DESCRIPTION OF THE PROGRAM OF STUDIES

1. General description

1.1 Number of semesters: 7	*1.2 Total number of ECTS points necessary to complete studies at a given level: 210*
1.3 Total number of hours: *2190 (max 2430)*	*1.4 Prerequisites (particularly for second-level studies):* *Admission criteria are based on the maturity exam results.*

1.5 Upon completion of studies a graduate obtains professional degree of: Engineer	1.6 Graduate profile, employability: Graduates have a broad knowledge of biomedical engineering and acquire a core competence in medical informatics, medical electronics, and biomechanics. They are prepared to design and use modern medical devices for measurement, diagnostic, and therapeutic purposes. Also, they can collect and process information as well as implement, test, and maintain eHealth solutions. Graduates can participate in research and development and can pursue graduate studies.
	Graduates can work for:
	(1) healthcare units (e.g., hospitals, outpatient clinics, clinical labs)
	(2) medical device companies
	(3) R&D companies
	(4) IT companies
	(5) schools as a teacher.
1.7 Possibility of continuing studies: eligibility to apply for admission to second-cycle study programmes, non-degree postgraduate programmes	1.8 Indicate connection with University's mission and its development strategy: The program's goals are to empower students to thrive in a rapidly changing worlds of biomedical engineering and computer technologies as well as understand the needs of patients and healthcare professionals.

List of footnotes used in attachments 6 and 7:

[1] **BU** – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

[2] traditional – **T**, remote – **Z**

[3] Exam – **E**, crediting – **Z**. For the group of courses – after the letter E or Z - enter in brackets the final course form (lec, cl, lab, pr, sem).

[4] University-wide course /group of courses – **O**

[5] Course/ group of courses practical – **P**. For group of courses state the number of ECTS for practical classes. [6] **KO** – general education, **PD** – basic, **K** – main field of study, **S** – specialization [7] **W** - optional, **Ob** – obligatory

Detailed description

2.1 Total number of learning outcomes in the program of study: W (knowledge) = 9, U (skills) = 14, K (competences) = 8,
   W + U + K = 31

2.2 For the main field of study assigned to more than one discipline - the number of learning outcomes assigned to the
   discipline: D1 (major) 31 (this number must be greater than half the total number of learning outcomes)

2.3 For the main field of study assigned to more than one discipline - percentage share of the number of ECTS points for
   each discipline:
   D1 100% ECTS points

2.4a For the general academic profile of the main field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the main field of study is assigned – DN (must be greater than 50% of the total number of ECTS points from 1.2)

142 ECTS

2.4b For the practical profile of the main field of study - the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 1.2)   NOT APPLICABLE

2.5 Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market

There is a growing demand for biomedical engineers with interdisciplinary knowledge of medicine, computer science, and medical devices. Such a background is indispensable to meet the demands of the rapidly changing healthcare system which strives to accommodate the needs of patients and healthcare personnel.

2.6 The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting
   classes
and students (enter the sum of ECTS points for courses / groups of courses marked with the BU1 code) 136,5 ECTS

2.7 Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	41
Number of ECTS points for optional subjects	0
Total number of ECTS points	41

2.8 Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects	75
Number of ECTS points for optional subjects	50
Total number of ECTS points	125

2.9 Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of university-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)

45 ECTS points

2.10 Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points) 88

ECTS points

3. Description of the process leading to learning outcomes acquisition

Each subject card describes the evaluation of proposed learning outcomes (Attach. No. 2 to IO 16/2020). The following tools are used to assess educational effects related to knowledge: oral/written exams, tests, presentations, and group discussions. Acquired skills are tested with lab reports and problem solving. The observation of student's behavior during individual activities, teamwork, and interaction with teachers are used to evaluate social competences.

4. List of education blocks:

4.1 List of obligatory blocks

4.1.1 List of general education blocks

4.1.1.1 *Information technologies block (min. 3 ECTS points):*

No.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form[2] of course/ group of courses cl	Way[3] of crediting lab	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	group of courses code	DN	lec			Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Introduction to Programming			2			K6IBM_U04	30	75	3	0	2	T	Z			P3	KO
		Total	**0**	**0**	**2**	**0**	**0**		**30**	**75**	**3**	**0**	**2**					**3**	

Altogether for general education blocks

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes[5]	Number of ECTS points for BU classes[1]
lec	cl	lab	pr	sem					
0	0	2	0	0	30	75	3	0	2

4.1.2 List of basic sciences block

4.1.2.1 *Mathematics* block

N o.	Course/ group of courses code	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form[2] of course/ group of course s cl	Way[3] of crediti ng lab	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNP S	group of course s code	DN	lec			Univers itywide[4]	Concer ning scientif ic activiti es[5]	Practic al[6]	Type[7]
1		Algebra and Analytic Geometry	2					K6IBM_W01 K6IBM_K01	30	75	3	0	2	T	E	O			PD
2		Algebra and Analytic Geometry		2				K6IBM_U10 K6IBM_K01	30	60	2	0	1	T	Z	O		P2	PD
3		Mathematical Analysis 1	2					K6IBM_W01 K6IBM_K01	30	100	4	0	2	T	E	O			PD
4		Mathematical Analysis 1		2				K6IBM_U10 K6IBM_K01	30	90	3	0	2	T	Z	O		P3	PD
5		Mathematical Analysis 2	2					K6IBM_W01 K6IBM_K01	30	90	3	0	2	T	E	O			PD
6		Mathematical Analysis 2		2				K6IBM_U10 K6IBM_K01	30	90	3	0	2	T	Z	O		P3	PD
7		Statistics and Probability Theory	2					K6IBM_W01 K6IBM_U01 K6IBM_K01	30	75	3	0	2	T	Z	O			PD
8		Statistics and Probability Theory		2				K6IBM_U05 K6IBM_U10 K6IBM_K01	30	75	3	0	2	T	E	O		P3	PD
		Total	**8**	**8**	**0**	**0**	**0**		**240**	**655**	**24**	**0**	**15**					**11**	

4.1.2.2 *Physics* block

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form[2] of course/ group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		University-wide[4]	University-wide[4]	Universitywide[4]	DN[5] classes	BU[1] classes			Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Physics 1		2				K6IBM_U06 K6IBM_U10 K6IBM_K01 K6IBM_K03 K6IBM_K05	30	60	2	0	1	T	Z	O		P2	PD
2		Physics 1	3					K6IBM_W01 K6IBM_U06 K6IBM_K01 K6IBM_K03 K6IBM_K05	45	100	4	0	2	T	E	O			PD
3		Physics 2			3			K6IBM_U09 K6IBM_K01 K6IBM_K03 K6IBM_K05	45	90	3	0	2	T	Z	O		P3	PD
4		Physics 2	2					K6IBM_W01 K6IBM_K01 K6IBM_K03 K6IBM_K05	30	50	2	0	2	T	E	O			PD
5		Total	**5**	**2**	**3**	**0**	**0**		**150**	**300**	**11**	**0**	**7**					**5**	

4.1.2.3 *Chemistry* **block**

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Forma[2] kursu/ grupy kursów	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		Universitywide[4]	CNPS	University-wide[4]	DN[5] classes	BU[1] classes			University-wide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Principles of Chemistry		2				K6IBM_W01 K6IBM_U10 K6IBM_K01	30	60	2	0	1	T	Z			P2	PD
2		Principles of Chemistry	1					K6IBM_W01	15	50	2	0	1	T	Z				PD
3		Principles of Organic Chemistry	2					K6IBM_W01	30	60	2	0	1	T	Z				PD
		Total	**3**	**2**	**0**	**0**	**0**		**75**	**170**	**6**	**0**	**3**					**2**	

Altogether for basic sciences blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes[5]	Number of ECTS points for BU classes[1]
lec	cl	lab	pr	sem					
17	11	5	0	0	480	1180	42	0	27

4.2 List of the main field of study blocks

4.2.1 *Obligatory main field of study* blocks

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	lec	c l	lab	pr	sem	Learning effect symbol	University-wide[4]	CNPS	Total	DN[5] classes	BU[1] classes	Form[2] of course/ group of courses	Way[3] of crediting	Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
			Weekly number of hours						Number of hours		Number of ECTS points					Course/group of courses			
1		Anatomy for Biomedical Engineers	2					K6IBM_W02 K6IBM_U06 K6IBM_K03	30	50	2	0	2	T/Z	Z		DN		PD
2		Introduction to Medical Electronics 1	2					K6IBM_W03 K6IBM_U01 K6IBM_K01	30	50	2	0	1	T/Z	Z		DN		K.
3		Medical Electronics 2	2					K6IBM_W03 K6IBM_W04	30	50	2	0	1	T/Z	Z				K.
4		Medical Electronics 2		1				K6IBM_W09 K6IBM_U04 K6IBM_K02	15	50	2	0	1	T	Z			P2	K.
5		Propaedeutics of Medical Sciences	2					K6IBM_W02 K6IBM_K04	30	30	1	1	1	T	Z		DN		K.
6		Introduction to Programming	2					K6IBM_W04	30	50	2	0	1	T	Z				S
7		Microcontrollers			3			K6IBM_W03 K6IBM_U05 K6IBM_K02	45	90	3	3	2	T	Z		DN	P3	K
8		Microcontrollers	1					K6IBM_W03 K6IBM_K01	15	30	1	1	1	T/Z	Z		DN		K.
9		Introduction to Biomedical Optics and Biophotonics	2					K6IBM_W03	30	50	2	2	1	T/Z	Z		DN		K

No		Course						Effects											
10		Medical Electronics 2			1			K6IBM_W04 K6IBM_U09 K6IBM_K02	15	30	1	1	1	T	Z		DN	P1	K
11		Biochemistry	2					K6IBM_W01 K6IBM_W03	30	75	3	0	2	T/Z	E				PD
12		Biophysics	1					K6IBM_W03	15	30	1	0	1	T/Z	Z				PD
13		Biophysics		1				K6IBM_U09	15	50	2	0	1	T	Z			P2	PD
14		Biophysics			1			K6IBM_U09 K6IBM_U10 K6IBM_K01 K6IBM_K03	15	60	2	0	1	T	Z			P2	PD
15		Introduction to Biomedical Optics and Biophotonics			1			K6IBM_U11	15	30	1	1	1	T	Z		DN	P1	K
16		Introduction to Biomedical Optics and Biophotonics					1	K6IBM_U06 K6IBM_U04	15	30	1	1	1	T	Z		DN		K
17		Electromedical Instrumentation	1					K6IBM_W03 K6IBM_W04 K6IBM_K01	15	50	2	2	1	T/Z	Z		DN		K
18		Electromedical Instrumentation			1			K6IBM_U08	15	60	2	2	1	T	Z		DN	P2	K
19		Introduction to Medical Physiology	1					K6IBM_W02 K6IBM_K01 K6IBM_K06	15	30	1	1	1	T/Z	Z		DN		K
20		Digital Signal Processing	2					K6IBM_W03 K6IBM_K01	30	75	3	3	2	T/Z	E		DN		K
21		Digital Signal Processing			2			K6IBM_U05 K6IBM_U10 K6IBM_K01	30	75	3	3	2	T	Z		DN	P3	K
22		Medical Imaging Techniques				1		K6IBM_W03 K6IBM_U06 K6IBM_U11	15	50	2	2	1	T	Z		DN	P2	K
23		Medical Imaging Techniques	1					K6IBM_W03	15	50	2	2	1	T/Z	Z		DN		K
24		Academic Writing				1		K6IBM_U02 K6IBM_U07 K6IBM_U08 K6IBM_K06	15	30	1	0	1	T	Z		DN	P1	K
25		Legal and Ethical Aspects in Biomedical Engineering					1	K6IBM_W08 K6IBM_U11 K6IBM_K04	15	30	1	1	1	T	Z		DN	P1	K

No.	Course/	Name of course/group of courses	lec	cl	lab	pr	sem	Learning effect symbol	ZZU	CNPS	Total	DN classes	BU classes	Form of course/ group of courses	Way of crediting	Universitywide	Concerning scientific activities	Practical	Type
26		Diploma Seminar					2	K6IBM_W03 K6IBM_W07 K6IBM_U01 K6IBM_U03 K6IBM_U06 K6IBM_K05 K6IBM_K06	30	60	2	2	2	T	Z		DN	P2	K
		Razem	19	2	10	1	4		540	1215	45	28	30					23	

4.3 Specialization blocks

4.3.1 *Specialization subject* blocks:

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	lec	cl	lab	pr	sem	Learning effect symbol	ZZU	CNPS	Total	DN[5] classes	BU[1] classes	Form[2] of course/ group of courses	Way[3] of crediting	Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Introduction to Object Oriented Programming	2					K6IBM_W03	30	75	3	3	2	T/Z	E		DN		K.
2		Introduction to Object Oriented Programming		2				K6IBM_U04	30	75	3	3	2	T	Z		DN	P3	K
3		Databases	2					K6IBM_W09	30	75	3	3	2	T/Z	E		DN		S
4		Databases		2				K6IBM_U13	30	75	3	3	2	T	Z		DN	P3	S
5		Mobile Application Development	2					K6IBM_W09	30	50	2	1	1	T/Z	Z		DN		S
6		Mobile Application Development		2				K6IBM_U04	30	60	2	2	1	T	Z		DN	P2	S
7		Programming in Python		2				K6IBM_U04	30	75	3	3	2	T			DN	P3	S

#																			
8		Software Engineering				1		K6IBM_U13 K6IBM_U14 K6IBM_K03 K6IBM_K04 K6IBM_K06	15	30	1	1	1	T	Z		DN	P1	S
9		Software Engineering			2			K6IBM_U13 K6IBM_U14 K6IBM_K03 K6IBM_K04 K6IBM_K06	30	75	3	3	2	T	Z		DN	P3	S
10		Software Engineering	2					K6IBM_W08	30	75	3	3	2	T/Z	E		DN		S
11		Network Technologies	2					K6IBM_W08	30	75	3	2	2	T/Z	E		DN		S
12		Network Technologies			2			K6IBM_U13	30	75	3	2	2	T	Z		DN	P3	S
13		Numerical Methods	2					K6IBM_W08	30	75	3	3	2	T/Z	Z		DN		S
14		Numerical Methods			2			K6IBM_U14	30	75	3	3	2	T	Z		DN	P3	S
15		Measurement systems	2					K6IBM_W08	30	50	2	2	2	T/Z	Z		DN		S
16		Measurement systems			2			K6IBM_U13 K6IBM_U14 K6IBM_K03	30	75	3	3	2	T	Z		DN	P3	S
17		Conversion and Analysis of Non-electrical Signals	1					K6IBM_W03 K6IBM_U10 K6IBM_K01	15	30	1	1	1	T/Z	Z		DN		S
18		Conversion and Analysis of Non-electrical Signals			1			K6IBM_U06 K6IBM_U09 K6IBM_U10 K6IBM_K01 K6IBM_K02	15	50	2	2	1	T	Z		DN	P2	K
19		Modelling of Biological Systems	2					K6IBM_W08	30	75	3	3	2	T/Z	E		DN		S
20		Modelling of Biological Systems			2			K6IBM_U13 K6IBM_U14	30	75	3	3	2	T	Z		DN	P3	S
21		Modelling of Biological Systems					1	K6IBM_U13 K6IBM_U14 K6IBM_K03	15	50	2	2	1	T	Z		DN	P2	S
		Total	17	0	19	1	1		570	1370	54	51	36					31	

4.4 List of optional blocks

4.4.1 List of general education blocks

4.4.1.1 *Liberal-managerial subjects* **block** *(min. 5 ECTS points):*

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form[2] of course/ group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN[5] classes	BU[1] classes			Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		PO-W11 ST-IL/15/NH1	2					K6IBM_W05 K6IBM_K04	30	90	3	0	1,5	T	Z	O			KO
2		NH2	1					K6IBM_W05 K6IBM_K04	15	30	1		1	T	Z	O			KO
3		NS	1					K6IBM_W05 K6IBM_K04	15	30	1	0	1	T	Z	O			KO
		Total	4	0	0	0	0		60	150	5	0	3,5						

4.4.4.2 *Foreign languages* **block** *(min. 5 ECTS points):*

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points	Number of hours		Form[2] of course/ group of courses	Way[3] of crediting	Course/group of courses			
			l e c	c l	l a b	p r	s e m		ZZU	CNPS	Total	DN[5] classes	BU[1] classes			Univers itywide[4]	Concer ning scientif ic activiti es[5]	Practic al[6]	Type[7]
1		Foreign language A1/A2/ B1/ B2.1/ C1.1		4				K6IBM_U07	60	60	2	0	2	T	Z	O		P2	KO
2		Foreign language B2.2/C1.2		4				K6IBM_U07	60	90	3	0	2	T	Z	O		P3	KO
		Total	0	8	0	0	0		120	150	5	0	4					5	

4.4.4.3 *Sporting classes* **block** *(0 ECTS points):*

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points	Number of hours		Form[2] of course/ group of courses	Way[3] of crediting	Course/group of courses			
			l e c	c l	l a b	p r	s e m		ZZU	CNPS	Total	DN[5] classes	BU[1] classes			Univers itywide[4]	Concer ning scientif ic activiti es[5]	Practic al[6]	Type[7]
1		Sports		2				K6IBM_K08	30	30	0	0	0	T	Z	O		P	KO
2		Sports		2				K6IBM_K08	30	30	0	0	0	T	Z	O		P	KO
		Total	0	4	0	0	0		60	60	0	0	0					0	

Altogether for general education blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes[5]	Number of ECTS points for BU classes[1]
lec	cl	lab	pr	sem					
4	12	0	0	0	240	360	10	0	7,5

4.5.1 List of specialization blocks

4.5.1.1 *Specialization subjects (e.g., whole specialization)* **blocks** *(min. 41 ECTS points):*

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form[2] of course/ group of courses	Way[3] of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN[5] classes	BU[1] classes			Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1		Databases				1		K6IBM_U13 K6IBM_U14	15	50	2	2	1	T	Z		DN	P1	S
2		Introduction to Bioinformatics	1					K6IBM_W08	15	50	2	2	1	T/Z	Z		DN		S
3		Introduction to Bioinformatics			2			K6IBM_U14 K6IBM_K06	30	75	3	2	2	T	Z		DN	P3	S
4		Mobile Application Development				1		K6IBM_U04 K6IBM_U10	15	50	2	2	1	T	Z		DN	P2	S
5		Network technologies				1		K6IBM_U13 K6IBM_U14	15	75	3	3	1	T	Z		DN	P3	S
6		Time Series Analysis	2					K6IBM_W09	30	75	3	3	2	T/Z	Z				S

#		Course	W		U			Code											
7		Time Series Analysis			2			K6IBM_U04 K6IBM_U10	30	75	3	3	2	T	Z			P3	S
8		Artificial Intelligence 1	2					K6IBM_W08	30	75	3	3	2	T/Z	Z		DN		S
9		Artificial Intelligence 1			2			K6IBM_U13	30	75	3	3	2	T	Z		DN	P3	S
10		Artificial Intelligence 2	2					K6IBM_W08	30	75	3	3	2	T/Z	Z		DN		S
11		Artificial Intelligence 2			2			K6IBM_U13	30	75	3	3	2	T	Z		DN	P3	S
12		Advanced Imaging Techniques	2					K6IBM_W03	30	50	3	3	2	T/Z	Z		DN		
13		Advanced Imaging Techniques			2			K6IBM_U06 K6IBM_U11	30	75	3	3	2	T	Z		DN	P3	
14		Practical training						K6IBM_U03 K6IBM_U08 K6IBM_U11 K6IBM_U12 K6IBM_K03 K6IBM_K05 K6IBM_K07		160	6	6			Z			P6	S
15		Computer Graphics	2					K6IBM_W04 K6IBM_W09	30	75	3	3	2	T/Z	Z		DN		S
16		Computer Graphics			2			K6IBM_U13 K6IBM_U14	30	75	3	3	2	T	Z		DN	P3	S
17		Complex Systems	2					K6IBM_W09	30	75	3	3	2	T/Z	Z		DN		S
18		Complex Systems			2			K6IBM_U04 K6IBM_U10	30	75	3	3	2	T	Z		DN	P3	S
19		Statistical Methods in Bioengineering			2			K6IBM_W03 K6IBM_U03 K6IBM_U04	30	75	3	3	2	T	Z		DN	P3	S

No.	Course/	Name of course/group of courses	lec	cl	lab	pr	sem	Learning effect symbol	ZZU	CNPS	Total	DN classes	BU classes	Form	Way of crediting	Universitywide	Concerning scientific activities	Practical	Type
20		Elements of Nonlinear Dynamics	1					K6IBM_W08	15	30	2	2	1	T/Z	Z		DN		S
21		Elements of Nonlinear Dynamics			1			K6IBM_U10	15	75	2	2	1	T	Z		DN	P2	S
22		Computer Science in Medicine					1	K6IBM_W05 K6IBM_U06 K6IBM_K03 K6IBM_K06	15	50	2	2	1	T	Z		DN	P2	S
		Total	14	0	17	3	1		525	1570	63	62	35					40	

4.5.1.4 *Diploma project block* (min. 15 pkt ECTS):

No.	Course/	Name of course/group of courses (denote group of courses with symbol **GK**)	lec	cl	lab	pr	sem	Learning effect symbol	ZZU	CNPS	Total	DN[5] classes	BU[1] classes	Form of course/group of courses	Way[3] of crediting	Universitywide[4]	Concerning scientific activities[5]	Practical[6]	Type[7]
1	S	Diploma Project						K6IBM_W03 K6IBM_U03 K6IBM_U04 K6IBM_U07 K6IBM_U11 K6IBM_K01 K6IBM_K05 K6IBM_K07	30	450	15	15	1	T	Z		DN	P15	S

Altogether:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes[5]	Number of ECTS points for BU classes[1]
lec	cl	lab	pr	sem					
14	0	17	3	1	555	2020	78	77	36

5. Training block - concerning principles of training crediting – attachment no. … Opinion
of the Advisory Faculty Council concerning the rules of crediting training block

Name of training			
Number of ECTS points	**Number of ECTS points for BU[1] classes**	**Number of ECTS points**	**Code**
6	0	6	
Training duration	**Training objective**		
4 weeks	Becoming familiar with fundamental tasks and responsibilities specific to engineer's work, especially in the field of biomedical engineering		

6. Diploma dissertation block (*if it is foreseen at first level studies*)

Type of diploma dissertation	undergraduate	
Number of diploma dissertation semesters	**Number of ECTS points**	**Code**
1	15	
Character of diploma dissertation		
Diploma dissertation is an account of original, independent research project that demonstrates student's research competencies: project design, literature review, data collection, and analysis of results and their limitations. Dissertation's topics should be related to specialization.		
Number of BU[1] ECTS points	1	

7. Methods of verifying assumed learning outcomes

Type of classes	Methods of verifying assumed learning outcomes
lecture	examination, final test
class	midterm/final test
laboratory	pretest, laboratory report
project	project presentation
seminar	group discussion, topic presentation, essay
training	practical training report
diploma dissertation	diploma defense

8. Diploma examination scope

The scope of the diploma examination is determined by the Biomedical Engineering Graduation Committee and communicated to students by the end of the penultimate semester of study at the latest. The diploma examination is made-up of the thesis presentation, discussion of the results with the examination committee members, and diploma exam.

9. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

All courses–credited with exam or grade–are defined by the provisions of the Rules of Study at the Wroclaw University of Science and Technology.

10. Plan of studies (attachment no. 7)

Approved by faculty student government legislative body:

....
Date   name and surname, signature of student representative

....
Date   Dean's signature