

Information sheet for the course Inorganic nanomaterials

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

Rao a kol., Nanoštruktúry a nanomateriály, Syntézy, vlastnosti a aplikácie, Imperial College Press, ISBN 1-86094-415-9.
Wolf, E.L., Nanofyzika a nanotechnológia, Wiley - VCH Germany, ISBN : 3-527-40651-4

Language: *Slovak*

Remarks:

Evaluation history:

A	B	C	D	E	FX
0	0	0	0	0	0

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

Last modification: *31.1.2014*

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