UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2014/15/1
Course:	Nonmetalic-inorganic structural materials laboratory practice
Code:	VEMKSIB136S
Responsible department:	Institute of Materials Engineering
Department code:	MKSI
Responsible instructor:	dr. Margit Enisznè Bódogh

Course objectives:

Production of glazed ceramics with semi-plant scale equipments in laboratory, qualification the obtained ceramic using the before learned measuring techniques

Course content:

Particle size distribution measurement of ceramic raw materials crushed by jaw breaker Particle size distribution measurement of ceramic raw materials ground by pan grinder Particle size distribution measurement of ceramic raw materials powdered by ball mill Production of glazed ceramic wares in laboratory: Enrichment of clay mineral content of ceramic raw materials by hydrocyclone Determination of particle size distribution and mineral content of the obtained fractions Vacuum pressing of the filter pressed material Shaping of the plastic body by hand Investigation of physical properties of dried specimens. Phase composition, porosity and strength measuring of the heat treated samples Calculation of the glaze batch composition, preparing the glaze batch, production of glazes (melting, fritting, grinding and glazing) Qualification of the produced glaze: investigation of thermal expansion of glaze and ceramic body, chemical resistivity of glaze, color measurement Qualification of glaze surface, glaze faults and body/glaze interface by optical microscope Shaping of oxide ceramics by cold isostatic pressing Investigation of morphology and strength of samples fired at different temperatures Color measurement and qualification of the surface of enameled wares before and after acid treatment and alkaline wash Preparing of concrete specimens and measuring of their strength

Requirements, evaluation and grading:

Compulsory attendance – making reports of each experiment, passing final test with a score of 2 or above

Required and recommended readings:

Tamás F.: Szilikátipari kézikönyv, Műszaki Könyvkiadó, Bp. 1982 Somodi Zs., Pálffi A., Kámori L.: Finomkerámiaipari technológia, Műszaki Könyvkiadó, Bp. 1984 Singer, F., Singer, S. S.: Ind. Keramik, Springer-Verlag, Berlin/Heidelberg/New York 1969 Tamás F.: Szilikátipari laboratóriumi vizsgálatok, Műszaki Könyvkiadó, Bp. 1970 West, A. R.: Solid state chemistry and its application, John Wiley and Sohs, Chichester, 1992