Information sheet for the course
Lab course I

University: *Alexander Dubček University of Trenčín*

Faculty: *VILA – Joint Glass Centre*

Course unit code: *LC_I* | **Course unit title:** *Lab course I*

Type of course unit: *compulsory*

Planned types, learning activities and teaching methods:
Lab course: 5h

Number of credits: *6*

Recommended semester: *1. semester*

Degree of study: *II. (engineer)*

Course prerequisites: *none*

Assesment methods:
Partial evaluation: *demostration of theoretical knowledge for LC_I (e.g. short test) (2 points), individual active approach for solving lab task (2 points), elaboration of the lab report (6 points).*
Final evaluation: *the minimum 6 points are obligatory to gain the credit for the LC_I*

Learning outcomes of the course unit:
Student aquires knowledge of the material research and technology through the practical lab experience. Student gains knowledge and practical skills required for preparation of the inorganic materials. He/she learns new experimental techniques and methods applied for preparation, characterization and testing of the inorganic materials. Based on acquired knowledge and skills student will be able to process, evaluate the experimental data to elaborate the accurate lab report.

Course contents:
1. *General principals for the work in the chemical laboratory (the chemical laboratory (ChL), materials used in the (ChL), safety at work).*
2. *Determination of the particle size through sieve analysis.*
3. *Measurement of melting temperature for selected compounds (validation and calibration of thermoelements).*
4. *The mineral phase analysis of clinker: Determination of the chemical composition of the raw material (preparation of the sample for XRF analysis).*
5. *The mineral phase analysis of clinker: Preparation (homogenizaton) of the raw material mixture.*
6. *The mineral phase analysis of clinker: Sintering of a clinker.*
7. *The mineral phase analysis of clinker: The phase analysis of a clinker with X ray powder difraction (preparation of the sample by grinding and sieving).*
8. *DTA analysis of the silicate raw materials.*
9. *Quantitative gravimetric determination of SiO_2 in the cement according to the ISO standard.*
10. *Determination of the free lime in cement.*
11. *Gravimetric determination of SO_3 according to the ISO standard.*
12. *The DSC analysis of a cement to determine the heat of hydratation.*
13. *Evaluation of the solidification process of a cement.*

Recommended of required reading:
Hlaváč, J.: Základy technologie silikátů. SNTL, Praha 1988, 432-496 s.
Gažo, J.: Anorganická chémia, Laboratórne cvičenia a výpočty.

Language: *Slovak*

Remarks:					
Evaluation history:					
A	B	C	D	E	FX
Lectures: *Ing. Dagmar Galusková, PhD. , Ing. Jozef Kraxner, PhD., PhD student*					
Last modification: *31. 1. 2014*					
Supervisor:					