

CURRICULUM

EDUCATIONAL AND QUALIFICATION DEGREE: BACHELOR

COURSE OF STUDY: BIOTECHNOLOGY

VOCATIONAL FIELD: 5.11. BIOTECHNOLOGIES

FORM OF STUDY: FULL TIME

DURATION OF STUDY: 4 YEARS

Duration of the semester: 14 weeks

Years	Semester	No.	Course unit code	Full name of the course unit (course projects, practical trainings)	Form of control	Teaching hours per type of seminars					Overall extracurricular hours	Overall teaching hours per semester	Credits according to ECTS	
						Teaching hours								
						L	S	S	Lab	P				
FIRST	FIRST	1	121101	General Geology	E	2	2	x			135	56	7	
		2	291110	General and Inorganic Chemistry	E	3	3		x		120	84	7	
		3	361101	Mathematical Analysis – Part I	E	2	2	x			135	56	7	
		4	371101	Introduction to Computer Graphic Systems	CA	1	2			x	60	42	4	
		5	351112	Engineering graphics	CA	1	2			x	75	42	5	
		6	421100	Foreign Languages	CA		3	x			120	42	2*	
		7	431143	Physical Education and Sports	CA		2			x	30	28	1*	
	Overall for the 1st semester:					3+4	9	16	7	3	6	675	350	30+3*
	SECOND	8	361102	Mathematical Analysis – Part II	E	2	2	x			135	56	8	
		9	181102	Physics – Part I	E	2	2			x	141	56	7	
		10	291102	Analytical Chemistry	E	2	3		x		120	70	8	
		11	281101	Technical mechanics	E	2	2			x	81	56	7	
		12	421100	Foreign Languages	CA		3	x			120	42	2*	
		13	431143	Physical Education and Sports	CA		2			x	30	28	1*	
14		121126	Summer Practices: General Geology – 6 days							30	36	1*		
Overall for the 2nd semester:					4+2	8	14	5	3	6	657	344	30+4*	
Overall for the first year:					7+6	17	30	12	6	12	1332	694	60+7*	
SECOND	THIRD	15	181103	Physics – Part II	E	2	3			x	126	70	7	
		16	131103	Mineralogy and Petrography	E	3	3			x	90	84	6	
		17	291103	Physical chemistry	E	2	3		x		75	70	6	
		18	291104	Organic Chemistry	E	3	3		x		105	84	7	
		19	411300	Humanities, Social and Legal Sciences (Optional course)	CA	2	2	x				56	3*	
		20	371204 371205 371231	Elective course (one of the three) - Computer Networks and Communications -CAD systems -Information systems	CA	2	2			x	90	56	6	
		21	421100	Foreign Languages	CA		3	x			33	42	2*	
	22	431143	Physical Education and Sports	CA		2			x	30	28	1*		
	Overall for the 3rd semester:					4+3	14	21	5	6	10	549	490	32+6*
	FOURTH	23	171156	Fundamentals of Biotechnology	E	2	2		x		60	56	5	
		24	171101	General and Geological Microbiology	E	3	3		x		105	84	7	
		25	291105	Hydrochemistry	E	2	2		x		105	56	5	
		26	241102	Mineral Technologies	E	2	2	x			60	56	5	
		27	151112	Engineering Geology and Hydrogeology	E	3	3			x	63	84	6	
28		431143	Physical Education and Sports	CA		2			x	30	28	1*		
29		131105	Summer practice: Mineralogy and Petrography – 6 days							30	36	1*		
30		171140	Summer practice: Geological Microbiology – 6 days							30	36	1*		
31		171146	Summer practice: Biotechnology – 6 days							30	36	1*		
Overall for the 4th semester:					5+1	12	14	2	7	8	513	472	28+4*	
Overall for the second year:					9+4	26	35	7	13	18	1062	962	60+10*	

Years	Semester	No.	Course unit code	Full name of the course unit (course projects, practical trainings)	Form of control	Teaching hours		Teaching hours per type of seminars			Overall extracurricular hours	Overall teaching hours per semester	Credits according to ECTS	
						L	S	S	Lab	P				
THIRD	FIFTH	32	171102	Fundamentals of ecology	E	3	3	x			105	84	8	
		33	171116	Genetics	E	3	3		x		96	84	7	
		34	171115	Biochemistry	E	3	3		x		105	84	7	
		35	171118	Processes and equipment in biotechnology	E	3	3	x		x	120	84	8	
		Overall for 5th semester:					4	12	12	6	6	3	426	336
			36	171117	Enzymology	E	2	2		x		60	56	8
			37	271119	Economics	E	2	2	x			90	56	7
			38	171104	Water protection and wastewater treatment	E	3	3			x	120	84	8
			39	171106	Soil science	E	3	3	x			84	84	7
			40	171141	<i>Summer practice:</i> Processes and equipment in biotechnology – 6 days							30	36	1*
			41	171144	<i>Summer practice:</i> Biotechnologies for wastewater treatment – 6 days							30	36	1*
			42	171145	<i>Summer practice:</i> Biotechnologies for soil treatment – 6 days							26	30	1*
			43	171147	<i>Summer practice:</i> Biotechnologies for waste treatment – 5 days							26	30	1*
			Overall for 6th semester:					4	10	10	5	2	7	444
	Overall for the third year:					8	22	22	11	8	10	870	748	60+4*
	FOURTH	SEVENTH	44	171159	Biotechnologies for energy sources	E	2	2	x			60	56	6
			45	171120	Biotechnologies for water treatment	E	3	3			x	75	84	7
			46	111141	Geochemistry	E	2	3	x			90	70	5
			47	171121	Biotechnologies for soil treatment	E	3	3	x			72	84	7
48			111117	Geology and Exploration of mineral deposits	E	2	2	x			90	56	5	
Overall for 7th semester:					5	12	13	10	3	387	350	30		
EIGHT		49	171122	Mineral biotechnologies	E	3	3	x			60	60	5	
		50	171211 261230	<i>Elective – one out of:</i> Environmental monitoring Fire and Security Techniques	E	3 3	3 3	x			30 60	60 60	5	
		51	271123	Bioremediation	E	3	3	x			30	60	5	
		52	171114	Municipal wastes treatment	E	3	3	x			60	60	5	
	Overall for the 8th semester:					4	12	12	12		180	240	20	
State exam												10		
Overall for the fourth year:					9	24	25	22	3	567	590	60		
OVERALL FOR THE FULL COURSE OF STUDY:					33+10	89	112	52	27	33	3831	2994	240+21*	

PARAMETERS OF THE CURRICULUM

Overall teaching hours: 2994, distributed as follows:

Lectures 1198

Seminars 1520 teaching hours, including:

- seminars - 680
- laboratory - 378
- practical - 462

Practice – 276 teaching hours, including:

- educational - 276

The credits above 240 are formed by the disciplines "Foreign language", Physical education and sports", "Humanities, Social and Legal Sciences" and partially by the practices, marked with asterisk. The eighth semester is of 10 weeks duration. The other semesters are of 14-weeks duration.

Abbreviations: E – exam; CA - continuous assessment; L - lectures; S - seminars; Lab - laboratory seminars; P - practical seminars; CP – course project.