1.	**Field of study**	**Materials Science and Engineering**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2019/2020 (winter term), 2020/2021 (winter term), 2021/2022 (winter term), 2022/2023 (winter term), 2023/2024 (winter term), 2024/2025 (winter term)
4.	Level of qualifications/degree	second-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Engineering materials designing and manufacturing

Module code: IM2A_PIWMI

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_PIWMI_1	Students have knowledge about criteria for materials selection for technical applications as well as thermodynamic, kinetic and structural aspects of engineering materials manufacturing and processing.	IM2A_W11	5
IM2A_PIWMI_2	Students have detailed knowledge about materials quality control and their manufacturing methods as well as know economic and ecological aspects of material technologies designing.	IM2A_W07	5
IM2A_PIWMI_3	Students have skills of designing engineering materials and technological processes of materials manufacturing, processing and recycling.	IM2A_K05 IM2A_U01 IM2A_U02 IM2A_U03 IM2A_U04 IM2A_U08 IM2A_U19	1 1 3 5 2 2 5
IM2A_PIWMI_4	Students show readiness to cooperate with designers and process engineers.	IM2A_K01 IM2A_K03	1 1

3. Module description

Description	The module Engineering materials designing and manufacturing shall enable that students acquire knowledge about all aspects of engineering materials manufacturing and processing and about those materials quality control methods and their manufacturing methods. Owing to that students shall acquire the skill of proper designing structural materials structure, taking into account obtaining products of required properties.

Prerequisites	It is required to achieve effects of education of the modules: physics, chemistry, thermodynamics, rudiments of the materials science as well as materials technology and processing.

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
IM2A_PIWMI_w_1	Written examination	Verification of the knowledge based on the lectures content, recommended literature and attended classes.	IM2A_PIWMI_1, IM2A_PIWMI_2, IM2A_PIWMI_3, IM2A_PIWMI_4
IM2A_PIWMI_w_2	Test	Verification of theoretical basics knowledge preparing students to perform the exercise on their own.	IM2A_PIWMI_3
IM2A_PIWMI_w_3	Report	The assessment of practical exercise performance and of correctness of the obtained results description and of conclusions formulation.	IM2A_PIWMI_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_PIWMI_fs_1	lecture	The lecture shall enable understanding issues related to all aspects of engineering materials designing and manufacturing. The lecture is delivered with the use of multimedia.	30	The reading of recommended literature, preparation to the examination.	10	IM2A_PIWMI_w_1
IM2A_PIWMI_fs_3	laboratory classes	The application of learned theoretical knowledge to design specific structural materials and technological processes. Exercises are performed individually by students in the form of preparing a specific project.	30	Preparation of theoretical basics and issues related to the topic of performed project. Preparation of the developed project presentation.	30	IM2A_PIWMI_w_2, IM2A_PIWMI_w_3