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

Specialization: Biomaterials

A

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
1	Engineering materials	pl	C	45	45		3	45		3						
2	Engineering materials structure and properties forming	pl	E	45	15	30	3	15	30	3						
3	Materials chemistry	pl	E	60	30	30	4	30	30	4						
4	Materials degradation in a biological environment	pl	E	45	30	15	2	30	15	2						
5	Materials structure testing methods	pl	E	60	30	30	3	30	30	3						
6	Selected issues from biomaterials toxicology	pl	E	45	30	15	2	30	15	2						
7	Solid state physics	pl	E	60	30	30	4	30	30	4						
8	Specialist subject 1 (see description below) **[see description below]*	*	*	45	30	15	3	30	15	3						
9	Unconventional biomaterials	pl	E	45	30	15	3	30	15	3						
10	Dental materials	pl	E	45	30	15	3				30	15	3			
11	Diploma laboratory 1	pl	C	60		60	5					60	5			
12	Engineering materials designing and manufacturing	pl	E	60	30	30	4				30	30	4			
13	Implants and artificial organs	pl	E	45	30	15	3				30	15	3			
14	M.Sc. seminar 1	pl	C	30		30	3					30	3			
15	Monographic lecture 1 (see description below) **[see description below]*	*	*	30	30		2				30		2			
16	Production and quality management	pl	C	30	15	15	2				15	15	2			
17	Specialist subject 2 (see description below) **[see description below]*	*	*	60	30	30	4				30	30	4			
18	Tissue engineering	pl	C	30	15	15	2				15	15	2			
19	Computer networks and their use in materials engineering	pl	C	45	15	30	3							15	30	3
20	Diploma laboratory 2	pl	C	30		30	15								30	15
21	M.Sc. seminar 2	pl	C	30		30	3								30	3
22	Monographic lecture 2 (see description below) **[see description below]*	*	*	30	30		2							30		2
23	Specialist subject 3 (see description below) **[see description below]*	*	*	60	30	30	3							30	30	3
	TOTAL A:			**1035**	**525**	**510**	**81**	**270**	**180**	**27**	**180**	**210**	**28**	**75**	**120**	**26**

C - OTHER REQUIREMENTS

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
1	Humanist module	pl	C	30	30		3	30		3						
2	Foreign language	en	C	30		30	2					30	2			

C - OTHER REQUIREMENTS				form of teaching				year 1						year 2		
								semester 1			semester 2			semester 3		
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E
3	Intellectual property protection	pl	C	15	15		1							15		1
4	Social module	pl	C	30	30		3							30		3
	TOTAL C - OTHER REQUIREMENTS:			105	75	30	9	30		3		30	2	45		4
	TOTAL:			1140	600	540	90	480		30	420		30	240		30
	TOTAL EXCLUDING INTERNSHIPS							1140								
	TOTAL							1140								

The study ends with the awarding of a Master's Degree in the field of Materials Science and Engineering: Biomaterials.

* Groups of modules

Specialist subject 1 (see description below)

Description:					
The second degree students(specialization: Biomaterials) have an opportunity to choose some subjects from the prepared list (3 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Specialised subject 1. Shape memory alloys	pl	C	30	15	3
Specialised subject 1. X-ray, electron, and neutron diffraction	pl	C	30	15	3

Specialist subject 2 (see description below)

Description:					
The second degree students(specialization: Biomaterials) have an opportunity to choose some subjects from the prepared list (4 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Specialised subject 2. Implants of alloys featuring shape memory effect	pl	E	30	30	4
Specialised subject 2. Modern microscopic and spectral methods	pl	E	30	30	4

Specialist subject 3 (see description below)

Description:					
The second degree students(specialization: Biomaterials) have an opportunity to choose some subjects from the prepared list (3 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Specialised subject 3. Modelling implants properties by means of FEM	pl	E	30	30	3
Specialised subject 3. Testing biomaterials corrosion resistance and biocompatibility	pl	E	30	30	3

Monographic lecture 1 (see description below)

Description:					
The second degree students(specialization: Biomaterials) have an opportunity to choose some subjects from the prepared list (2 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Monographic lecture 1. Intelligent materials	pl	C	30		2

Monographic lecture 1. Nuclear techniques in materials testing	pl	C		30	2

Monographic lecture 2 (see description below)

Description:					
The second degree students(specialization: Biomaterials) have an opportunity to choose some subjects from the prepared list (2 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Monographic lecture 2. Modification of biomaterials surface	pl	C	30		2
Monographic lecture 2. Scanning probe microscopy	pl	C	30		2

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 (summer term)
4.	Level of qualifications/degree	second-cycle studies
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

A

				form of teaching				year 1						year 2		
								semester 1			semester 2			semester 3		
No.	**Module**	**Lang.**	**E/C**	**Total**	**L**	**O**	**Total ECTS**	**L**	**O**	**E**	**L**	**O**	**E**	**L**	**O**	**E**
1	Computer networks and their use in materials engineering	pl	C	45	15	30	3	15	30	3						
2	Engineering materials	pl	C	45	45		3	45		3						
3	Engineering materials structure and properties forming	pl	E	45	15	30	3	15	30	3						
4	Materials chemistry	pl	E	60	30	30	4	30	30	4						
5	Materials science	pl	C	45	30	15	4	30	15	4						
6	Materials structure testing methods	pl	E	60	30	30	3	30	30	3						
7	Solid state physics	pl	E	60	30	30	4	30	30	4						
8	Specialist subject 1 (see description below) **[see description below]*	*	*	45	30	15	3	30	15	3						
9	Computer modelling of materials structure and properties	pl	E	90	30	60	4				30	60	4			
10	Diploma laboratory 1	pl	C	60		60	5					60	5			
11	M.Sc. seminar 1	pl	C	30		30	3					30	3			
12	Monographic lecture 1 (see description below) **[see description below]*	*	*	30	30		2				30		2			
13	Production and quality management	pl	C	30	15	15	2				15	15	2			
14	Specialist subject 2 (see description below) **[see description below]*	*	*	60	30	30	4				30	30	4			
15	Surface structure and its modifications	pl	E	60	30	30	4				30	30	4			
16	Unconventional techniques for materials manufacturing	pl	C	75	30	45	4				30	45	4			
17	Diploma laboratory 2	pl	C	30		30	15								30	15
18	M.Sc. seminar 2	pl	C	30		30	3								30	3
19	Monographic lecture 2 (see description below) **[see description below]*	*	*	30	30		2							30		2
20	Project management	pl	C	45	30	15	3							30	15	3
21	Specialist subject 3 **[see description below]*	*	*	60	30	30	3							30	30	3
			TOTAL A:	**1035**	**480**	**555**	**81**	**225**	**180**	**27**	**165**	**270**	**28**	**90**	**105**	**26**

C - OTHER REQUIREMENTS

				form of teaching				year 1						year 2		
								semester 1			semester 2			semester 3		
No.	**Module**	**Lang.**	**E/C**	**Total**	**L**	**O**	**Total ECTS**	**L**	**O**	**E**	**L**	**O**	**E**	**L**	**O**	**E**
1	Humanist module	pl	C	30	30		3	30		3						
2	Foreign language	en	C	30		30	2					30	2			
3	Intellectual property protection	pl	C	15	15		1							15		1
4	Social module	pl	C	30	30		3							30		3

C - OTHER REQUIREMENTS			form of teaching				year 1						year 2		
							semester 1			semester 2			semester 3		
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E
	TOTAL C - OTHER REQUIREMENTS:			105	75	30	9	30		3		30	2	45		4
	TOTAL:			1140	555	585	90	435		30	465		30	240		30
	TOTAL EXCLUDING INTERNSHIPS							1140								
	TOTAL							1140								

The study ends with the awarding of a Master's Degree in the field of Materials Science and Engineering: Innovative Engineering Materials.

* Groups of modules

Specialist subject 1 (see description below)

Description:						
The second degree students(specialization: Innovative Engineering Materials) have an opportunity to choose some subjects from the prepared list (3 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.						
Modules:	Lang.	E/C	L	O	ECTS	
Specialised subject 1. Metallic biomaterials	pl	C	30	15	3	
Specialised subject 1. Phase transitions in amorphous and nanocrystalline materials	pl	C	30	15	3	
Specialised subject 1. Review of programming languages used in materials engineering	pl	C	30	15	3	
Specialised subject 1. X-ray, electron, and neutron diffraction	pl	C	30	15	3	

Specialist subject 2 (see description below)

Description:					
The second degree students(specialization: Innovative Engineering Materials) have an opportunity to choose some subjects from the prepared list (4 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Specialised subject 2. Basics of ab initio methods of computer materials modelling	pl	E	30	30	4
Specialised subject 2. Ceramic and polymer materials in medicine	pl	E	30	30	4
Specialised subject 2. Metallic glasses and nanomaterials	pl	E	30	30	4
Specialised subject 2. Modern microscopic and spectral methods	pl	E	30	30	4

Specialist subject 3

Description:					
The second degree students(specialization: Innovative Engineering Materials) have an opportunity to choose some subjects from the prepared list (3 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	E/C	L	O	ECTS
Specialised subject 3. Advanced IT techniques in medicine	pl	E	30	30	3
Specialised subject 3. Modelling of processes proceeding in engineering materials	pl	E	30	30	3
Specialised subject 3. Non-magnetic nanomaterials	pl	E	30	30	3
Specialised subject 3. Physical methods of materials testing	pl	E	30	30	3
Specialist subject 3. Elements of machine constructions	pl	E	30	30	3

Monographic lecture 1 (see description below)

Description:					
The second degree students(specialization: Innovative Engineering Materials) have an opportunity to choose some subjects from the prepared list (2 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Monographic lecture 1. Advanced numerical methods in materials modelling	pl	C	30		2
Monographic lecture 1. Magnetic nanomaterials	pl	C	30		2
Monographic lecture 1. Nuclear techniques in materials testing	pl	C		30	2
Monographic lecture 1. Shape memory alloys in medicine	pl	C	30		2

Monographic lecture 2 (see description below)

Description:					
The second degree students(specialization: Innovative Engineering Materials) have an opportunity to choose some subjects from the prepared list (2 ECTS) in agreement with university authorities. The main aim is to agree the subject of lectures with the issues of the diploma thesis. The dean decides about which subjects will be taught, taking into account the number of students in the groups.					
Modules:	Lang.	**E/C**	**L**	**O**	**ECTS**
Monographic lecture 2. Analysis of experimental data obtained in selected spectroscopic studies of materials	pl	C	30		2
Monographic lecture 2. Nanocomposites	pl	C	30		2
Monographic lecture 2. Nanomaterials in medicine	pl	C	30		2
Monographic lecture 2. Scanning probe microscopy	pl	C	30		2

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 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time
7.	Academic year for which the revised course structure applies	—

Specialization: Quality control of materials and products

A

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
1	Computer networks and their use in materials engineering	pl	C	45	15	30	3	15	30	3						
2	Engineering materials	pl	C	45	45		3	45		3						
3	Engineering materials structure and properties forming	pl	E	45	15	30	3	15	30	3						
4	Materials chemistry	pl	E	60	30	30	4	30	30	4						
5	Materials science	pl	C	45	30	15	4	30	15	4						
6	Methods of testing the structure and properties of materials	pl	E	60	30	30	3	30	30	3						
7	Solid state physics	pl	E	60	30	30	4	30	30	4						
8	Specialist subject 1. Statistical process control	pl	C	45	30	15	3	30	15	3						
9	Diploma laboratory 1	pl	C	60		60	5					60	5			
10	M.Sc. seminar 1	pl	C	30		30	3					30	3			
11	Material and product quality control techniques	pl	C	75	30	45	4				30	45	4			
12	Monographic lecture 1. IT quality support systems	pl	C	30	30		2				30		2			
13	Production and quality management	pl	C	30	15	15	2				15	15	2			
14	Specialist subject. 2. Integrated quality management systems. 1	pl	E	60	30	30	4				30	30	4			
15	Surface structure and its modifications	pl	E	60	30	30	4				30	30	4			
16	Technical metrology	pl	E	90	30	60	4				30	60	4			
17	Diploma laboratory 2	pl	C	30		30	15								30	15
18	M.Sc. seminar 2	pl	C	30		30	3								30	3
19	Monographic lecture 2. Risk management	pl	C	30	30		2							30		2
20	Research laboratory management	pl	C	45	30	15	3							30	15	3
21	Specialist subject. 3. Integrated quality management systems 2	pl	E	60	30	30	3							30	30	3
	TOTAL A:			**1035**	**480**	**555**	**81**	**225**	**180**	**27**	**165**	**270**	**28**	**90**	**105**	**26**

C - OTHER REQUIREMENTS

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
1	Humanist module	pl	C	30	30		3	30		3						
2	Foreign language	en	C	30		30	2					30	2			
3	Intellectual property protection	pl	C	15	15		1							15		1
4	Social module	pl	C	30	30		3							30		3

C - OTHER REQUIREMENTS				form of teaching				year 1						year 2		
								semester 1			semester 2			semester 3		
No.	Module	Lang.	E/C	Total	L	O	Total ECTS	L	O	E	L	O	E	L	O	E
TOTAL C - OTHER REQUIREMENTS:				105	75	30	9	30		3		30	2	45		4
TOTAL:				1140	555	585	90	435		30	465		30	240		30
TOTAL EXCLUDING INTERNSHIPS								1140								
TOTAL								1140								

The study ends with the awarding of a Master's Degree in the field of Materials Science and Engineering: Quality control of materials and products.

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)