Form № H- 3.01

CABINET OF MINISTERS OF UKRAINE
NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE

CURRICULUM
for specialist training in 2013

Degree	"Master of Science"
Branch of knowledge	0514 "Biotechnology"
Speciality	8.05140105 "Environmental Biotechnology and Bioenergy"
Specialization	Production
Master program	"Methods of microbiological and virological monitoring facilities and crop environment"
Form of training	full-time
Term of study	1,5 years
Qualification of graduates	M.Sc. Biotechnology

Realization of the Master program is performed by

Education and research institute	Plant Science, Environment and Biotechnology
Faculty	"Biotechnology"
Department	Ecobiotechnology and biodiversity Dept., Molecular Biology, Microbiology and Biosafety Dept., Physiology, Plant Biochemistry and Bioenergetics Dept., Agrobiotechnology Dept.

I. STUDY PLAN

a) for specialist training Master of Science Degree in 2013
“Methods of microbiological and virological monitoring facilities and crop environment”

Year of study	2013																	
	September				30	October			28	November				December				30
	2 7	9 14	16 21	23 28	IX 5 X	7 12	14 19	21 26	X 2 XI	4 9	11 16	18 23	25 30	2 7	9 14	16 21	23 28	XII 4 I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
I																		
																		–

Year of study	2014																																
	January			27	February			24	March				31	April			28	May				June				30	July			28	August			
	6 11	13 18	20 25	I 1 II	3 8	10 15	17 22	II 1 III	3 8	10 15	17 22	24 29	III 5 IV	7 12	14 19	21 26	IV 3 V	5 10	12 17	19 24	26 31	2 7	9 14	16 21	23 28	VI 5 VII	7 12	14 19	21 26	VII 2 VIII	4 9	11 16	18 23	25 30
	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	52
I																															X	X	X	X
	–	:	:																		:	:	X	X	X	X	X	X	–	–	–	–	–	–

Year of study	2014																	
	September				29	October			27	November				December				29
	22 6	8 13	15 20	22 27	IX 4 X	6 11	13 18	20 25	X 1 XI	3 8	10 15	17 22	24 29	1 6	8 13	15 20	22 27	XII 3 I
	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
II											:	:	II	II	II	II	//	

b) for specialist training Master of Science Degree in 2012
“Methods of microbiological and virological monitoring facilities and crop environment”

Year of study	2013																	
	September				30	October			28	November				December				30
	2 7	9 14	16 21	23 28	IX 5 X	7 12	14 19	21 26	X 2 XI	4 9	11 16	18 23	25 30	2 7	9 14	16 21	23 28	XII 4 I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
II											:	:	II	II	II	II	//	

Year of study	2014																																
	January			27	February			24	March				31	April			28	May				June				30	July			28	August			
	6 11	13 18	20 25	I 1 II	3 8	10 15	17 22	II 1 III	3 8	10 15	17 22	24 29	III 5 IV	7 12	14 19	21 26	IV 3 V	5 10	12 17	19 24	26 31	2 7	9 14	16 21	23 28	VI 5 VII	7 12	14 19	21 26	VII 2 VIII	4 9	11 16	18 23	25 30
	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	52
II																																		

Nomenclature:

	-	Auditorium classes	X	-	Practical training
:	-	Exams	II	-	Preparation of Master Theses
-	-	Breaks	//	-	State certification (State certification exam and Master Theses defence)

II. CURRICULUM

№ п/п	Name of educational discipline	Amount		Form of control			Auditorium classes, hours				Self study	Practical training		Division of the week hours per years of study and per semesters		
		hours	credits	Examination	Credits	Course project	total	include				Practical training	Research practical training	1st year of study		2st year of study
								lecture	Laboratory work	Practical classes				1 sem	2 sem	3 sem
														Number of weeks per semester		
														17	17	10
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. STATUTORY SUBJECTS																
1.1. Cycle of humanitarian and socio-economic training*																
1	Business foreign language	54	1,5	e			34			34	20			2		
2	Philosophy of science and innovation development	54	1,5	e			17	17			37			1		
3	Occupational Health in branch	36	1		c		17			17	19				1	
4	Civil defense	36	1		c		17			17	19				1	
5	Agricultural, land and environmental law	36	1		c		17	17			19			1		
Total for cycle		**216**	**6**				**102**	**34**		**68**	**114**			**4**	**2**	
1.2. Cycle of natural science (basic) training*																
1	Methods and Research scientific research	54	1,5		c		34	17		17	20			2		
2	International standards and certification technologies, raw materials and finished	36	1		c		17	17			19			1		
3	World agriculture and food resources	36	1		c		17	17			19			1		
4	Strategy of sustainable development of nature and society	36	1		c		17	17			19			1		
Total for cycle		**162**	**4,5**				**85**	**68**		**17**	**77**			**5**		
1.3. Cycle professional and practical training*																
1	Biological Statistics	108	3		c		20	10		10	88					2
2	Genetics Applied to the basics of Cytology	108	3	e			34	17	17		74				2	
3	Modeling and analysis of metabolic processes	36	1		c		17		17		19				1	
4	Application of biotechnology in agricultural and environmental biotechnology in biotehmetody	108	3		c		17	17			91				1	
5	Environmental Biotechnology	108	3	e			34	17	17		74				2	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	Plant Biotechnology	108	3	e		1	34	17	17		74				2	
7	Alternative energy: bioenergy and bioenergy conversion	144	4		c		17	17			127				1	
8	InformationTechnology	108	3		c		34	17	17		74				2	
9	Applied Ecology	108	3	e			34	17		17	74			2		
10	Biomarketing biotechnology products	108	3		c		20	10		10	88					2
Total for cycle		**1044**	**29**				**261**	**139**	**85**	**37**	**783**			**2**	**11**	**4**
2. SELECTIVE COURSES																
2.1. Elective Courses University																
2.1.1. Cycle professional and practical training*																
1	Instrumental methods of analysis	108	3	e			51	17	34		57			3		
2	Agricultural Radiobiology and Radioecology	108	3	e			51	17	34		57			3		
3	Regulatory support (standards and certification) biotechnological processes, industries, products, raw materials and biofuels	108	3		c		17	17			91				2	
4	Biosafety	108	3		c		34	17		17	74				2	
5	Design bioprocess	180	5	e		1	20	10		10	160					2
Total for cycle		**612**	**17**				**173**	**78**	**68**	**27**	**439**			**6**	**4**	**2**
2.2. Disciplines chosen by the student																
2.2.1. Cycle professional and practical training*																
Master's Programme "Methods of microbiological and virological monitoring facilities and crop environment"																
1	Microbiology and Virology in crop production and the environment (section microbiology)	108	3	e			20	10	10		88					2
2	Microbiology and Virology in crop and environment (Virology Section)	108	3	e			20	10	10		88					2
3	Methodology and technical support modern microbiological and virologicalstudie	216	6		c		20	10	10		186					2
4	Molecular Diagnostics and bacteria in the environment	108	3	e			30	10	20		78					3
5	System Analysis of environmental quality and crop production	108	3		c		30	10	20		78					3
Total for cycle		**648**	**18**				**120**	**50**	**70**		**528**					**12**
Sum per selected components		**2682**	**74,5**				**751**	**359**	**253**	**139**	**1823**			**17**	**17**	**18**
Practical trainings		**378**	**10,5**													
Preparing and defense Master's thesis		**180**	**5**													
Number of course projects						**2**										
Number of credits					**17**											
Number of examinations				**12**												
Sum per program		**3240**	**90**													

*Cycles of disciplines according to the requirements of standards for higher education, approved later than 27.08.2010, EQC and OPP.

III. DEGREE REQUIREMENTS

Name of educational discipline	Hours	Credits	%
1. Regulatory academic disciplines			
1.1. Cycle of humanitarian and socio-economic training*	216	6	6,7
1.2. Cycle of naturally (fundamental) training*	162	4,5	5
1.3. Cycle of professional and practical training*	936	29	32,2
2. Elective academic disciplines			
2.1. Disciplines chosen by University			
2.1.1. Cycle naturally scientific (fundamental) training*	612	17	18,9
2.2. Disciplines chosen by students	648		
2.2.1. Cycle professional disciplines and practical training*	648	18	20
3. Other	558	15,5	17,2
Sum per program	**3240**	**90**	**100**

*Cycles of disciplines according to the requirements of standards for higher education, approved later than 27.08.2010, EQC and OPP.

IV. TIME SCHEDULE, WEEKS

Year of study	Auditorium classes	Breaks	Practical training	Preparation of Master Theses	State certification	Breaks	Sum
1	34	4	10			8	56
2	10	2		4	1		17
Sum per program	**44**	**6**	**10**	**4**	**1**	**8**	**73**

V. PRACTICAL TRAINING

№	Practical training	Semester	Hours	Credits	Number of weeks
1	Production	1	198	4,5	4
2	Production	2	288	6	6

VI. COURSE WORK AND PROJECT

№	Name of educational discipline	Hours	Credits	Course work	Course project
1	Plant Biotechnology	18	0,5	к .р.	
2	Design bioprocess	18	0,5	к. р.	

VII. STATE CERTIFICATION

№	State certification	Hours	Credits	Number of weeks
1	Preparation and defence of Master Theses	180	5	5