

## Information sheet for the course Technology of inorganic nanomaterials

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>	
<b>Faculty:</b> <i>VILA – Joint Glass Centre</i>	
<b>Course unit code:</b> <i>TAN</i>	<b>Course unit title:</b> <i>Technology of inorganic materials</i>
<b>Type of course unit:</b> <i>compulsory</i>	
<b>Planned types, learning activities and teaching methods:</b>  <i>Lectures: 2 hours a week, face to face</i>	
<b>Number of credits:</b> <i>3</i>	
<b>Recommended semester:</b> <i>3. semester in the 2<sup>nd</sup> year (part-time)</i>	
<b>Degree of study:</b> <i>II. (engineer)</i>	
<b>Course prerequisites:</b> <i>none</i>	
<b>Assesment methods:</b> <i>oral exam</i>	
<b>Learning outcomes of the course unit:</b> <i>Students have knowledge of use of nanotechnologies in chemical industry</i>	
<b>Course contents:</b> <ol style="list-style-type: none"> <li><i>1. Introduction to nanotechnologies, nanoscience</i></li> <li><i>2. Colloidal systems and their stabilization</i></li> <li><i>3. Micellar systems, microemulsion, miniemulsion and emulsion polymerization</i></li> <li><i>4. Mechanism of growth and stabilization of nanoparticles</i></li> <li><i>5. Properties of surfaces of nanoparticles and their modification</i></li> <li><i>6. 0, 1, 2 and 3 dimensional particles and their associates</i></li> <li><i>7. Sol-gel ways of nanomaterials preparation</i></li> <li><i>8. Preparation of nanomaterials by hydrolysis and solvolysis of salts</i></li> <li><i>9. Preparation of metallic, oxidic and composite nanoparticles</i></li> <li><i>10. Microemulsion process, reduction of metallic salts in a presence of surfactant additives</i></li> <li><i>11. Preparation of semi-conductive nanoparticles</i></li> <li><i>12. Preparation and modification of carbon nanomaterials</i></li> <li><i>13. Nanosensors and nanoconjugates</i></li> </ol>	
<b>Recommended of required reading:</b> Rao a kol., <i>Chémia nanomateriálov</i> , Wiley-VCH Germany, Volume I, ISBN 3-527-30686-2. Rao a kol., <i>Chémia nanomateriálov</i> , Wiley-VCH Germany, Volume II, ISBN 3-527-30686-2. Rao a kol., <i>Nanoštruktúry a nanomateriály, Syntézy, vlastnosti a aplikácie</i> , Imperial College Press, ISBN 1-86094-415-9. Wolf, E.L., <i>Nanofyzika a nanotechnológia</i> , Wiley - VCH Germany, ISBN : 3-527-40651-4	

<b>Language:</b> <i>Slovak</i>					
<b>Remarks:</b>					
<b>Evaluation history:</b>					
A	B	C	D	E	FX
0	0	0	0	0	0
<b>Lectures:</b> <i>doc. Ing. Alfonz Plško, CSc.</i>					
<b>Last modification:</b> <i>31.1.2014</i>					
<b>Supervisor:</b> <i>prof. Ing. Marek Liška, DrSc.</i>					