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

Module: Monographic lecture 2. Scanning probe microscopy

Module code: IM2A_WM2_MBO

1. Number of the ECTS credits: 2

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
IM2A_WM2_MBO_1	Knowledge of selected methods and of the structure of scanning probe microscopy equipment.	IM2A_W13	5
IM2A_WM2_MBO_2	Understanding the importance and possibilities of scanning probe microscopy methods and techniques in studies of materials surface, including biological materials.	IM2A_W13	5

3. Module description

Description	The module Scanning probe microscopy shall enable that students are knowledgeable about issues of scanning probe microscopy methods and techniques use in materials surface studying. To this end it will be necessary to learn a number of microscopic methods, such as: tunnelling (STM), atomic forces (AFM), magnetic forces (MFM), electrostatic forces (EFM), and Raman microscopy.
Prerequisites	It is required to know basic issues from the field of classical and quantum mechanics and the theory of electricity and magnetism.

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
IM2A_WM2_MBO_w_1	Credits	Verification of knowledge based on the lectures content and recommended literature.	IM2A_WM2_MBO_1, IM2A_WM2_MBO_2

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_WM2_MBO_fs_1	lecture	The lecture shall enable understanding the scanning probe microscopy methods and techniques. The lecture is delivered with the use of multimedia based on a recommended set of handbooks.	30	The work with the recommended literature comprising independent acquisition of knowledge related to issues presented during the lectures.	35	IM2A_WM2_MBO_w_1