

Information sheet for the course Inorganic chemistry

University: <i>Alexander Dubček University of Trenčín</i>	
Faculty: <i>VILA – Joint Glass Centre</i>	
Course unit code: <i>AnCh</i>	Course unit title: <i>Inorganic chemistry</i>
Type of course unit: <i>compulsory</i>	
Planned types, learning activities and teaching methods: <i>Lectures: 4 hours a week, face to face</i>	
Number of credits: <i>10</i>	
Recommended semester: <i>1. and 2. semester</i>	
Degree of study: <i>III. degree</i>	
Course prerequisites: <i>none</i>	
Assesment methods: <i>Oral exam</i>	
Learning outcomes of the course unit: <i>Students have a general overview of the thermodynamics of chemical reactions, the equilibrium of chemical reactions, chemical properties of solutions and heterogenic systems and of the types of chemical reactions. Students have complex knowledge of chemistry of elements, oxides, nitrides, carbides, silicates and aluminosilicates significant for glass and inorganic materials and of the chemical reactions during preparation of significant inorganic materials and glass, as well as the reactions of these materials.</i>	
Course contents: <ol style="list-style-type: none"><i>1. Chemistry, basic terms and definitions</i><i>2. Enthalpy of chemical reaction</i><i>3. Gibbs energy of chemical reaction</i><i>4. Equilibrium of chemical reaction</i><i>5. Kinetics of chemical reaction</i><i>6. Proteolytic reactions, reactions of hydrolysis and solvolysis</i><i>7. Complex-forming reactions</i><i>8. Precipitation reactions</i><i>9. Oxidative-reductive reactions</i><i>10. Heterogenic reactions</i><i>11. Structure of an atom</i><i>12. Theory of chemical bonding</i><i>13. Chemical bonding in solids</i><i>14. Relation between a structure of electron shell of element and its place in the periodic table of elements</i><i>15. Relation between a structure of electron shell of element and its chemical characteristics</i><i>16. Chemistry of p-elements compounds</i><i>17. Chemistry of d-elements and f-elements compounds</i>	

18. *Chemistry of oxides*
19. *Chemistry of silicates and aluminosilicates*
20. *Chemistry of carbides and nitrides*
21. *Chemistry of precursor preparations of inorganic materials and glass*
22. *Chemistry of sol-gel preparations of inorganic materials and glass*
23. *Chemical reactions during preparation of utility ceramics*
24. *Chemical reactions during preparation of glass*
25. *Chemical reactions during corrosion of ceramics*
26. *Chemical reactions during corrosion of glass*

Recommended of required reading:

Kohout J., Melník M., Anorganická chémia 1, STU v Bratislave 1997 ISBN 80-227-0972-7.

Ondrejovič, G., Boča R., Jóna E., Langfelderová H., Valigura D.: Anorganická chémia 2, STU v Bratislave 1995.

Büchner W., Schliebs R., Winter G., Büchel K.H.: Průmyslová anorganická chemie, SNTL, Praha, ISBN 80-03-00638-4.

Koman M., Jamnický M.: Anorganické materiály. STU BRATISLAVA 2008. ISBN: 978-80-227-2798-3.

Language: *Slovak*

Remarks:

Evaluation history:

Overall number of assessed students: 32

A	B	C	D	E	FX
18,75	37,5	37,5	6,25	0	0

Lecturers: *doc. Ing. Alfonz Plško, CSc.*

Last modification: *31. 1. 2014*

Supervisor: *prof. Ing. Marek Liška, DrSc.*