

Information sheet for the course Dependability of machines and equipment

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of special technology</i>	
Course unit code: <i>ŠST/I/2-20/d</i>	Course unit title: <i>Dependability of machines and equipment</i>
Type of course unit: <i>compulsory</i>	
Planned types, learning activities and teaching methods: <i>2 hours of lectures per week, 2 hours of exercise per week face to face</i>	
Number of credits: <i>5</i>	
Recommended semester: <i>2nd semester in the 1st year (full-time)</i> <i>2nd semester in the 1st year (part-time)</i>	
Degree of study: <i>II. (engineer)</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>100% participation in laboratory exercises, fulfilling the tasks of laboratory exercises, min. 80% attendance at lectures, properly Term paper, demonstrates knowledge of subject content in written and oral examination.</i>	
Learning outcomes of the course unit: <i>The student has knowledge of cross-department focusing on application usage at a level corresponding to the current state of knowledge, a review of the dependability analysis, the theoretical foundations of renewed confidence and expentable system. They will learn the methodology selected application of stochastic and deterministic analysis. They will learn the method of determining and assessing the dependability of the technique of partial properties, processing and use information about dependability use of technology. Be familiar with the requirements of standards for reliability, maintainability and assurance of maintenance, methods of technical and economic assessment of the level of dependability.</i>	
Course contents: <i>Purpose and use of analysis of dependability throughout the life cycle. Specification requirements for dependability, utilization analysis dependability. Theoretical Foundations of dependability. Expression of object structure and application of probability theory and mathematical statistics. Properties monitored variables and indicators of dependability. Reliability and indicators expentable and restored system. Characteristics maintainability, reparability, diagnostics, security maintenance, availability, durability and shelf life. Types of approaches and dependability analysis. Selected methods of analysis of dependability. Calculation of disorders of the data (PC). Truth table. The inspection method. Reliability Block Diagram (RBD - Reliability Block Diagram). Critical sections and successful journey. Fault tree (FTA - Fault Tree Analysis), event tree (ETA) analyses causes and consequences of failure of FMEA, FMECA, interference theory of reliability, cost optimization, simulation analysis methods dependability.</i>	
Recommended of required reading: <i>E- learning TNUNI AD v Trenčíne</i> <i>HOLUB R., VINTR.Z.: Spolehlivost letadlové techniky, Elektronická učebnice, Brno, VUT Brno 2001.</i> <i>CHOVANEC, Alexej.: Simulačné modelovanie procesov zabezpečenia spoľahlivosti špeciálnej techniky. Trenčianska univerzita A. Dubčeka v Trenčíne. 2006. 100s. ISBN 80-8075-147-1</i> <i>LIPTÁK, P., STODOLA, J.: Spoľahlivosť strojov a zariadení určených pre špeciálnu techniku. TUAD Trenčín, 2009. ISBN 978-80-8075-418-1</i> <i>Slovenské obranne štandardy</i>	
Language: <i>Slovak</i>	
Remarks: <i>Compulsory course</i>	

Evaluation history:*Total number of students being evaluated:*

A	B	C	D	E	FX
0	0	0	0	0	0

Lecturers: *prof. Ing. Alexej Chovanec, CSc.*
*Ing. Alena Breznická, PhD.***Last modification:** *15.4.2014***Supervisor:** *prof. Ing. Jiří Balla, CSc., the guarantee of the “Special Mechanical Engineering Technology“*