

**ANNEX**  
**PROGRAM FOR BACHELOR DEGREE IN BIOENGINEERING**

Order	Code	Subject title	Number of credits	Semester according to standard program									
				1	2	3	4	5	6	7	8		
<b>Political theory + General law</b>			<b>12</b>										
1	SSH1110	Basic Principles of Marxist-Leninist I	2(2-0-0-4)		2								
2	SSH1120	Basic Principles of Marxist-Leninist II	3(2-1-0-6)			3							
3	SSH1050	Ho Chi Minh Thought	2(2-0-0-4)					2					
4	SSH1130	Revolutionary path of the Communist Party of Vietnam	3(2-1-0-6)							3			
5	EM1170	General law	2(2-0-0-4)		2								
<b>Physical education (5 Credits)</b>			<b>05</b>										
<b>Defense and security education (165 class hour)</b>													
<b>English</b>			<b>06</b>										
14	FL1100	English I	3(0-6-0-6)	3									
15	FL1101	English II	3(0-6-0-6)		3								
<b>Basic knowledge of Mathematics and Science</b>			<b>32</b>										
16	MI1112	Analytics I	3(2-2-0-6)	3									
17	MI1122	Analytics II	3(2-2-0-6)		3								
18	MI1132	Analytics III	3(2-2-0-6)				3						
19	MI1142	Algebra	3(2-2-0-6)	3									
20	MI3180	Probability Statistics and Experimental Planning	3(3-1-0-6)					3					
21	PH1111	General Physics I	2(2-0-1-4)		2								
22	PH1121	General Physics II	2(2-0-1-4)			2							
23	PH1131	General Physics III	2(2-0-1-4)				2						
24	IT1140	General Informatics	4(3-1-1-8)		4								
25	CH1018	Chemistry I	2(2-1-0-4)	2									
26	CH3224	Organic Chemistry	2(2-1-0-4)			2							
27	CH3081	Physical Chemistry	2(2-1-0-4)				2						
28	CH3082	Experiments in Physical Chemistry	1(0-0-2-2)				1						
<b>Basic and Major core subjects</b>			<b>48</b>										
29	CH3316	Analytical Chemistry	2(2-1-0-4)			2							
30	CH3318	Experiments in Analytical Chemistry	1(0-0-2-2)			1							
31	EE2012	Electrotechniques	2(2-1-0-4)				2				1		
32	ME2015	Descriptive Geometry	3(3-1-0-6)				3						
33	BF2701	Introduction to Bioengineering	2(1-1-1-4)			2							

34	BF3711	Process and Equipment in Biotechnology I	2(1-1-1-4)					2			
35	BF3712	Process and Equipment in Biotechnology II	3(2-1-1-6)					3			
36	BF3713	Process and Equipment in Biotechnology III	2(2-1-0-4)						2		
37	BF4725	Techniques for Measuring and Automatic control in Biotechnology	2(2-0-1-4)								2
38	BF4726	Quality Product Management in Biotechnology	2(2-0-0-4)								2
39	BF3714	Project of Processing and Equipments in Bioengineering	1 (0-2-0-2)						1		
40	BF2702	Biochemistry	4 (4-0-0-8)					4			
41	BF2703	Experiments in Biochemistry	2 (0-0-4-4)					2			
42	BF3701	Microbiology I	3 (3-0-0-6)					3			
43	BF3702	Experiments in Microbiology	2 (0-0-4-4)					2			
44	BF3703	Cell Biology	2 (2-0-1-4)					2			
45	BF3704	Immunology	2 (2-0-0-4)						2		
46	BF3705	Genetics and Molecular Biology	3 (2-2-0-6)						3		
47	BF3706	Genetic Engineering	2(2-0-1-4)						2		
48	BF3707	Bioinformatics	2 (1-0-2-4)						2		
49	BF3708	Analytical Methods in Biotechnology	2 (2-0-1-4)						2		
50	BF4727	Project work in Bioengineering	2 (0-4-0-4)							2	
<b>Social knowledge</b>			<b>09</b>								
51	EM1010	Introduction to Management	2(2-1-0-4)								
52	EM1180	Business Culture and Entrepreneurship	2(2-1-0-4)							2	
53	ED3280	Applied Psychology	2(1-2-0-4)								
54	ED3220	Soft Skills	2(1-2-0-4)								
55	ET3262	Technology and Technical Design Thinking	2(1-2-0-4)								
56	TEX3123	Industrial Design	2(1-2-0-4)								
57	BF2020	Technical Writing and Presentation	3(2-2-0-6)								
<b>Selective subjects</b>			<b>16</b>								
<b>Module 1: Environmental Biotechnology</b>			<b>11</b>								
58	BF4701	Biological Engineering for Waste Treatment	3(2-2-0-6)							3	
59	BF4702	Environmental Toxicology	2(2-0-0-4)							2	



83	BF4724	Practical work in Enzyme Technology	2(0-0-4-4)										
84	BF4701	Biological Engineering for Waste Treatment	3(2-2-0-6)										
85	BF4702	Environmental Toxicology	2(2-0-0-4)										
86	BF4703	Microbiology II - Environmental Microbiology	2(2-0-0-4)										
87	EV4241	Environmental Management	2(2-0-0-4)										
88	BF4704	Practical work in Biological Engineering for Waste treatment	2(0-0-4-4)										
89	BF4705	Fermentation Engineering	3(2-2-0-6)										
90	BF4706	Molecular and Immunological Methods in Food Industry	2(2-0-0-4)										
91	BF4707	Microbiology II - Food Microbiology	2(2-0-0-4)										
92	BF4511	Enzymes in Food Technology	2(2-0-0-4)										
93	BF4708	Practical work in Fermentation Engineering	2(0-0-4-4)										
94	BF4709	Downstream processing	2(2-0-0-4)										
95	BF4711	Microbiology II - Industrial Microbiology	2(2-0-0-4)										
96	BF4712	Enzymology	2(2-0-0-4)										
97	BF4713	Animal Cell Technology	3(2-2-0-6)										
98	BF4714	Molecular Diagnostics	2(2-0-0-4)										
99	BF4715	Techniques of Virus Cultivation	2(2-0-0-4)										
100	BF4716	Recombinant DNA Technology	2(2-0-0-4)										
101	BF4717	Methodology in Recombinant DNA Technology	2(0-0-4-4)										
<b>Technical practice and Bachelor thesis</b>			<b>08</b>										
102	BF4781	Technical practice in Bioengineering	2(0-0-6-4)										2
103	BF4791	Bachelor thesis in Bioengineering	6(0-0-12-12)										6
<b>Total:</b>			<b>131</b>										

## Engineer in Bioengineering

Order	Subject title	Number of credits	Semester according to standard program												
			1	2	3	4	5	6	7	8	9	10			
I	General education program (see Bachelor program)	50													
II	Basic and Major core subjects (see Bachelor program)	48													
III	Application-oriented subjects (Bachelor program)	16													
IV	Technical practice in Bioengineering	2													
V	Application-oriented subjects (Students choose one compulsory module (15 credits), the remaining 4 credits choose from other elective subjects not in the chosen orientation)	19											19	16	
	Module 1: Environmental Biotechnology	15											15		
	Module 2: Food Biotechnology	15											15		
	Module 3: Industrial biotechnology	15											15		
	Module 4: Molecular and cell biology techniques	15											15		
	Other elective subjects (students choose 4 credits)	4											4		
VI	Graduation practice in Bioengineering	4													4
VII	Engineer thesis in Bioengineering	12													12
VIII	Social knowledge	9													
	<b>Total credit of program</b>	<b>160</b>													