

HUST BACHELOR PROGRAMM SURVEY

Responder's detail

Name (optional): *Bui Thi Thu Huong* Occupation:

Establishment :

E-mail:

btthuong@vnu.edu.vn

Nationality:

Vietnam

Thank you for your participation in our survey. Please answer the questions below referring to the grade (1 to 5) by checking X

1: Strongly disagree

2: Disagree

3: Neutral

4: Agree

5: Strongly agree

	1	2	3	4	5
1. The coherence between <i>Expected learning outcomes</i> and <i>Study program</i>				✓	
2. The importantly of 5 criteria in <i>Expected learning outcomes</i>					
Standard 1			✓		
Standard 2			✓		
Standard 3				✓	
Standard 4			✓		
Standard 5			✓		
3. The <i>Expected learning outcomes</i> fits well with the industrial demand.				✓	
4. The balance between theory and practice in <i>Study program</i>				✓	
5. The balance between generals and specials courses in <i>Study program</i>			✓		
6. Others comments, suggestions (Please specify)					

Thank you for your participation

HUST MASTER PROGRAMM SURVEY

Responder's detail

Name (optional):

Occupation:

Establishment :

E-mail:

Nationality:

Thank you for your participation in our survey. Please answer the questions below referring to the grade (1 to 5) by checking X

1: Strongly disagree

2: Disagree

3: Neutral

4: Agree

5: Strongly agree

	1	2	3	4	5
1. The coherence between <i>Expected learning outcomes</i> and <i>Study program</i>			✓		
2. The importantly of 5 criteria in <i>Expected learning outcomes</i>					
Standard 1			✓		
Standard 2			✓		
Standard 3				✓	
Standard 4			✓		
3. The <i>Expected learning outcomes</i> fits well with the industrial demand.			✓		
4. The balance between theory and practice in <i>Study program</i>				✓	
5. The balance between generals and specials courses in <i>Study program</i>				✓	
6. Others comments, suggestions (Please specify)					

Thank you for your participation

EXPECTED LEARNING OUTCOMES

for Bachelor Bioengineering

Standard 1. Knowledge of a wide range of expertise to adapt well to job's relevant to the field of study, focusing on the ability to apply basic and specific knowledge of biological engineering with biological engineering orientations in industry, environment, medicine, food and biosafety testing:

1.1. The ability to apply mathematic and scientific knowledge to participate in designing, calculating a system, a workshop or a production process of biological products.

1.2. The ability to apply the basics knowledge of biological engineering for research and problems solving.

1.3. The ability to apply basic and specialized knowledge of biological engineering and quality management in combination with practice to identify issues related to technology, equipment and quality in bio-production. Ability to participate in production organization, to design and to evaluate technological solutions, equipment and quality of bio-products.

Standard 2. Professional skills, personal skills and personal qualities that allow learning at a higher level, the ability to self-learning to adapt to the continuous development of science and technology:

2.1. The ability to identify technical issues in the context of global economic, environmental and social.

2.2. Possess the scientific methodology of analysis to participate in projects development and implementation in the field of biotechnology.

2.3. Being proactive, flexible, creative thinking and able to self-evaluate of knowledge, skills and attitudes, self-learning and lifelong learning.

2.4. Time management ability.

2.5. Having professional ethics, honesty and sense of responsibility, professional behavior, proactive in planning for their own careers, regularly updating information in the field of biotechnology.

Standard 3. Communication skills, teamwork and international integration:

3.1. Ability to work independently and teamwork in a multidisciplinary collaboration.

3.2. Ability to communicate with domestic and foreign partners.

3.3. Ability to use English at work, TOEIC \geq 500.

Standard 4. Ability to develop ideas, to design, to implement and to operate in industrial and social context:

4.1. Understanding their social role and responsibility, being aware of the impact of technical application on society, knowledge of laws and regulations in the field of biotechnology, be aware of historical and cultural contexts, be aware of current issues and global development prospects.

4.2. Adhering to the multi-culture of enterprise, mastering the business strategy, objectives and business plans, able to develop technical commercialization idea, able to adapt in different working environments.

4.3. Ability to brain-storming for a research project; participating in the project implementation plan; applying specific knowledge in design and practice.

Standard 5. Political quality, patriotism and good health for the construction and protection of the country:

5.1. Sufficient level of political theory according to the general program of the Ministry of Education and Training.

5.2. Certificate of Physical Education and Certificate of Defense Education - Security according to the general program of the Ministry of Education and Training.

PROGRAM: BACHELOR OF BIOENGINEERING

N°	Code	Specialty	Credit (s)	Semestry							
				1	2	3	4	5	6	7	8
Politic theory and general law			12								
1	SSH1110	Marxism-Leninism I	2(2-1-0-4)		2						
2	SSH1120	Marxism-Leninism II	3(2-1-0-6)			3					
3	SSH1050	Ho Chi Minh Ideology	2(2-0-0-4)					2			
4	SSH1130	Politic orientation of Vietnam Communist	3(2-1-0-6)						3		
5	EM1170	General law	2(2-0-0-4)		2						
Physical education			05								
6	PE1014	Theory of physical education (obligatory)	1(0-0-2-0)								
7	PE1024	Swimming (obligatory)	1(0-0-2-0)								
8	Optional	Optional 1	1(0-0-2-0)								
9		Optional 2	1(0-0-2-0)								
10		Optional 3	1(0-0-2-0)								
Military education (165 credits)											
11	MIL1110	Military orientation of Communist	0(3-0-0-6)								
12	MIL1120	National defense and security	0(3-0-0-6)								
13	MIL1130	General military and technique of CKC shotgun.	0(3-0-2-8)								
Foreign language			06								
14	FL1100	English I	3(0-6-0-6)	3							
15	FL1101	English II	3(0-6-0-6)		3						
Maths and Basic Sciences			32								
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	Statistical Probability and Experimental Design	3(3-1-0-6)					3			
21	PH1111	Physics I (Mechanic-thermal)	2(2-0-1-4)		2						
22	PH1121	Physics II (Electrical)	2(2-0-1-4)			2					
23	PH1131	Physics III (Optical)	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	Physical chemistry (practical work)	1(0-0-2-2)				1				
Basic and specialties in biotechnology			48								
29	CH3316	Analytical Chemistry	2(2-1-0-4)			2					
30	CH3318	Analytical Chemistry (Practical work)	1(0-0-2-2)			1					
31	EE2012	Electro techniques	2(2-1-0-4)				2				
32	ME2015	Fundamentals of Technical Graphics	3(3-1-0-6)				3				
33	BF2701	Fundamentals of Biotechnology	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	Process and equipment in biotechnology (Project work)	1(0-2-0-2)					1			
40	BF2702	Biochemistry	4(4-0-0-8)				4				
41	BF2703	Biochemistry (Practical work)	2(0-0-4-4)				2				
42	BF3701	Microbiology I	3(3-0-0-6)					3			
43	BF3702	Microbiology (Practical work)	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 biotechnology	2(0-4-0-4)							2	
Additional knowledge			09								
51	EM1010	General management	2(2-1-0-4)								
52	EM1180	Business culture and start-up	2(2-1-0-4)							2	
53	ED3280	Psychology applicative	2(1-2-0-4)								
54	ED3220	Soft skills	2(1-2-0-4)								
55	ET3262	Technological concepts & technical design	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)								
Optional for applicative orientation: student selects one compulsory module (11 credits)			16								
Module 1: Orientation Biotechnology Environment			11								
58	BF4701	Biological engineering for waste treatment	3(2-2-0-6)							3	
59	BF4702	Environmental Toxicology	2(2-0-0-4)							2	
60	BF4703	Environmental Microbiology	2(2-0-0-4)							2	
61	EV4241	Environmental Management	2(2-0-0-4)							2	
62	BF4704	Biological Engineering for Waste treatment (Practical work)	2(0-0-4-4)							2	
Module 2: Orientation Biotechnology and Food Technology			11								
63	BF4705	Fermentation Engineering	3(2-2-0-6)							3	
64	BF4706	Rapid Methods in Food Industry	2(2-0-1-4)							2	
65	BF4707	Food Microbiology	2(2-0-0-4)							2	
66	BF4511	Enzymes in Food Technology	2(2-0-0-4)							2	
67	BF4708	Fermentation Engineering (Practical work)	2(0-0-4-4)							2	
Module 3: Orientation Biotechnology for industry			11								
68	BF4705	Fermentation Engineering	3(2-2-0-6)							3	
69	BF4709	Downstream processing	2(2-0-0-4)							2	
70	BF4711	Industrial Microbiology	2(2-0-0-4)							2	
71	BF4712	Enzyme	2(2-0-0-4)							2	
72	BF4708	Fermentation Engineering (Practical work)	2(0-0-4-4)							2	

[illegible]

EXPECTED LEARNING OUTCOMES

for Master Biotechnology

Standard 1. Knowledge of a wide range of expertise to adapt well to job's relevant to the field Biotechnology and able to work independently:

- 1.1. The ability to apply deep scientific knowledge to solve problems in biotechnology.
- 1.2. The ability to synthesize and analyses scientific information and its application in research, production.
- 1.3. The ability to analyses and solve technique problems in production line; capable to apply new techniques and tools of biotechnology.

Standard 2. Professional skills and personal skills to success: work scientifically, good strategic thinking and well adapt to international environment:

- 2.1. The ability to analyses and evaluate technical issues in the context of global economic, environmental and social.
- 2.2. Having the scientific methodology of thinking to establish a project, the implementation of a bioprocess.
- 2.3. Being proactive, flexible, creative thinking and able to self-evaluate.
- 2.4. Time management and personal project management.
- 2.5. Having professional ethics, honesty, sense of responsibility, professional behavior, able to update in a selective way the information in the field of biotechnology.
- 2.6. Professional and scientific working; good systematic and scientific thinking; able to adapt to international scientific activities.

Standard 3. Social skills to integrate in a multidisciplinary collaboration:

- 3.1. Ability to work independently and teamwork in a multidisciplinary collaboration.
- 3.2. Ability to communicate with domestic and foreign partners.
- 3.3. Ability to use English at work, TOEIC \geq 550.

Standard 4. Having the ability to self-learning, to update knowledge and to do scientific research. Ability to apply scientific knowledge to solve real issues:

4.1. Understanding the role of applying technology for the development of society. Understanding of national laws and regulations in biotechnology. Be aware of historical and cultural contexts; be aware of current issues and global development prospects.

4.2. Having the idea of commercialize the scientific products when respecting the culture, objective and business plan of enterprise. Having the ability to adapt to different working environments.

4.3. Ability to brain-storming for a research project; participating in the project implementation plan; apply scientific knowledge to develop and realize a project.

4.5. Ability of regularly updates knowledge, doing scientific research, writing scientific report; possibility to apply special knowledge and scientific achievements to solve practical issues.

PROGRAM: MASTER IN BIOTECHNOLOGY

Nº	Code	Subject	Credit(s)	Semester		
				9	10	11
General knowledge						
1	SS6011	Philosophy	3	3		
2	FL6010	English				
Compulsory (15 credits)			15			
3	BF6713	Bio-separation of biological products	2(2-0-0-4)	2		
4	BF6714	Special experiments of Bioengineering	1(0-0-2-2)	1		
5	BF6731	Proteomics	2(2-0-0-4)	2		
6	BF6736	Gene regulation and expression	2(2-0-0-4)	2		
7	BF6742	Microbial Metabolism	2(2-0-0-4)	2		
8	BF6761	Monitoring and control of fermenters	3(3-0-0-6)	3		
9	BF6762	Biocatalysts	3(3-0-0-6)	3		
Optional (6 credits)			6		6	
10	BF6122	Product innovation	2(2-1-0-4)			
11	BF6414	Experimental data analysis	2(2-1-0-4)			
12	BF6723	Bioremediation	2(2-0-0-4)			
13	BF6725	Biofuel	2(2-0-0-4)			
14	BF6726	Probiotic and Prebiotic	2(2-0-0-4)			
15	BF6728	Biopolymer	2(2-0-0-4)			
16	BF6743	Extraction, separation, isolation and evaluation of biological compounds	2(2-1-0-4)			
17	BF5717	Diagnostic kit manufacturing technology	2(2-0-0-4)			
18	BF5718	Recombinant Protein Technology	2(2-0-0-4)			
19	BF5722	Nano-biomaterials	2(2-0-0-4)			
Presentation (6 credits)			6			
20	BF6767	Seminar 1 (or project 1)	2		2	
21	BF6768	Seminar 2 (or project 2)	2		2	
22	BF6769	Seminar 3 (or project 3)	2		2	
Thesis (15 credits)			15			
23	BF6702	Thesis for master of science	15(0-0-30-30)			15

HUST-NUT Bioengineering DDP program

Year	Campus	Criteria	Class Name	NUT	HUST
1st	HUST	General	SS6011 Philosophy		3
		Compulsory	BF6731 -Proteomics		2
			BF6736 - Gene regulation and expression	2	2
			BF6762 - Biocatalysis	2	3
			BF6742 - Microbial metabolism	2	2
			BF6761 - Monitoring and control of fermentors		3
			BF6713 - Bioseparation of biological products		2
			BF6714 - Special experiments of Bioengineering		1
		Elective	Elective subjects		6
2nd	NUT	General	00FCC5 Japanese Industrial Development Experience	2	2
			00FBA5 Technology and Public Policy	2	2
			00FCD5 Gigaku Innovation and Creativity	2	2
		Compulsory	15AGC6 Seminar on Bioengineering 1	2	*
			15AGD6 Seminar on Bioengineering 2	2	2
			15AGE6 Seminar on Bioengineering 3	2	*
			15AGF6 Seminar on Bioengineering 4	2	2
			15AGA6 Special Experiments of Bioengineering 1	4	*
			15AGB6 Special Experiments of Bioengineering 2	4	*
			17AAI5 Research Integrity	1	*
		Elective	15AAZ5 Seminar on Bioengineering for foreign students	2	*
			Reserch Project Seminar for Foriegn Students 1	2	2
			Reserch Project Seminar for Foriegn Students 2	4	*
Credits required for Master's degree				30	45



: NUT will use for the corresponding subjects.

: HUST will use for Master's thesis (15 credits).

Credits required for Master's degree

University	Credits	Note
NUT	30	General : 6 credits Compulsory : 16 credits Elective : 8 credits
HUST	45	Compulsory : 24 credits Elective : 6 credits Master's thesis : 15 credits

PROGRAM FOR MASTER SCIENCE IN BIOTECHNOLOGY

HUST

(INTERGRATED PROGRAM)

CONTENT	CODE	SUBJECT	CREDITS	QUANTITY
General	SS6011	Philosophy	3	
	FL6010	English		Self learning
Compulsory (15 credits)	BF6713	Bioseparation of biological products	2	2(2-0-0-4)
	BF6714	Special experiments of Bioengineering	1	1(0-0-2-2)
	BF6731	Proteomics	2	2(2-0-0-4)
	BF6736	Gene regulation and expression	2	2(2-0-0-4)
	BF6742	Microbial Metabolism	2	2(2-0-0-4)
	BF6761	Monitoring and control of fermentors	3	3(3-0-0-6)
	BF6762	Biocatalysis	3	3(3-0-0-6)
Optional (6 credits)	BF6122	Product innovation	2	2(2-1-0-4)
	BF6414	Experimental data analysis	2	2(2-1-0-4)
	BF6723	Bioremediation	2	2(2-0-0-4)
	BF6725	Biofuel	2	2(2-0-0-4)
	BF6726	Probiotic and Prebiotic	2	2(2-0-0-4)
	BF6728	Biopolymer	2	2(2-0-0-4)
	BF6743	Extraction, separation, isolation and evaluation of biological compounds	2	2(2-1-0-4)
	BF5717	Diagnostic kit manufacturing technology	2	2(2-0-0-4)
	BF5718	Recombinant Protein Technology	2	2(2-0-0-4)
	BF5722	Nanobiomaterials	2	2(2-0-0-4)
Presentation (6 credits)	BF6767	Seminar 1 (or project 1)	2	
	BF6768	Seminar 2 (or project 2)	2	
	BF6769	Seminar 3 (or project 3)	2	
Thesis (15 credits)	BF6702	Thesis for master of science	15	15(0-0-30-30)
Total			45	