

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: Physico-chemistry of biological processes

Module code: IM1A_FCPB

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)
IM1A_FCPB_1	Students know basic physical phenomena and processes occurring in living organisms; know also properties of bioorganic compounds and chemical reactions occurring in selected biological processes.	IM1A_W02 IM1A_W03 IM1A_W17	1 1 5
IM1A_FCPB_2	Students are capable of explaining phenomena occurring in living organisms based on the knowledge of physical and chemical laws and processes.	IM1A_U25	4
IM1A_FCPB_3	Students are aware of the fact that living organisms function as complex systems, in which physical and chemical transformations occur.	IM1A_K02	1

3. Module description

Description	The Physico-chemistry of biological processes module shall enable that students are knowledgeable about physical and chemical phenomena occurring in biological processes as well as about physico-chemical methods enabling testing biological processes and analysing changes of those processes course. Owing to that students should understand phenomena occurring in living organisms as a set of coupled with each other physical and chemical processes.
Prerequisites	It is required to achieve effects of education of physics, chemistry, and thermodynamics modules.

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
IM1A_FCPB_w	Written examination	Verification of the knowledge based on the lectures content, recommended literature and	

_1		classes.	IM1A_FCPB_1, IM1A_FCPB_2, IM1A_FCPB_3
IM1A_FCPB_w_2	Test	Assessment of mastering the basic knowledge necessary for performance of a practical exercise.	IM1A_FCPB_1, IM1A_FCPB_2, IM1A_FCPB_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_FCPB_fs_1	lecture	The lecture shall enable understanding basic issues related to physical and chemical phenomena occurring in biological processes. The lecture is delivered by means of multimedia.	30	The work with the recommended literature, comprising contents discussed during the lecture.	15	IM1A_FCPB_w_1
IM1A_FCPB_fs_2	laboratory classes	Performance of simple physical and chemical experiments illustrating the lecture issues. Independent processing of obtained results, analysis of the experimental error and formulation of conclusions	30	Preparation to classes through independent studying of recommended issues.	30	IM1A_FCPB_w_2