

## Information sheet for the course Experimental Methods in Material Engineering II

<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>PP-P-20</i>			<b>Course unit title:</b> <i>Experimental Methods in Material Engineering II</i>		
<b>Type of course unit:</b> <i>compulsory</i>					
<b>Planned types, learning activities and teaching methods:</b>  <i>Lecture: 2 hours weekly/26 hours per semester of study; face to face</i> <i>Seminar: 0</i> <i>Laboratory tutorial: 2 hours weekly/26 hours per semester of study; face to face</i>					
<b>Number of credits:</b> <i>4</i>					
<b>Recommended semester</b> <i>the 3<sup>rd</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 1<sup>st</sup> degree of study (Bachelor's degree)</i>					
<b>Course prerequisites:</b> <i>PP-P-11 Experimental methods in material engineering I</i>					
<b>Assessment methods:</b> <i>Student must elaborate semestral work and present it during semester. There will be one test on the end semester. Active presence on the laboratory tutorials.</i>					
<b>Learning outcomes of the course unit:</b> <i>The student knows the basic principles of selected experimental methods used for testing the properties of materials and the detection of defects in materials and products.</i>					
<b>Course contents:</b> <i>Optical instruments, common optical defects in lens systems, optical microscopy, optical resolution. Principles of electron, tunnelling and atomic force microscopy. Testing of material properties using microscopic methods. Fault diagnosis of materials using microscopic methods. Interference and diffraction of light. Applications interference and diffraction of light in the diagnosis of materials. Physical principles of holography, recording and reconstruction of holograms, types of holograms. Applications of holography in the diagnosis of disorders of materials, vibration and thermal fields.</i>					
<b>Recommended of required reading:</b> <i>Urgela, S.: Holografická interferometria pri nedeštruktívnom testovaní dosák. MATCENTRUM, Zvolen 1999.</i> <i>Vejbor, P. – Zapletálek, P.: Holografická interferometria realizovaná pomocou CCD kamery a výpočtovej techniky. JMO č.1,1996.</i> <i>Balaš, J. – Szabó, V.: Holografická interferometria v experimentálnej mechanike. Bratislava, Veda 1986.</i> <i>Manuál AFM</i> <i>Manuál REM</i>					
<b>Language:</b> <i>Slovak</i>					
<b>Remarks:</b>					
<b>Evaluation history:</b> <i>0</i>					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

<b>Lecturers:</b> <i>doc. Ing. Marta Kianicová, PhD., Ing. Dana Bakošová, PhD., Ing. Rudolf Valášek</i>
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<b>Last modification:</b> <i>31.03.2015</i>
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<b>Supervisor:</b> <i>doc. Ing. Ján Vavro, PhD.</i>
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