1.	**Field of study**	**Materials Science and Engineering**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	Academic year for which the revised course structure applies	—

Specialization: Biomaterials

Programme modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Applications Software	EN	C	45		45	3		45	3																			
2	Applied mathematics	EN	C	75	30	45	7	30	45	7																			
3	Chemistry for Engineers	EN	E	60	30	30	6	30	30	6																			
4	Design and Engineering Graphics	EN	C	60	30	30	4	30	30	4																			
5	Introduction to Materials Engineering	EN	C	60	30	30	4	30	30	4																			
6	Physics for Engineers	EN	E	60	30	30	6	30	30	6																			
7	Chemistry Lab for Engineers	EN	C	45		45	4					45	4																
8	Computer-Aided Design (CAD)	EN	C	45	15	30	3				15	30	3																
9	Crystallography	EN	C	30	15	15	2				15	15	2																
10	Materials Science	EN	E	60	30	30	4				30	30	4																
11	Mathematical and Physical Foundations of Materials Science	EN	E	60	30	30	4				30	30	4																
12	Physics Lab for Engineers	EN	C	45		45	4					45	4																
13	Implants and Artificial Organs	EN	C	45	30	15	4							30	15	4													
14	Introduction to Biomaterials	EN	E	60	30	30	4							30	30	4													
15	Materials Testing Methods 1	EN	E	75	30	45	6							30	45	6													
16	Mechanics with Elements of Biomechanics	EN	C	60	30	30	4							30	30	4													
17	Programming languages	EN	C	30	15	15	3							15	15	3													
18	Prototyping and 3D Printing	EN	C	45	15	30	3							15	30	3													
19	Ceramic Biomaterials	EN	C	45	15	30	3										15	30	3										
20	Composite Biomaterials	EN	C	45	15	30	3										15	30	3										
21	Materials Testing Methods 2	EN	E	75	30	45	6										30	45	6										
22	Metallic Biomaterials	EN	C	45	15	30	3										15	30	3										
23	Polymer Biomaterials	EN	C	45	15	30	3										15	30	3										
24	Problem-Solving Workshops	EN	C	45		45	3											45	3										
25	Databases on materials	EN	C	30	15	15	3													15	15	3							
26	Materials Technologies and Processing	EN	E	75	30	45	6													30	45	6							
27	Modeling and Simulation of Engineering Problems Using the Finite Element Method (FEM)	EN	C	45	15	30	4													15	30	4							
28	Multifunctional Biomaterials	EN	E	60	30	30	4													30	30	4							
29	Nanomaterials in Medicine	EN	C	45	15	30	4													15	30	4							
30	Subject-Specific Elective Module 1	EN	C	45		45	3														45	3							
31	Computer Modeling of the Structure and Properties of Biomaterials	EN	C	45	15	30	4																15	30	4				

Programme modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
32	Degradation of Biomaterials	EN	E	60	30	30	4																30	30	4			
33	Diploma Laboratory 1	EN	C	30		30	5																	30	5			
34	Diploma Seminar 1	EN	C	15		15	3																	15	3			
35	Principles of Materials Designing and Selection	EN	C	60	30	30	4																30	30	4			
36	Subject-Specific Elective Module 2	EN	C	45		45	3																	45	3			
37	Subject-Specific Elective Module 3	EN	C	45		45	3																	45	3			
38	Surface Engineering of Biomaterials	EN	E	60	30	30	4																30	30	4			
39	Diploma Laboratory 2	EN	C	70		70	9																				70	9
40	Diploma Seminar 2	EN	C	30		30	3																				30	3
41	Innovation Management in Materials Engineering	EN	C	45	15	30	3																			15	30	3
42	Subject-Specific Elective Module 3	EN	C	45		45	3																				45	3
	TOTAL Programme modules:			**2110**	**705**	**1405**	**168**	**150**	**210**	**30**	**90**	**195**	**21**	**150**	**165**	**24**	**90**	**210**	**21**	**105**	**195**	**24**	**105**	**255**	**30**	**15**	**175**	**18**

Programme co-related modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Group of programme co-related modules 1 *[see description below]*	*	*	30		30	3					30	3															
2	Group of programme co-related modules 2 *[see description below]*	*	*	30		30	3					30	3															
3	Group of programme co-related modules 3 *[see description below]*	*	*	30		30	3								30	3												
4	Group of programme co-related modules 4 *[see description below]*	*	*	30		30	3											30	3									
5	Group of programme co-related modules 5 *[see description below]*	*	*	30		30	3											30	3									
6	Group of programme co-related modules 6 *[see description below]*	*	*	30		30	3														30	3						
	TOTAL Programme co-related modules:			**180**		**180**	**18**	**0**	**0**	**0**	**0**	**60**	**6**	**0**	**30**	**3**	**0**	**60**	**6**	**0**	**30**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Open access modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Physical education	–	C	60		60	0					30			30													
2	Foreign language course 1	–	C	30		30	3					30	3															
3	Foreign language course 2	–	C	30		30	3								30	3												
4	Foreign language course 3	–	C	30		30	3											30	3									
5	Foreign language course 4	–	C	30		30	3														30	3						
6	Open University Module	–	C	60		60	6																				60	6
	TOTAL Open access modules:			**240**		**240**	**18**					**60**	**3**		**60**	**3**		**30**	**3**		**30**	**3**					**60**	**6**

Internship				form of teaching				year 1						year 2						year 3						year 4		
								semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			semester 7		
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E
1	Professional Training	EN	C	120		120	6																				120	6
			TOTAL Internship:	120		120	6																				120	6
			TOTAL:	2650	705	1945	210	360	30		405	30		405	30		390	30		360	30		360	30		370		30
TOTAL EXCLUDING INTERNSHIPS								2530																				
TOTAL								2650																				

The study ends with the awarding of an Engineer - Bachelor's Degree with engineering competencies in the field of Materials Science and Engineering: Biomaterials.

* Groups of modules

Group of programme co-related modules 1

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Digital World" area	–	C		30	3

Group of programme co-related modules 2

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
The area of “Civil Society and Entrepreneurship: Entrepreneurship”	–	C		30	3

Group of programme co-related modules 3

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Group of programme co-related modules 4

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Digital World" area	–	C		30	3

Group of programme co-related modules 5

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Group of programme co-related modules 6

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Legend

Each semester consists of 15 weeks
E/C - exam/course work
E - ECTS
L - lecture, O - all forms of teaching excluding lecture (practical classes, laboratory classes, discussion classes, seminar, proseminar, language classes, field practice, workshop, internship, tutoring)

1.	**Field of study**	**Materials Science and Engineering**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	Academic year for which the revised course structure applies	—

Specialization: Innovative Engineering Materials

Programme modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Applications Software	EN	C	45		45	3		45	3																			
2	Applied mathematics	EN	C	75	30	45	7	30	45	7																			
3	Chemistry for Engineers	EN	E	60	30	30	6	30	30	6																			
4	Design and Engineering Graphics	EN	C	60	30	30	4	30	30	4																			
5	Introduction to Materials Engineering	EN	C	60	30	30	4	30	30	4																			
6	Physics for Engineers	EN	E	60	30	30	6	30	30	6																			
7	Chemistry Lab for Engineers	EN	C	45		45	4					45	4																
8	Computer-Aided Design (CAD)	EN	C	45	15	30	3				15	30	3																
9	Crystallography	EN	C	30	15	15	2				15	15	2																
10	Materials Science	EN	E	60	30	30	4				30	30	4																
11	Mathematical and Physical Foundations of Materials Science	EN	E	60	30	30	4				30	30	4																
12	Physics Lab for Engineers	EN	C	45		45	4					45	4																
13	Fundamentals of Machine Design	EN	C	45	15	30	4							15	30	4													
14	Innovative Engineering Materials	EN	E	60	30	30	4							30	30	4													
15	Materials Testing Methods 1	EN	E	75	30	45	6							30	45	6													
16	Mechanics and Strength of Materials	EN	C	60	30	30	4							30	30	4													
17	Programming languages	EN	C	30	15	15	3							15	15	3													
18	Prototyping and 3D Printing	EN	C	45	15	30	3							15	30	3													
19	Ceramics Materials	EN	E	45	15	30	3										15	30	3										
20	Composite Materials	EN	C	45	15	30	3										15	30	3										
21	Materials Testing Methods 2	EN	E	75	30	45	6										30	45	6										
22	Metals and Alloys	EN	C	45	15	30	3										15	30	3										
23	Polymer Materials	EN	C	45	15	30	3										15	30	3										
24	Problem-Solving Workshops	EN	C	45		45	3											45	3										
25	Databases on materials	EN	C	30	15	15	3													15	15	3							
26	Materials Technologies and Processing	EN	E	75	30	45	6													30	45	6							
27	Modeling and Simulation of Engineering Problems Using the Finite Element Method (FEM)	EN	C	45	15	30	4													15	30	4							
28	Multifunctional Materials with Advanced Properties	EN	E	60	30	30	4													30	30	4							
29	Nanomaterials and Nanotechnologies	EN	C	45	15	30	4													15	30	4							
30	Subject-Specific Elective Module 1	EN	C	45		45	3														45	3							
31	Computer Modeling of the Structure and Properties of Engineering Materials	EN	C	45	15	30	4																15	30	4				

Programme modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
32	Corrosion and Corrosion Protection	EN	E	60	30	30	4																30	30	4			
33	Diploma Laboratory 1	EN	C	30		30	5																	30	5			
34	Diploma Seminar 1	EN	C	15		15	3																	15	3			
35	Materials Surface Engineering	EN	E	60	30	30	4																30	30	4			
36	Principles of Materials Designing and Selection	EN	C	60	30	30	4																30	30	4			
37	Subject-Specific Elective Module 2	EN	C	45		45	3																	45	3			
38	Subject-Specific Elective Module 3	EN	C	45		45	3																	45	3			
39	Diploma Laboratory 2	EN	C	70		70	9																				70	9
40	Diploma Seminar 2	EN	C	30		30	3																				30	3
41	Innovation Management in Materials Engineering	EN	C	45	15	30	3																			15	30	3
42	Subject-Specific Elective Module 3	EN	C	45		45	3																				45	3
	TOTAL Programme modules:			**2110**	**690**	**1420**	**168**	**150**	**210**	**30**	**90**	**195**	**21**	**135**	**180**	**24**	**90**	**210**	**21**	**105**	**195**	**24**	**105**	**255**	**30**	**15**	**175**	**18**

Programme co-related modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Group of programme co-related modules 1 *[see description below]*	*	*	30		30	3					30	3															
2	Group of programme co-related modules 2 *[see description below]*	*	*	30		30	3					30	3															
3	Group of programme co-related modules 3 *[see description below]*	*	*	30		30	3								30	3												
4	Group of programme co-related modules 4 *[see description below]*	*	*	30		30	3											30	3									
5	Group of programme co-related modules 5 *[see description below]*	*	*	30		30	3											30	3									
6	Group of programme co-related modules 6 *[see description below]*	*	*	30		30	3														30	3						
	TOTAL Programme co-related modules:			**180**		**180**	**18**	**0**	**0**	**0**	**0**	**60**	**6**	**0**	**30**	**3**	**0**	**60**	**6**	**0**	**30**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Open access modules

No.	Module	Lang.	E/C	form of teaching: Total	L	O	Total ECTS	year 1 / semester 1: L	O	E	year 1 / semester 2: L	O	E	year 2 / semester 3: L	O	E	year 2 / semester 4: L	O	E	year 3 / semester 5: L	O	E	year 3 / semester 6: L	O	E	year 4 / semester 7: L	O	E
1	Physical education	–	C	60		60	0					30			30													
2	Foreign language course 1	–	C	30		30	3					30	3															
3	Foreign language course 2	–	C	30		30	3								30	3												
4	Foreign language course 3	–	C	30		30	3											30	3									
5	Foreign language course 4	–	C	30		30	3														30	3						
6	Open University Module	–	C	60		60	6																				60	6
	TOTAL Open access modules:			**240**		**240**	**18**					**60**	**3**		**60**	**3**		**30**	**3**		**30**	**3**					**60**	**6**

Internship				form of teaching				year 1						year 2						year 3						year 4		
								semester 1			semester 2			semester 3			semester 4			semester 5			semester 6			semester 7		
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E	L	O	E
1	Professional Training	EN	C	120		120	6																				120	6
			TOTAL Internship:	120		120	6																				120	6
			TOTAL:	2650	690	1960	210	360	30		405	30		405	30		390	30		360	30		360	30		370	30	
TOTAL EXCLUDING INTERNSHIPS								2530																				
TOTAL								2650																				

The study ends with the awarding of an Engineer - Bachelor's Degree with engineering competencies in the field of Materials Science and Engineering: Innovative Engineering Materials.

* Groups of modules

Group of programme co-related modules 1

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Digital World" area	–	C		30	3

Group of programme co-related modules 2

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
The area of “Civil Society and Entrepreneurship: Entrepreneurship”	–	C		30	3

Group of programme co-related modules 3

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Group of programme co-related modules 4

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	E/C	L	O	ECTS
Module in the "Digital World" area	–	C		30	3

Group of programme co-related modules 5

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Group of programme co-related modules 6

Description:					
A student selects one of the modules offered within indicated areas					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Module in the "Civil Society and Entrepreneurship" area	–	C		30	3
Module in the "Creative Expression and Critical Thinking" area	–	C		30	3
Module in the "Digital World" area	–	C		30	3
Module in the "Health and Personal Development" area	–	C		30	3
Module in the "Natural Environment and Technologies" area	–	C		30	3
Module in the "The Limits of Science" area	–	C		30	3

Legend

Each semester consists of 15 weeks
E/C - exam/course work
E - ECTS
L - lecture, O - all forms of teaching excluding lecture (practical classes, laboratory classes, discussion classes, seminar, proseminar, language classes, field practice, workshop, internship, tutoring)