Information sheet for the course
Testing of material properties

University: *Alexander Dubček University of Trenčín*

Faculty: *Faculty of special technology*

Course unit code: *STaM/D/3-16/e* | **Course unit title:** *Testing of material properties*

Type of course unit: *compulsory*

Planned types, learning activities and teaching methods:
Lectures 2 hours per week, part-time method

Number of credits: *5*

Recommended semester: *1st semester in the 1st year*

Degree of study: *III.*

Course prerequisites: *none*

Assessment methods:
100% attendance on seminars, 60 % attendance on lectures, successful submission of the seminar paper, proof of acquired knowledge from the subject with using oral and written examination

Learning outcomes of the course unit:
The student will understand the methods and procedures that are used in the art for evaluating the performance of the materials and their importance for metallic and non-metallic, homogeneous and heterogeneous materials with potential application in science and research.

Course contents:
Disorders internal structure of materials and their impact on the real material properties. The internal structure of cast materials. The effect of phase transformations to modify the properties of construction materials. Effect of thermal, chemical-thermal and thermo-mechanical treatment on the properties of steel, cast iron and non-ferrous metals. Polymer and composite materials. Methods of examination of structures and phase transformations - light and electron microscopy, X-ray analysis. Evaluation of material properties using a static, shock and dynamic tests. Evaluation of material properties at elevated temperatures. Specific requirements for the assessment of performance materials for special equipment.

Recommended of required reading:
HÍREŠ, O.: Fyzikálna metalurgia ocelí a ich tepelné spracovanie. TnUAD v Trenčíne, 2006, 168 s.
MONOŠI, M. - VÁRKOLY, L.: Degradačné únavové procesy konštrukčných materiálov. RVS FŠI Žilina, 1999
SKOČOVSKÝ, P. a kol.: Náuka o materiáloch pre odbory strojnícke. EDIS Žilina, 2001
PTÁČEK, L. a kol.: Náuka o materiálu II. CERM Brno, 2002, 390 s.

Language: *Slovak*

Remarks:

Evaluation history
Total number of students being evaluated:

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

Lecturers: *Assoc. prof. Ing. Vojtěch Hrubý, CSc.*

Last modification: *15.4.2014*

Supervisor: *prof. Ing. Vojtěch Hrubý, CSc., guarantee of the study program "Technologies and Materials in Mechanical Engineering", Assoc. prof. Ing. Ondrej Híreš, CSc., Assoc. prof. Ing. Viliam Cibulka, CSc. – together-guarantors.*