

<b>Study Program Implementation Schedule</b>										
<b>Field of study: Biotechnology</b>										
<b>Full-time undergraduate studies, general academic profile</b>										
<b>YEAR I – SEMESTER 01</b>										
<b>No.</b>	<b>Subjects</b>	<b>Number of hours in the semester *</b>							<b>Total number of hours</b>	<b>ECTS points</b>
		<b>Exam</b>	<b>L</b>	<b>T</b>	<b>Lab</b>	<b>P</b>	<b>PC</b>	<b>S</b>		
1.1	Mathematics		30	30					<b>60</b>	<b>4</b>
1.2	Elements of physics		15	15					<b>30</b>	<b>2</b>
1.3	General chemistry	<b>E</b>	30	30					<b>60</b>	<b>5</b>
1.4	Computer utility programs		15		30				<b>45</b>	<b>4</b>
1.5	Academic communication		15	30					<b>45</b>	<b>4</b>
1.6	Engineering graphics				30				<b>30</b>	<b>2</b>
1.7	Environmental protection		30	30					<b>60</b>	<b>4</b>
1.8	OSH and ergonomics				15				<b>15</b>	<b>2</b>
1.9	Economics in environmental biotechnology		15						<b>15</b>	<b>1</b>
1.10	Safety in biotechnology		15						<b>15</b>	<b>1</b>
1.11	Protection of intellectual property		15						<b>15</b>	<b>1</b>
1.12	Training on safe and hygienic learning conditions		4						<b>4</b>	<b>0</b>

	<b>Total</b>	<b>1</b>	<b>184</b>	<b>135</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>394</b>	<b>30</b>
			<b>394</b>							
<b>YEAR I – SEMESTER 02</b>										
<b>No.</b>	<b>Subjects</b>	<b>Number of hours in the semester *</b>							<b>Total number of hours</b>	<b>ECTS points</b>
		<b>Exam</b>	<b>L</b>	<b>T</b>	<b>Lab</b>	<b>P</b>	<b>PC</b>	<b>S</b>		
2.1	Foreign language I (English, German)			30					<b>30</b>	<b>2</b>
2.2	Qualitative chemical analysis		30		30				<b>60</b>	<b>4</b>
2.3	Quantitative chemical analysis		30		30				<b>60</b>	<b>4</b>
2.4	Fundamentals of soil science		30		30				<b>60</b>	<b>4</b>
2.5	Molecular biology		30	15					<b>45</b>	<b>3</b>
2.6	Environmental biology	<b>E</b>	30		30				<b>60</b>	<b>5</b>
2.7	Biodiversity conservation		15	15			15		<b>45</b>	<b>3</b>
2.8.1	Spread of pollutants in the environment		30	15					<b>45</b>	<b>3</b>
2.8.2	Environmental chemistry									
2.9.1	Ecology		15	15					<b>30</b>	<b>2</b>
2.9.2	Ecological aspects of biotechnology									
	<b>Total</b>	<b>1</b>	<b>210</b>	<b>90</b>	<b>120</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>435</b>	<b>30</b>
			<b>435</b>							
<b>YEAR II – SEMESTER 03</b>										
<b>No.</b>	<b>Subjects</b>	<b>Number of hours in the semester *</b>							<b>Total number of hours</b>	<b>ECTS points</b>
		<b>Exam</b>	<b>L</b>	<b>T</b>	<b>Lab</b>	<b>P</b>	<b>PC</b>	<b>S</b>		

3.1	Foreign language II (English, German)			30					30	2
3.2	Physical education I			30					30	0
3.3	Biochemistry I		30	30					60	4
3.4	Organic chemistry	<b>E</b>	30		30				60	5
3.5	General genetics		15	15					30	2
3.6	Fundamentals of environmental microbiology	<b>E</b>	30		30				60	5
3.7.1	Microorganisms in industrial processes									
3.7.2	Microorganisms in environmental technologies		30		30				60	5
3.8.1	Circular economy									
3.8.2	Green technologies		30	15					45	3
3.9.1	Fundamentals of toxicology		30	30					60	4
3.9.2	Ecotoxicology									
	<b>Total</b>	<b>2</b>	<b>195</b>	<b>150</b>	<b>90</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>435</b>	<b>30</b>
			<b>435</b>							

YEAR II – SEMESTER 04											
No.	Subjects	Number of hours in the semester *							Total number of hours	ECTS points	
		Exam	L	T	Lab	P	PC	S			
4.1	Foreign language III (English, German)			30					30	2	
4.2	Physical education II			30					30	0	
4.3	Biochemistry II	E	30		45				75	6	
4.4	Bioprocess engineering		30		36		9		75	6	
4.5	Unit operations in biotechnology	E	30	15		15			60	5	
4.6	Molecular techniques in environmental analysis		30		45				75	6	
4.7.1	Environmental management		30	15					45	3	
4.7.2	Environmental monitoring										
4.8.1.	Biomaterials		15	15					30	2	
4.8.2	Nanomaterials										
	<b>Total</b>	<b>2</b>	<b>165</b>	<b>105</b>	<b>126</b>	<b>15</b>	<b>9</b>	<b>0</b>	<b>420</b>	<b>30</b>	
							<b>420</b>				
YEAR III – SEMESTER 05											
No.	Subjects	Number of hours in the semester *							Total number of hours	ECTS points	
		Exam	L	T	Lab	P	P C	S			
5.1	Foreign language IV (English,	E		30					30	2	

	German)									
5.2	Bioreactor engineering	<b>E</b>	30		30	15			<b>75</b>	<b>7</b>
5.3	Genetic engineering in environmental biotechnology		30	30					<b>60</b>	<b>5</b>
5.4	Wastewater biotechnology		30		22	15	8		<b>75</b>	<b>6</b>
5.5.1	Enzymology									
5.5.2	Enzyme technology		30		30				<b>60</b>	<b>5</b>
5.6	Bioremediation of soil and water environment		30	15	15				<b>60</b>	<b>5</b>
	<b>Total</b>	<b>2</b>	<b>150</b>	<b>75</b>	<b>97</b>	<b>30</b>	<b>8</b>	<b>0</b>	<b>360</b>	<b>30</b>
			<b>360</b>							

YEAR III – SEMESTER 06										
No.	Subjects	Number of hours in the semester *							Total number of hours	ECTS points
		Exam	L	T	Lab	P	PC	S		
6.1	Tissue and cell cultures	E	30	30					60	5
6.2	Fundamentals of mycology	E	30		30				60	4
6.3	Biohydrometallurgical processes		15	15		15			45	3
6.4.1	Biotechnology in forestry		30		30		15		75	6
6.4.2	Biotechnology in agriculture									
6.5.1	Waste biotechnology		30		30	15			75	6
6.5.2	Biotechnological production of energy carriers									
6.6.1	Biotechnology in food production		30		30				60	4
6.6.2	Pharmaceutical and cosmeceutical bioproducts									
6.7.1	Biological water treatment		15		15				30	2
6.7.2	Biological gas treatment									
	<b>Total</b>	<b>2</b>	<b>180</b>	<b>45</b>	<b>135</b>	<b>30</b>	<b>15</b>	<b>0</b>	<b>405</b>	<b>30</b>
<b>405</b>										
YEAR IV – SEMESTER 07										
No.	Subjects	Number of hours in the semester *							Total number of	ECTS point
		Exa	L	T	La	P	P	S		

		<b>m</b>			<b>b</b>		<b>C</b>		<b>hours</b>	<b>s</b>
7.1	Experimental work methodology			30					<b>30</b>	<b>2</b>
7.2	Visualization and data analysis techniques in environmental biotechnology			45					<b>45</b>	<b>3</b>
7.3	Biostatistics				45				<b>45</b>	<b>3</b>

