Information sheet for the course
Glass Production Technology

University: *Alexander Dubček University of Trenčín*	
Faculty: *VILA – Joint Glass Centre*	
Course unit code: *GPT*	**Course unit title:** *Glass Production Technology*
Type of course unit: *compulsory*	
Planned types, learning activities and teaching methods: *Lecture: 3 hours weekly/39 hours per semester of study; face to face* *Seminar: 2 hours weekly/26 hours per semester of study; face to face*	
Number of credits: *5*	
Recommended semester: *3. semester*	
Degree of study: *III. (engineer)*	
Course prerequisites: *none*	
Assesment methods: *Writing exam, necessary condition for the passing exam – receipt of min. 50% of the points***.**	
Learning outcomes of the course unit: *Student receives a knowledge about the glass structure and glass properties, raw materials for its industrial production, about the process of glass production technology – from the batch preparation, through the melting, foring, annealing to the processing of glass. He has information about main types of the industrial glasses and glass defects presented in the glass during its production.He is able to calculate batch composition andglass properties. He is prepared for work in the glass factory.*	
Course contents: *History of glass. Introduction to the production of glass.* *The structure of the glass. Definition of the glass. Crystallization. The composition of the industrial glasses.* *Effect of composition on the properties of the glass. Production characteristics of the glass. Viscosity. Density. Heat transfer.* *Surface tension. Electrical conductivity.* *Product properties. The coefficient of thermal expansion. Heat stress. Mechanical strength. Density. Optical properties. Chemical resistance. Thermal conductivity. Electrical properties.* *Raw materials. Melting. Melting reactions. Energy of melting. Kinetics of melting. Melting agents. Refining. Bubbles in the glass. Refining agents. The relationship between the composition of the bubble and its origin. Homogenization. Annealing of the glass.* *Glass furnaces. Discontinuous furnaces. Continuous furnaces. Electric furnaces. Regenerators. Heat exchangers.* *Refractories. Requirements for refractories and their classification. Properties of refractories. Reactions with refractories. Metal line corrosion. Burners.* *Forming.. Materials for the forming.* *Container glass.. Flat glass. Glass fibers. Glass tubes. Light Bulbs.* *Glass defects. Classification by type. Classification according to the source.*	
Recommended of required reading: *J. Hlaváč: Základy technologie silikátů. SNTL, Praha 1988, 516 s.* *A.Smrček, F.Voldřich: Sklářské suroviny. Informatórium, Praha 1994, 387 s.* *I. Fanderlik: Vlastnosti skel. Informatórium, Praha 1996, 313 s.* *S. Bachtík, V. Pospíchal: Zušlechťování skla. SNTL, Praha 1964, 295 s.* *J. Menčík: Pevnost a lom skla a keramiky. SNTL, Praha 1990, 389 s.* *Z. Strnad: Skelně krystalické materiály. SNTL, Praha 1983, 230 s.* *M. Bartuška: Vady skla, PRÁH, Praha 2001, 606 s.*	

Language: *Slovak*

Remarks:

Evaluation history:

A	B	C	D	E	FX

Lectures:

Last modification:

Supervisor: