



CURRICULUM
admission in 2024

APPROVED
by Academic Council Igor Sikorsky Kyiv Polytechnic Institute
"_"_20__ p.
meeting protocol No _____
Head of Academic Council
Mykhaylo ILCHENKO

Level **Bachelor** Field of Study
16 - Chemical engineering and bioengineering
Speciality 163 "Biomedical Engineering"
Educational and Professional Programme
"Medical Engineering"
Form of study *full-time*
Graduation Department
Department of Biomedical Engineering

Faculty (Institute) Faculty of Biomedical Engineering
Qualification Bachelor of Biomedical Engineering
Study duration 3 years 10 months
Base level complete secondary education
Academic Groups

I. Schedule of educational process

Year	September				October				November				December				January				February				March				April				May				June				July				August							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
1	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	K	K	K	K	K	K	K	K	
2	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	K	K	K	K	K	K	K	K
3	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	K	K	K	K	K	K	K	K	K
4	-	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	C	C	K	K	K	K	K	K	K	K	K	K	K	

Symbols: Learning period Examination Practice Research Assessment Holiday

II. Summary table of time budget (Weeks)

YEAR	Learning period	Examination	Practice	Research	Assessment	Holiday	Total
1	36	4	0	0	0	12	52
2	36	4	0	0	0	12	52
3	34	4	2	0	0	12	52
4	28	3	4	4	2	2	43

III. Practice

Type of practice	Term (Semester)	Weeks
Introductory Practice in Medical Engineering	6	2
Pre-diploma Practice	8	4

IV. Graduates assessment

Subjects	Form of graduates assessment (exam, graduation project)	Semester
Diploma Design	Graduation project pitch	8

V. Plan of Educational Process

Code	Educational components	Distribution for terms (semesters)						ECTS Credits	Number of hours						Distribution of classroom studies hours per week							
		Exams	Final tests	Module test	Calculation, graphic assignments	Home test	Essay, abstract		Total	Classroom studies				Self-study	1 year		2 year		3 year		4 year	
										Terms												
										1	2	3	4		5	6	7	8				
										Number of weeks in each term												
										18	18	18	18		18	16	18	10				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24

1. REQUIRED (standard) educational components

General training cycle

ZO 01	Ukrainian Language for Professional Purposes		2	2				2.0	60	36	18	18		24		2						
ZO 02	History of Science and Technology		1	1				2.0	60	36	18	18		24	2							
ZO 03	Basics of a Healthy Lifestyle		2	1,2				3	90	72	18	54		18	2	2						
ZO 04.1	Practical Foreign Language Course (Learning Ukrainian as a foreign language). Part 1		2	1				3	90	72		72		18	2	2						
ZO 04.2	Practical Foreign Language Course (Learning Ukrainian as a foreign language). Part 2		4	3				3	90	72		72		18			2	2				
ZO 05	Economics and Production Organization		3	3				4.0	120	72	36	36		48			4					
ZO 06	Labor Safety and Civil Defense		7	7				4.0	120	72	36	28	8	48							4	
ZO 07.1	Higher Mathematics. Part 1. Analytical Geometry. Mathematical Analysis	1		1	1			9.0	270	144	72	72		126	8							
ZO 07.2	Higher Mathematics. Part 2. Integral Calculus of Functions of a Real Variable	2		2	2			5.0	150	72	36	36		78		4						
ZO 07.3	Higher Mathematics. Part 3. Rows. Elements of the Theory of Functions of a Complex Variable. Probability Theory and Mathematical Statistics	3		3	3			6.0	180	90	36	54		90			5					
ZO 08.1	Physics. Part 1. Mechanics and Molecular Physics. Electricity and Magnetism	2		2	2			6.0	180	90	36	36	18	90		5						
ZO 08.2	Physics. Part 2. Optics. Quantum Physics	3		3	3			6.0	180	90	36	36	18	90			5					
ZO 09	Basics of Informatics		2	2	2			5.0	150	72	28	44		78		4						
ZO 10	Engineering and Computer Graphics	1		1				4.0	120	54	18	18	18	66	3							
ZO 11	Introduction to Philosophy		3	3				2.0	60	36	18	18		24			2					
ZO 12	Environmental Management		4	4				2.0	60	36	18	18		24				2				
ZO 13	Business Law		5	5				2.0	60	36	18	18		24					2			
ZO 14.1	Practical Foreign Language Course for Professional Purposes (Learning Ukrainian as a foreign language). Part 1		6	5				3	90	68		68		22					2	2		
ZO 14.2	Practical Foreign Language Course for Professional Purposes (Learning Ukrainian as a foreign language). Part 2	8		7				3	90	56		56		34							2	2
Together of the cycle of general training		7	12	20	6	0	0	74	2220	1276	442	772	62	944	17	19	18	4	4	2	6	2

Vocational training cycle

PO 01	Introduction to the Profession		1	1		1		4.0	120	72	28	44		48	4							
PO 02.1	Biochemistry. Part 1. Bioorganic Chemistry		1	1			1	4.0	120	72	36	36		48	4							
PO 02.2	Biochemistry. Part 2. Biochemistry		2	2			2	4.0	120	72	36	36		48		4						
PO 03.1	Human Anatomy and Physiology. Part 1. Fundamentals of Biomedical Knowledge. Medical Terminology		1	1			1	4.0	120	54	26	28		66	3							
PO 03.2	Human Anatomy and Physiology. Part 2. Fundamentals of Human Anatomy and Physiology	2		2			2	5.0	150	72	36	36		78		4						
PO 04	Materials Science and Construction Materials		3	3			3	4.0	120	72	36	36		48			4					
PO 05	Quantitative Physiology		3	3				5.0	150	90	36	36	18	60			5					
PO 06	Biomaterials and Biocompatibility		4	4			4	4.0	120	54	26	28		66				3				
PO 07	Fundamentals of Electrical Engineering	4		4				5.0	150	72	28	26	18	78				4				
PO 08	Mechanics and Biomechanics	4		4	4			6.0	180	90	36	54		90				5				
PO 09	Biophysics	4		4	4			5.0	150	72	28	44		78				4				
PO 10	Methods of Modeling and Analysis of Biomedical Processes and Systems		4	4	4			4.0	120	54	26	28		66			3					
PO 11.1	Analog and Digital Circuitry. Part 1. Analog Circuitry	5		5	5			5.0	150	72	36	18	18	78					4			
PO 11.2	Analog and Digital Circuitry. Part 2. Digital Circuitry	6		6				5.0	150	80	32	32	16	70						5		
PO 12	Object-oriented Programming	5		5				5.0	150	72	36	36		78					4			
PO 13	Biomedical Devices, Apparatus and Complexes	6		6				5.0	150	80	32	48		70						5		
PO 14	Introductory Practice in Medical Engineering		6					3.0	90	0				90						X		
PO 15	Microprocessor Technic	7		7				6.0	180	90	36	18	36	90							5	
PO 16	Radiation Safety and Dosimetry	7		7	7			5.0	150	72	36	36		78							4	
PO 17	Design of Biomedical Systems. Interdisciplinary course project		7					2.0	60	0				60							X	
PO 18	Examination and Engineering Support of Medical Equipment		8	8			8	4.0	120	60	30	30		60								6
PO 19	Pre-diploma Practice		8					6.0	180	0				180								X
PO 20	Diploma Design							6.0	180	0				180								X
Total number of Vocational training cycle		10	12	19	5	1	7	106	3180	1372	616	650	106	1808	11	8	9	19	8	10	9	6
TOTAL of NORMATIVE educational components		17	24	39	11	1	7	180	5400	2648	1058	1422	168	2752	28	27	27	23	12	12	15	8

2. ELECTIVE educational components

General training cycle (Elective educational components from University catalogue)

ZV 01	Elective Educational Component 1 from GU-Catalogue		3	3				2.0	60	36	18	18		24			2					
ZV 02	Elective Educational Component 2 from GU-Catalogue		4	4				2.0	60	36	18	18		24				2				
Total number of General training cycle		0	2	2	0	0	0	4	120	72	36	36	0	48	0	0	2	2	0	0	0	0

Vocational training cycle (Elective educational components from Interfaculty/Faculty/Department catalogue)

PV 01	Elective Educational Component 1 from P-Catalogue		5	5			5	4.0	120	54	26	28		66					3			
PV 02	Elective Educational Component 2 from P-Catalogue		5	5			5	4.0	120	54	26	28		66					3			
PV 03	Elective Educational Component 3 from P-Catalogue		5	5			5	4.0	120	54	26	28		66					3			
PV 04	Elective Educational Component 4 from P-Catalogue		5	5			5	4.0	120	54	26	28		66					3			
PV 05	Elective Educational Component 5 from P-Catalogue		6	6			6	4.0	120	48	22	26		72						3		
PV 06	Elective Educational Component 6 from P-Catalogue		6	6			6	4.0	120	48	22	26		72						3		
PV 07	Elective Educational Component 7 from P-Catalogue		6	6			6	4.0	120	48	22	26		72						3		
PV 08	Elective Educational Component 8 from P-Catalogue		6	6			6	4.0	120	48	22	26		72						3		
PV 09	Elective Educational Component 9 from P-Catalogue		7	7			7	4.0	120	54	26	28		66							3	
PV 10	Elective Educational Component 10 from P-Catalogue		7	7			7	4.0	120	54	26	28		66								3
PV 11	Elective Educational Component 11 from P-Catalogue		7	7			7	4.0	120	54	26	28		66							3	
PV 12	Elective Educational Component 12 from P-Catalogue		8	8			8	4.0	120	60	30	30		60								6
PV 13	Elective Educational Component 13 from P-Catalogue		8	8			8	4.0	120	60	30	30		60								6
PV 14	Elective Educational Component 14 from P-Catalogue		8	8			8	4.0	120	60	30	30		60								6
Total number of Vocational training cycle		0	14	14	0	0	14	56	1680	750	360	390	0	930	0	0	0	0	12	12	9	18
TOTAL of ELECTIVE educational components		0	16	16	0	0	14	60	1800	822	396	426	0	978	0	0	2	2	12	12	9	18
TOTAL NUMBER		17	40	55	11	1	21	240	7200	3470	1454	1848	168	3730	28	27	29	25	24	24	24	26