

1.	Field of study	Materials Science and Engineering
2.	Academic year of entry	2016/2017 (winter term)
3.	Level of qualifications/degree	second-cycle studies (in engineering)
4.	Degree profile	general academic
5.	Mode of study	full-time

Module: Monographic lecture 1. Magnetic nanomaterials

Module code: IM2A_WM1_NMM

1. Number of the ECTS credits: 2

2. Learning outcomes of the module			
code	description	learning outcomes of the programme	level of competence (scale 1-5)
IM2A_WM1_NMM_1	Understanding relationships between the structure and properties of magnetic nanomaterials, understanding phenomena of processes resulting in those materials properties changes.	IM2A_W12	5
IM2A_WM1_NMM_2	Learning phenomena, processes, manufacturing methods and mechanisms responsible for changing physical properties of magnetic nanomaterials.	IM2A_W11	3
IM2A_WM1_NMM_3	The skill to analyse the structure and properties of magnetic nanomaterials and to select manufacturing methods of magnetic nanomaterials for technical applications.	IM2A_K05 IM2A_U18	1 5
IM2A_WM1_NMM_4	Development of the awareness of the need to produce and to affect the structure to change magnetic nanomaterials properties.	IM2A_K01 IM2A_K04	5 5

3. Module description	
Description	The module Magnetic nanomaterials shall enable that students are knowledgeable about magnetic nanomaterials structure and about methods, phenomena, and processes enabling those materials manufacturing and properties changing. Owing to that students shall achieve a better understanding of correlations between manufacturing methods, magnetic nanomaterials structure and mechanisms affecting their properties. The understanding of relationships and correlations between those materials properties and their structure shall result in honing the skill to form materials of expected physical properties for applications in technology.
Prerequisites	It is required to achieve effects of education of the modules: physics, chemistry, crystallography, materials testing methods and thermodynamics.

4. Assessment of the learning outcomes of the module			
code	type	description	learning outcomes of the module
IM2A_WM1_NMM_w_1	Written credits	Verification of knowledge based on the lectures content, recommended literature.	IM2A_WM1_NMM_1, IM2A_WM1_NMM_2, IM2A_WM1_NMM_3, IM2A_WM1_NMM_4

5. Forms of teaching						
code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
IM2A_WM1_NMM_fs_1	lecture	The lecture shall enable understanding issues related to the structure of magnetic nanomaterials, phenomena, processes, and mechanisms enabling affecting their properties shaping. The lecture is delivered with the use of multimedia and demonstrations.	30	The work with the recommended literature comprising independent acquisition of knowledge related to basic issues.	35	IM2A_WM1_NMM_w_