

1.	Field of study	Materials Science and Engineering
2.	Academic year of entry	2014/2015 (summer term)
3.	Level of qualifications/degree	second-cycle studies
4.	Degree profile	general academic
5.	Mode of study	full-time

Module: Ceramic and polymer materials in medicine

Module code: IM2A_PS2_MCP

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_MCP_1	Learning basic features of ceramic and polymer materials used in medicine and the skill to recall them at the material type identification. Acquiring basic knowledge about those materials structure, properties and manufacturing methods.	IM2A_W06	3
		IM2A_W07	5
IM2A_PS2_MCP_2	Mastering the skill to assess and examine a real structure and selected practical properties of ceramic and polymer materials used in medicine.	IM2A_K05	1
		IM2A_U11	2
		IM2A_U19	3
IM2A_PS2_MCP_3	Developing the awareness of the need for development of technology for ceramic and polymer materials used in medicine.	IM2A_K02	1
		IM2A_W18	5

3. Module description	
Description	The module Ceramic and polymer materials in medicine shall enable students achieving competence in the field of physical and practical properties of ceramic and polymer materials and in choosing ceramic and polymer materials for medical applications as well as acquiring skills to assess and examine a real structure and selected practical properties of ceramic and polymer materials.
Prerequisites	It is required to achieve effects of education of the modules: physics, chemistry, thermodynamics, crystallography, biomaterials, polymers as well as materials testing methods, materials technology and processing.

4. Assessment of the learning outcomes of the module			
code	type	description	learning outcomes of the module
IM2A_PS2	Oral examination	Verification of the knowledge based on the lectures content, recommended literature as well	

_MCP_w_1		as attended classes and consultations.	IM2A_PS2_MCP_1, IM2A_PS2_MCP_2, IM2A_PS2_MCP_3
IM2A_PS2_MCP_w_2	Written test	Checking the acquired skill to associate the metallic biomaterials structure, properties, and interaction with the tissue, adverse effects of such interactions and with application possibilities.	IM2A_PS2_MCP_1, IM2A_PS2_MCP_2, IM2A_PS2_MCP_3
IM2A_PS2_MCP_w_3	Test	Assessment of mastering the basic knowledge necessary for individual performance of a practical exercise.	IM2A_PS2_MCP_1, IM2A_PS2_MCP_3
IM2A_PS2_MCP_w_4	Report	Assessment of the skill to perceive and understand the specific nature of metallic biomaterials properties as well as possibilities of their application by a correct formulation of conclusions.	IM2A_PS2_MCP_1, IM2A_PS2_MCP_2, IM2A_PS2_MCP_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_PS2_MCP_fs_1	lecture	The lecture shall enable understanding issues related to systematisation of metallic materials into appropriate groups, shaping properties through forced changes of structure from their application point of view. 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.	30	IM2A_PS2_MCP_w_1
IM2A_PS2_MCP_fs_2	laboratory classes	Application of the acquired theoretical knowledge to practical learning of relationships: structure - practical properties - potential application possibilities of metallic materials. 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 and formulation of proper conclusions.	30	IM2A_PS2_MCP_w_2, IM2A_PS2_MCP_w_3, IM2A_PS2_MCP_w_4