

Information sheet for the course Degradation Processes and Prediction of Life

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>Faculty of Industrial Technologies in Púchov</i>	
Course unit code: <i>MI-I-PV-12A</i>	Course unit title: <i>Degradation Processes and Prediction of Life</i>
Type of course unit: <i>optional</i>	
Planned types, learning activities and teaching methods: <i>Lecture: 2 hours weekly/26 hours per semester of study; face to face</i> <i>Seminar: 1 hour weekly/13 hours per semester of study; face to face</i> <i>Laboratory tutorial: 0</i>	
Number of credits: <i>4</i>	
Recommended semester: <i>3rd semester in the 2nd year full-time</i> <i>3rd semester in the 2nd year part-time</i>	
Degree of study <i>the 2nd degree of study (Engineer's degree)</i>	
Course prerequisites: <i>none</i>	
Assessment methods: <i>Individual report – Presentation of a particular degradation process on a selected technical object (TO), test</i>	
Learning outcomes of the course unit: <i>Students are able to use the gained knowledge in dealing with specific issues in the field; students can deal with real tasks in practice by applying research and development procedures.</i> <i>Students can deal with issues related with reduction of utility properties of materials, overloading, fatigue, creep or combination of internal and external effects. Application of linear and nonlinear fracture mechanics in practice. Strain-corrosion rupture.</i>	
Course contents: <i>Definition of limit states in technical objects. Degradation processes and their fundamentals. Microplastic and macroplastic deformation. Brittle and ductile fractures. Use of fractography in predicting failure of metallic materials. Fracture caused by creep, impact loading, thermostrain shock waves. Strain-induced corrosion rupture. Delayed and premature fracture. Mechanical fatigue. Thermomechanical fatigue. Creep of material. Degradation induced by intercrystalline corrosion. Degradation by liquid metal, welds, weldings. Radiation degradation. Degradation induced by energy fields. Wear induced by abrasion, adhesion, erosion, cavitation, vibration, corrosion and other effects. Specific degradation processes.</i>	
Recommended references and resources: <i>1. Pluhař, J. - Puškár, A. - Koutský, J.: Fyzikální metalurgie a mezní stavy materiálů, SNTL Praha, 1987.</i> <i>2. Puškár, A.: Medzné stavy materiálov a súčastí. VEDA Bratislava, 1989.</i>	
Language: <i>Slovak</i>	
Remarks: <i>none</i>	

Evaluation history: <i>Total number of classified students : 30</i>					
A	B	C	D	E	FX
16.67	26.67	33.33	6.67	16.67	0.0
Vyučujúci: <i>prof. Ing. Františka Pešlová, PhD.</i>					
Dátum poslednej zmeny: <i>31.03.2014</i>					
Schválil: <i>prof. Ing. Darina Ondrušová, PhD.</i>					