

## Information sheet for the course Control Systems for Motor Vehicles

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>					
<b>Faculty:</b> <i>Faculty of special technology</i>					
<b>Course unit code:</b> <i>SaOA/B/2-26/d</i>			<b>Course unit title:</b> <i>Control Systems for Motor Vehicles</i>		
<b>Type of course unit:</b> <i>compulsory</i>					
<b>Planned types, learning activities and teaching methods:</b> <i>2 hours lectures per week, one hour per week laboratory exercises, attendance method</i>					
<b>Number of credits:</b> <i>3</i>					
<b>Recommended semester:</b> <i>6<sup>th</sup> semester in the 3<sup>rd</sup> year (full-time)</i> <i>6<sup>th</sup> semester in the 3<sup>rd</sup> year (part-time)</i>					
<b>Degree of study:</b> <i>I. (bachelor)</i>					
<b>Course prerequisites:</b> <i>none</i>					
<b>Assessment methods:</b> <i>Continuous assessment: 100% attendance and active creative work on laboratory exercises, the attainment of goals laboratory practice, mastery of technical terminology, min. 60% attendance at lectures, semester work properly. Twice during the semester written test. The ongoing evaluation is needed to get 40 points.</i> <i>Final assessment: test in a written test with emphasis on theoretical knowledge of the subject and the support of the oral response, which is verified mastery of selected software products. Of the 80 points is required to evaluate the minimum obtained: (E) - 55 points, (D) - 60 points (C) - 65 points (B) - 70 points (A) - 75 points.</i>					
<b>Learning outcomes of the course unit:</b> <i>The student will acquire a basic overview of the functionality of software tools for the design, testing and analysis of networks of cars, principles of business communication buses. Handle the user a way to work with selected types of software tools for monitoring, design, testing and diagnosis components of networks.</i>					
<b>Course contents:</b> <i>Networked vehicle systems, characteristics and classification of communication buses LIN, FlexRay, CAN and MOST. Introduction to the higher layer protocols used in vehicles CANopen CCP (CAN Calibration Protocol), DeviceNet, ISO 9141 (K-line), J, 1939, KWP 2000 XCP. Software tools for monitoring the operation of the vehicle. Principles of embedded systems. Graphical programming languages for design features controllers. The typical structure of the selected vehicle control units, input and output variables. Principles updating of software, control units of vehicles. Tools for monitoring and analyzing controllers cars. Online and off-line analysis. Stimulation and simulation of networks of cars. Modelling of networks. Universal tool for performing automated and reproducible testing of networks. Creating reports on the conduct of the tests.</i>					
<b>Recommended of required reading:</b> <i><a href="http://www.vector.com/vi_canoe_en.html">www.vector.com/vi_canoe_en.html</a></i> <i><a href="http://www.vector.com/vi_canoe_j1939_en.html">www.vector.com/vi_canoe_j1939_en.html</a></i> <i><a href="http://www.canopen-solutions.com/canopen_index_en.html">www.canopen-solutions.com/canopen_index_en.html</a></i> <i><a href="http://www.cancapture.com/cancapture.html">www.cancapture.com/cancapture.html</a></i> <i><a href="http://www.matrixmultimedia.com/flowcode.php">www.matrixmultimedia.com/flowcode.php</a></i> <i><a href="https://vector.com/vi_training_elearning_en.html">https://vector.com/vi_training_elearning_en.html</a></i>					
<b>Language:</b> <i>Slovak</i>					
<b>Remarks:</b> <i>Subject is required</i>					
<b>Evaluation history</b> <i>Total number of students being evaluated: 0</i>					
A	B	C	D	E	FX

<b>Lecturer:</b> <i>assoc. prof. Ing. Viliam Cibulka, CSc.</i>
<b>Last modification:</b> <i>15.4.2014</i>
<b>Supervisor:</b> <i>prof. Ing. Alexej Chovanec, PhD., guarantee of the study program „Vehicles Maintenance and Repair“</i>