Information sheet for the course
Lab course III

University: *Alexander Dubček University of Trenčín*

Faculty: *VILA – Joint Glass Centre*

Course unit code: *LC_III* | **Course unit title:** *Lab course III*

Type of course unit: *compulsory*

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

Number of credits: *6*

Recommended semester: *3. semester*

Degree of study: *II. (engineer)*

Course prerequisites: *none*

Assesment methods:
Partial evaluation: *demostration of theoretical knowledge for LC_III (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_III*

Learning outcomes of the course unit:
Student aquires knowledge of the material research and technology through the practical lab experience. Student has basic knowledge and practical skills required for preparation of glass. He/she aquired knowledge related to the experimental techniques and methods applied for preparation, characterization and testing of glass and glass melts. 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. *Characterization of the raw materials, calculation and preparation of the glass batch.*
3. *Observing of melting proces and clarification during melting of the glass batch.*
4. *Mechanical preparation of the glass specimen by cutting, grinding, polishing for determination of the physical and chemical properties of glass.*
5. *Determination of the chemical composition of the glass with XRF.*
6. *Determination of the liquidus temperature and observation of crystalization ability of the glass melt.*
7. *Determination of the transformation temperature of glass Tg from the dilatometric measurements.*
8. *Determination of the physical properties: temperature dependence on the viscosity of the glassforming melts.*
9. *Determination of the physical properties: surface tension of glass melt.*
10. *Determination of the spectral transmittance of glass.*
11. *Determination of the chemical durability of glass.*
12. *Microstructural analysis of glass surface after corrosion in the alkaline environment.*
13. *Indentification of inhomogeneities in the industrial glass.*

Recommended of required reading:
J.Hlaváč: Základy technologie silikátů. SNTL, Praha 1988, 135-279 s
M.B.Volf: Sklo ve výpočtech. SNTL, Praha 1984, 15-305 s.
M.B.Volf: Technická skla a jejich vlastnosti. SNTL, Praha 1987,
L.Šašek a kol.: Laboratorní metody v oboru silikátů. SNTL, Praha 1981

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:					