

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: Engineering materials structure and properties forming

Module code: IM2A_KSIWM

1. Number of the ECTS credits: 3

2. Learning outcomes of the module			
code	description	learning outcomes of the programme	level of competence (scale 1-5)
IM2A_KSIWM_1	Students have knowledge about the internal and external factors' influence on materials structure and properties useful to give those materials specific functional properties.	IM2A_W06	5
IM2A_KSIWM_2	Students have detailed knowledge about certain integrated technological processes for materials treatment	IM2A_W11	5
IM2A_KSIWM_3	Students can shape materials structure and properties by choosing a relevant technological process, using for that also computer technique applications.	IM2A_U02 IM2A_U11	2 5
IM2A_KSIWM_4	Students are aware of the importance and understand the impact of materials internal structure forming technology on the possibility to obtain products of specified or new functional properties.	IM2A_K02 IM2A_K05	1 1

3. Module description	
Description	The module Engineering materials structure and properties forming shall enable that students are knowledgeable about ways to influence materials functional properties by structure changes caused by means of appropriate technological treatments. Owing to that students shall achieve a better understanding of relationships between structural materials properties and their internal structure. The understanding of those issues shall result in acquiring the skill to choose the right technological process to obtain a specific structure and properties of materials.
Prerequisites	It is required to achieve effects of education in rudiments of materials science, materials technology and processing, engineering materials and materials testing methods modules.

4. Assessment of the learning outcomes of the module			
code	type	description	learning outcomes of the module
IM2A_KSIWM_w_1	Written examination	Verification of the knowledge based on the lectures content, recommended literature and attended classes.	IM2A_KSIWM_1, IM2A_KSIWM_2, IM2A_KSIWM_3, IM2A_KSIWM_4
IM2A_KSIWM_w_2	Test	Assessment of mastering the basic general knowledge necessary for performance of a practical exercise.	IM2A_KSIWM_1, IM2A_KSIWM_2
IM2A_KSIWM_w_3	Report	The assessment of practical exercise performance and of correctness of the obtained results description and of conclusions formulation.	IM2A_KSIWM_3

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_KSIWM_fs_1	lecture	The lecture shall enable understanding issues related to the influence of various technological treatments on the structure and functional properties of structural materials. The lecture is delivered with the use of multimedia.	15	The reading of recommended literature, preparation to the examination.	45	IM2A_KSIWM_w_1
IM2A_KSIWM_fs_2	laboratory classes	Application of the acquired theoretical knowledge in practical use of possibilities to form materials structure and properties through various technological treatments. Exercises are performed by students individually with the use of equipment of teaching and scientific laboratories.	30	Preparation to tests, reading the laboratory instructions, preparation of reports.	10	IM2A_KSIWM_w_2, IM2A_KSIWM_w_3