1.	**Field of study**	**Materials Science and Engineering**
2.	Academic year of entry	2017/2018 (summer term)
3.	Level of qualifications/degree	second-cycle studies
4.	Degree profile	general academic
5.	Mode of study	full-time

Module: Specialised subject 2. Metallic glasses and nanomaterials

Module code: IM2A_PS2_SMN

1. Number of the ECTS credits: 4

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
IM2A_PS2_SMN_1	Understanding relationships between the structure and properties of metallic glasses and nanomaterials, understanding phenomena and processes affecting those materials properties.	IM2A_W12	5
IM2A_PS2_SMN_2	Learning phenomena, processes, and methods for metallic glasses and nanomaterials forming as well as mechanisms responsible for physical properties changing.	IM2A_W12	5
IM2A_PS2_SMN_3	The skill to analyse properties of metallic glasses and nanomaterials and to choose methods for those materials structure and properties forming for technical applications.	IM2A_K05 IM2A_U18	1 5
IM2A_PS2_SMN_4	Development of the awareness of the need to affect the structure to change properties of metallic glasses and nanomaterials.	IM2A_K01 IM2A_K04	5 5

3. Module description

Description	The module Metallic glasses and nanomaterials shall enable that students are knowledgeable about the structure of metallic glasses and nanomaterials as well as about methods, phenomena, and processes enabling changes of such materials properties. Owing to that students shall achieve a better understanding of correlations between those materials structure and mechanisms affecting their properties. The understanding of relationships and correlations between properties of metallic glasses and nanomaterials and their structure shall results in honing the skill to shape the properties for technical applications.
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_PS2_SMN_w_1	Written examination	Verification of the knowledge based on the lectures content, recommended literature and attended classes.	IM2A_PS2_SMN_1, IM2A_PS2_SMN_2, IM2A_PS2_SMN_3, IM2A_PS2_SMN_4
IM2A_PS2_SMN_w_2	Report	Assessment of the skill to understand structure shaping mechanisms and to connect them with properties of metallic glasses and nanomaterials by a correct formulation of conclusions.	IM2A_PS2_SMN_3, IM2A_PS2_SMN_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_PS2_SMN_fs_1	lecture	The lecture shall enable understanding issues related to the structure of metallic glasses and nanomaterials as well as 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_PS2_SMN_w_1
IM2A_PS2_SMN_fs_3	laboratory classes	The application of acquired theoretical knowledge to experimental learning of metallic glasses and nanomaterials and of mechanisms enabling shaping their properties. Exercises are performed by students individually with the use of equipment of teaching and scientific laboratories.	30	Preparation of theoretical basics and issues related to the topic of performed exercise. Independent preparation of a theoretical introduction. Individual preparation of exercise results.	25	IM2A_PS2_SMN_w_2