Information sheet for the course
Experimental Methods of Material Characteristics

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *MI-I-P-4*	**Course unit title:** *Experimental Methods of Material Characteristics*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *Lecture: 2 hours weekly/26 hours per semester of study; face to face* *Seminar: -* *Laboratory tutorial: 3 hours weekly/39 hours per semester of study; face to face*	
Number of credits: *6*	
Recommended semester: *1st semester in the 1st year full-time* *3rd semester in the 2nd year part-time*	
Degree of study: *the 2nd degree of study (Engineer's degree)*	
Course prerequisites: *none*	
Assessment methods: *project development*	
Learning outcomes of the course unit: *The student has acquired knowledge and skills in the field of use of construction materials in industrial practice, the relationship between material characteristics and utility properties. The student is able to experimentally determine material characteristics of construction materials and knows selected degradation processes and materials rupture.*	
Course contents: *1. Construction materials and material characteristics.* *2. The limit state of the material.* *3. Tests of mechanical properties - static tests.* *4. Tests of mechanical properties - dynamic tests.* *5. Methods for determining the chemical composition.* *6. Physical methods for the determination of chemical composition (spectroscopic methods, EDX, EDS, XRD, GDS, EBSD).* *7. Macroscopic evaluation of structural defects.* *8. Evaluation of structural characteristics of materials using optical and electron microscopy.* *9. Rupture of materials by overload.* *10. Dilatometer tests.* *11. The basic test of wear.* *12. Evaluation of degradation processes in materials.* *13. Evaluation of quality welds.*	
Recommended of required reading: *Puškár, A. : Medzné stavy materiálov a súčastí. VEDA Bratislava,1989.* *Veles, P.: Mechanické vlastnosti a skúšanie kovov, Alfa, Bratislava, 1989.* *Jandoš, F.,Říman, R.,Gemperle, A.: Využití moderních laboratorních metod v metalografii. SNTL. Praha. 1985*	

Hrivňák, I. : Elektrónová mikroskópia ocelí. VEDA Bratislava,1986.
Martinkovič, M., Hudáková, M., Moravčík, R.: Náuka o materiáloch II - Návody na cvičenia. STU Bratislava 2001.
Konečná, R., Tillová, E, Šupík, V., Skočovský, P.: Návody na cvičenia z Náuky o materiáli II. ŽU EDIS Žilina. 2001.
Bezecný, J. : Vznik trhlín a lomov pri tepelnom spracovaní ocelí. TnU AD. Trenčín 2007.

Language: *Slovak*

Remarks:

Evaluation history:

A	B	C	D	E	FX
5.06	7.59	21.52	26.58	24.18	5.06

Lecturers: *doc. RNDr. Ján Bezecný, CSc.*

Last modification: *31.03.2014*

Supervisor: *prof. Ing. Darina Ondrušová, PhD.*