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)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Materials recycling

Module code: IM1A_REMAT

1. Number of the ECTS credits: 5

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
IM1A_REMAT_1	Understanding issues related to the generation of waste and its hazards to the environment; learning methods for the waste use through the material, raw material, and energy recycling.	IM1A_W10	5
IM1A_REMAT_2	The skill to use selected physico-chemical methods for the process of materials recovery.	IM1A_K05 IM1A_U20 IM1A_U24	1 5 5
IM1A_REMAT_3	Development of the awareness of the need to provide the information on waste hazards and methods for its management to improve the ecological awareness of the society.	IM1A_K02	4

3. Module description

Description	The Materials recycling module enables that students are knowledgeable about the environmental protection issues related to a sudden growth of industrial production. Students know hazards to the environment resulting from the fact of municipal, industrial and other waste generation. They understand the need to minimise the waste, to apply waste free or low waste technologies, to segregate the waste and to manage it. They know methods of waste use. Students are knowledgeable about issues related to the raw material, material, and energy recycling. They know management and recycling methods for such groups of materials as metals, plastics, glass, paper, construction materials and others. Owing to this knowledge students understand the need for developing the ecological awareness of the society by providing the information related to waste hazards for the environment and methods for its management again.
Prerequisites	It is required to achieve effects of education of chemistry, physics, and basics of materials science modules.

4. Assessment of the learning outcomes of the module			
code	**type**	**description**	**learning outcomes of the module**
IM1A_REMAT_w_1	Written test	Verification of the knowledge based on the lectures content, recommended literature and attended classes.	IM1A_REMAT_1, IM1A_REMAT_2, IM1A_REMAT_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**	
IM1A_REMAT_fs_1	lecture	The lecture shall enable understanding the issues related to the waste generation, methods for its minimisation and techniques for its reuse. The lecture is delivered with the use of multimedia and demonstrations.	15	The work with the recommended literature comprising independent acquisition of knowledge related to basic issues.	75	IM1A_REMAT_w_1
IM1A_REMAT_fs_2	laboratory classes	The application of the possessed theoretical knowledge to perform practical exercises, aimed at recovering selected waste materials by means of appropriate physico-chemical methods.	30	Preparation of theoretical basics and issues related to the topic of performed exercise.	60	IM1A_REMAT_w_1