UNIVERSITY OF PANNONIA

SUBJECT DATASHEET

Semester:	2010/11/1
Subject:	Properties of Structural Materials Laboratory Practice
Code:	VEMKSI3133B
Responsible department:	Institute of Materials Engineering
Responsible department code:	MKSI
Responsible lecturer:	dr. Tamás Korim

Educational objectives:

Practical application of knowledge gained in course „Properties of Structural Materials"

Detailed content of the subject:

Ultrasonic investigation of structural materials; Investigation of the surface area of powders by Blaine's method; Investigation of the compaction methods of powders (axial pressing, isostatic pressing, dye-casting): comparison of the physical properties of green and fired samples (strength, density, porosity); Investigation of microstructure by scanning electron microscopy; Measurement of thermal conductivity of various products (Bock's apparatus); Measurement of thermal dilatation (dilatometry); Invastigation of the corrosion behaviour of amorphous substances by dissolution in aggressive media; Investigation of the wear resistance of surface coatings and of structural materials by measuring colour coordinates; Rheological investigation of suspensions; Investigation of the frost resistance of samples by Powers' method; Measurement of the softening temperature of vitreous materials; Invstigation of chemical resistance of structural materials by X-ray diffraction and electron microscopy; Qualitative and quantitative investigation of raw materials by thermal methods,

Requirements:

Attendance of laboratory practices

Required and suggested references:

Laboratóriumi segédlet (tanszéki kiadvány) V. B. John: Introduction to Engineering Materials, 3rd Ed., Macmillan, London, 1992 W. F. Smith: Foundation of Materials Science and Engineering, 2nd Ed., McGraw-Hill, New York, 1993 R. A. Flinn and P. K. Trojan: Engineering Materials and Their Applications, 4th Ed., Houghton Mifflin, Boston, 1990 Tamás F.: Szilikátipari kézikönyv (Silicate Industrial Handbook), Műszaki Könyvkiadó, Budapest, 1982 C. Kittel: Bevezetés a szilárdtest-fizikába (Introduction to Solid State Physics), Budapest, 1966 Somodi Zs., Pálffy A. és Kámory L.: Finomkerámiai technológia (Fine Ceramics Technology), Műszaki Könyvkiadó, Budapest, 1984 F. Singer, S. Singer: Ind. Keramik, Springer-Verlag, Berlin/Heidelberg/New York, 1969 Tamás F.: Szilikátipari laboratóriumi vizsgálatok (Silicate Industrial Laboratory Investigations), Műszaki Könyvkiadó, Budapest, 1970