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

Module: Manufacturing of Polymers and Nanocomposites for Biomedical Application

Module code: W4-2BF-MB-22-36

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)
MB_36_1	On successful completion of the course students will be able to know all up-to-date methods for micro- and nano-manufacturing in particular for biomaterials and biomedical devices.	KBF_W01 KBF_W07	4 3

3. Module description

Description	Basics of micro- and nano-manufacturing: Micro- and nanomanufacturing concepts for biomaterials and biomedical devices. Exposure-based lithographies. Photolithography, electron beam methods, lift-off. Two-photon lithography. Soft lithography. Nanoimprint lithography. Microfluidics: capillary force lithography, Micromolding in capillaries, Applications in microfluidics, Surface functionalization, Organ-on-chip building Additive Manufacturing: Spinning technologies, 3D Printing, 4D Printing
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
MB_36_w_1	exam	On successful completion of the course students will be able to know all up-to-date methods for micro- and Nano-manufacturing in particular for biomaterials and biomedical devices.	MB_36_1

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	
MB_36_fs_1	lecture	detailed discussion by the lecturer of the issues listed in the table "module description" using the table and/or multimedia presentations	24	supplementary reading, working with the textbook	51	MB_36_w_1