

## Information sheet for the course Inorganic Chemistry of Materials

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>					
<b>Faculty:</b> <i>Faculty of Industrial Technologies in Púchov</i>					
<b>Course unit code:</b> <i>MT-P-2</i>			<b>Course unit title:</b> <i>Inorganic Chemistry of Materials</i>		
<b>Type of course unit:</b> <i>compulsory</i>					
<b>Planned types, learning activities and teaching methods:</b> <i>Lecture: 2 hours weekly/26 hours per semester of study</i> <i>Seminar: 2 hours weekly/26 hours per semester of study</i> <i>Laboratory tutorial: 2 hours weekly/26 hours per semester of study</i>					
<b>Number of credits:</b> <i>6</i>					
<b>Recommended semester:</b> <i>1<sup>st</sup> semester in the 1<sup>st</sup> year full-time</i> <i>1<sup>st</sup> semester in the 1<sup>st</sup> year part-time</i>					
<b>Degree of study:</b> <i>the 1<sup>st</sup> degree of study (Bachelor's degree)</i>					
<b>Course prerequisites:</b> <i>none</i>					
<b>Assessment methods:</b> <i>Evaluation of course includes partial evaluation; basic characteristic of static of chemical substances, chemical reaction (thermodynamic and kinetic aspects), kind of chemical bond, physical properties of inorganic substances</i>					
<b>Learning outcomes of the course unit:</b> <i>Student profits the survey on the inorganic chemistry and materials.</i>					
<b>Course contents:</b> <ol style="list-style-type: none"> <li>1. <i>States of chemical substances – basic characteristic</i></li> <li>2. <i>Chemical thermodynamic: Enthalpy, free energy, Entropy, Gibbs energy</i></li> <li>3. <i>Chemical equilibrium, equilibrium constant</i></li> <li>4. <i>Kinetics: rate laws</i></li> <li>5. <i>The effect of concentration, temperature and catalyst on reaction rate</i></li> <li>6. <i>Acids and basis (Arrhenius, Bronsted and Lewis theory)</i></li> <li>7. <i>Protolytic reactions: neutralization and hydrolysis</i></li> <li>8. <i>Precipitation reactions: product of solubility</i></li> <li>9. <i>Redox reactions: reducing and oxidizing agents, redox potential</i></li> <li>10. <i>Reactions of complex formation: complex, chromophore</i></li> <li>11. <i>Wave mechanics: wave function, atomic orbitals, electron configurations (the aufbau principle, Hund's rule, the Pauli principle)</i></li> <li>12. <i>Physical essence of chemical bond</i></li> <li>13. <i>Kinds of chemical bonds</i></li> <li>14. <i>Electric, magnetic, optical and thermal properties of inorganic substances</i></li> </ol>					
<b>Recommended of required reading:</b> <ol style="list-style-type: none"> <li>1. <i>Jóna E., Ondrušová D., Pajtášová M.: Priemyselná anorganická chémia I: Všeobecná časť, 2007</i></li> <li>2. <i>Garaj J.: Chémia učebné texty pre mechanické odbory, Trenčín,</i></li> </ol>					
<b>Language:</b> <i>Slovak</i>					
<b>Remarks:</b> <i>none</i>					
<b>Evaluation history:</b>					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

<b>Lecturers:</b> <i>prof. Ing. Darina Ondrušová, PhD., prof. Ing. Eugen Jóna, DrSc.</i>
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<b>Last modification:</b> <i>31.03.2014</i>
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<b>Supervisor:</b> <i>doc. Ing. Marta Kianicová, PhD.</i>
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