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: IT techniques in medicine

Module code: IM1A_INMED

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)
IM1A_INMED_1	Learning the ways of data acquiring, processing, coding and storing for the needs of medicine.	IM1A_W19 IM1A_W21	2 2
IM1A_INMED_2	Learning statistical tests used in medicine (mainly non-parametric ones)	IM1A_W11	2
IM1A_INMED_3	The skill of using the Internet resources and medical databases .	IM1A_U01 IM1A_U10	3 2
IM1A_INMED_4	Development of the awareness of the IT importance for the needs of medicine.	IM1A_K01 IM1A_K02	1 1

3. Module description

Description	The module IT techniques in medicine shall enable students an insight into IT techniques in medicine with special emphasis on the ways of data acquiring, processing, coding, and storing in databases. Owing to that students shall understand the role of digital techniques in the recording of biological objects images or biological signals as well as advanced methods of their processing for the monitoring and diagnostic purposes; also the role of Internet in diagnostics, telemedicine or electronic patient service.
Prerequisites	It is required to achieve effects of education of the mathematics module.

4. Assessment of the learning outcomes of the module			
code	**type**	**description**	**learning outcomes of the module**
IM1A_INMED_w_1	Written test	Checking the theoretical knowledge provided during the lecture and possibly deepened by own student's interests.	IM1A_INMED_1, IM1A_INMED_2
IM1A_INMED_w_2	Practical test	Practical resolving (using a computer) of the presented problems: (1) - statistical handling of numerical data (2) - retrieval of specific information from a database	IM1A_INMED_3, IM1A_INMED_4

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_INMED_fs_1	lecture	The lecture shall enable a complex look at medical data retrieving, processing, distributing, storing and handling as well as an introduction to numerical methods used in medicine. The lecture is delivered with the use of multimedia and teaching programs.	30	The work with the recommended literature comprising independent acquisition of knowledge related to basic issues.	30	IM1A_INMED_w_1
IM1A_INMED_fs_2	laboratory classes	Practical resolution of problems based on examples. The issues comprise a statistical data assessment and database issues. Exercises are performed by students individually with the use of computers in the teaching laboratory.	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.	30	IM1A_INMED_w_2