UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2015/16/1
Course:	Technology of Nonmetallic Structural Materials Laboratory Practice
Code:	VEMKSIB433T
Responsible department:	Institute of Materials Engineering
Department code:	MKSI
Responsible instructor:	dr. Tamás Korim

Course objectives:

Demonstrate quality assurance methodologies and measurement technique of the silicate industries

Course content:

The effect of comminution (crushing, grinding) on particle size distribution; determination of particle size distribution by different
methods; Investigation of plastic
ceramic raw materials: plasticity (by Pfefferkorn's method or by using a plastometer), shaping characteristics (potter's wheel, pressing, casting ✹ electrolyte sensitivity;
Effect of heat treatment on the physical properties of clay-based products
Drying: shrinkage, sensitivity, kinetics of drying
Firing: shrinkage, water uptake, bulk weight, porosity;
Thermal dilatation; body/glaze
match;
Strength determination
Destructive (compressive strength, flexural strength)
Non-destructive (microhardness, ultrasonics)
Thermal conductvity;
Setting, hardening, soundness of cementitious materials;
Colour of silicate products: colouring agents, colour measurement systems,
Characteristic points of viscosity vs. temperature plots in glasses (Littleton's point, dilatation Tg).

Requirements, evaluation and grading:

Evaluation of the laboratory practice: the final mark is the weighted mean value of the marks received for the practical tasks, the papers written each week and the final paper written at the end of the semester. It is strictly required that the paper written at the end of the semester and 50% of the practical tasks and the weekly papers are at least grade 2.

Required and recommended readings:

Tamás F.: Szilikátipari kézikönyv

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Required and recommended readings:

Riesz L.: Cement- és mészgyártási kézikönyv
Kakassy Gy. et al.: Durvakerámiaipari technológia
Somodi Zs. et al.: Finomkerámiai technológia
Singer: Keramik 1-2
Klingsberg: Physics and Chemistry of Ceramics
Déri Márta: Szilikátkémiai technológia, VE jegyzet
Knapp O. - Korányi Gy.: Üvegipari kézikönyv
Rawson: Properties and Applications of Glass
Uhlmann: Glass. Science and Technology