type: none"> <li>1. <i>Haug, E.J. : Computer Aided Kinematics and Dynamics, Vol. I: Basic Methods, Allyn &amp; Baycon 1989.</i></li> <li>2. <i>Brát, V.: : Maticové metódy v analýze a syntéze prostorových väzaných mechanických systémů, Academia Praha, 1981.</i></li> <li>3. <i>Stejskal, V.: Kinematics and Dynamics of Machinery, Marcel Dekker, New York, 1996.</i></li> <li>4. <i>Vavro, J., Kopecký, M., Vavro, J., Jr.: Nové prostriedky a metódy riešenia sústav telies III, TnUAD Trenčín 2007, ISBN 978-80-8075-256-9.</i></li> <li>5. <i>Sága, M. - Vavro, J. - Kopecký, M.: Počítačová analýza a syntéza mechanických sústav. 1.vyd. ZUSI Žilina 2002. ISBN 80-968605-4-2, str. 300.</i></li> </ol>	
<b>Language:</b> <i>Slovak</i>	
<b>Remarks:</b> —	
<b>Evaluation history:</b> <i>/Grading system/</i>	

A	B	C	D	E	FX
<i>Excellent</i>	<i>Laudable</i>	<i>Good</i>	<i>Accepted results</i>	<i>Pass</i>	<i>Fail</i>
<b>Lecturers:</b> <i>prof. Ing. Ján Vavro, PhD.</i>					
<b>Last modification:</b> <i>31.03.2014</i>					
<b>Supervisor:</b> <i>prof. Ing. Darina Ondrušová, PhD.</i>					