

Information sheet for the course Applied mechanics

University: <i>Alexander Dubček University of Trenčín</i>					
Faculty: <i>Faculty of special technology</i>					
Course unit code: <i>ŠST/I/4-23/d</i>			Course unit title: <i>Applied mechanics</i>		
Type of course unit: <i>compulsory</i>					
Planned types, learning activities and teaching methods: <i>1 hour and 1 hour seminars per week face to face</i>					
Number of credits: <i>2</i>					
Recommended semester: <i>1st semester in the 1st year (full-time)</i> <i>1st semester in the 1st year (part-time)</i>					
Degree of study: <i>II. (engineer)</i>					
Course prerequisites: <i>none</i>					
Assessment methods: <i>100 % attendance - seminars, fulfillment of laboratory exercises goals, 60 % attendance - lectures, correctly elaborated semestral thesis, , proving the knowledge of subject content in written and oral examination.</i>					
Learning outcomes of the course unit: <i>Student can analyze factual knowledge, gives comprehensive overview of spatial bounded mechanisms, possible solutions direct and indirect roles of kinematics and dynamics, as well as methods for solving endpoint trajectory planning.</i>					
Course contents: <i>Definition of basic movements of bounded mechanical bodies and their systems. Description of kinematics and dynamics of these subsystems. Robotic mechanical systems. General structure of serial manipulator. Fundamentals of rigid bodies mechanics. Kinematic pairs. Direct and inverse kinematics of serial manipulator with 6 degrees of freedom. Static and dynamic analysis of a serial manipulator. Kinematic and dynamic analysis of complex robotic mechanical systems. Solutions of relative movement of bodies by associated kinematic pairs - generally in mechanisms.</i>					
Recommended of required reading: <i>BRÁT, V.: Maticové metody v analýze a syntéze prostorových vázaných mechanických systémů, Académia, Praha 1981.</i> <i>STEJSKAL, V., VALÁŠEK, M.: Kinematics and dynamics of machinery. Marcel Dekker, Inc. New York 1996.</i> <i>HARRISON, H. R., NETTLETON: Advanced Engineering Dynamics. Arnold London 1997.</i> <i>BRÁT, V.: Příručka kinematiky s příklady. SNTL/ALFA Praha 1976.</i>					
Language: <i>Slovak</i>					
Remarks: <i>Compulsory subject, taught in 1st year of full-time study in winter semester.</i>					
Evaluation history: <i>Total number of students being evaluated: 229</i>					
A	B	C	D	E	FX
27,51	30,13	22,71	11,79	7,42	0,44
Lecturers: <i>prof. Ing. Ján Vavro, PhD. - lecturer</i> <i>doc. Ing. Oto Barborák, CSc. - lecturer</i> <i>Ing. Lenka Bartošová, PhD.- assistant instructor</i>					
Last modification: <i>15.4.2014</i>					
Supervisor: <i>prof. Ing. Jiří Balla, CSc., guarantee of the study program "Special Mechanical Engineering Technology".</i>					