Information sheet for the course
Material Diagnostics

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *MI-I-PV-1A*	**Course unit title:** *Material Diagnostics*
Type of course unit: *optional*	
Planned types, learning activities and teaching methods: *Lecture: 2 hours weekly/26 hours per semester of study; face to face* *Seminar: 2 hours weekly/26 hours per semester of study; face to face* *Laboratory tutorial: 0*	
Number of credits: 6	
Recommended semester the 2nd semester in the 1st year of the full-time form of study the 2nd semester in the 1st year of the part-time form of study	
Degree of study: *the 2nd degree of study (Engineer's degree)*	
Course prerequisites: *none*	
Assessment methods: *Student must elaborate semestral work. There will be one test on the end semester. Active presence on the seminars.*	
Learning outcomes of the course unit: *The student knows the physical laws and principles of experimental methods of diagnosis and non-destructive materials. Can be used and applied in determining the properties of materials and identifying defects in materials or articles and in the possibility of material failures in service.*	
Course contents: *Ultrasonic testing, magnetic defectoscopy, acoustic defectoscopy, radiographic testing.* *Atomic force microscopy, Electron microscopy, Scanning tunnelling microscopy.* *Thermal analysis, infrared flaw detection, infrared thermography, pyrometers, dilatometers.* *The principle of measurement of complex modulus, dynamic mechanical analysis.* *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. Potentiometric defectoscopy. Electromagnetic defectoscopy. Capillary defectoscopy. Densitometry.*	
Recommended of required reading: *Balog, J., Chovanec, A.: Technická diagnostika. .vyd . Trenčín : TnUAD, 2003. - 115 s., ISBN 80-88914-66-3.* *Piteľ, J. :Meranie a diagnostika. 1. vyd. Prešov: FVT TU Košice, 2008.* *Koštial, P. a kol.: Využitie ultrazvukových vĺn pri štúdiu povrchov a rozhraní, ŽU Žilina 1998.*	
Language: *Slovak*	
Remarks:	
Evaluation history: *42*	

A	B	C	D	E	FX
57.14	14.29	26.19	2.38	0.0	0.0

Lecturers: *doc. RNDr. Ján Bezecný, CSc., Ing. Dana Bakošová, PhD.*
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Supervisor: *prof. Ing. Darina Ondrušová, PhD.*