Form № H- 3.01

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

CURRICULUM
to train specialists as 2013 year entrants

Educational qualificative level	“Master”
Know loads	0502 “Automation and Control”
Specialty	8.05020201 “Automated Control of Technological process”
Specialization	Manufacture
Master’s programmes	“Computer-Integrated process control systems of livestock breeding production”, “Computer-Integrated process control systems of crop growing production”, “Computer-integrated systems of technological processes of recycling and storage of agricultural products”
Specialization	Research
Master’s program	“Energy efficient management of biotechnical objects”
Form of studying	full-time
Term of training	1,5 year
Qualification	engineer-researcher of computer systems and automation
	Implement a master’s program
Institute of	Energetics and Automation
Faculty of	Energetics and Automation
Department of	Automation and robotic systems named after acad. I.I. Martynenko

I. Schedule of studying

a) to train Masters as 2013 year enterants

Specialty 8.05020201 “Automated Control of Technological process”

Course	2013 year																		2014 year																																	
	September				30	October			28	November				December				30	January			27	February			24	March				31	April			28	May				June				30	July			28	August			
	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	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
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	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	–	–	–	–	–	–	–

Course	2014 year																	
	September				29	October			27	November				December				29
	1 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) to train Masters as 2012 year enterants

Specialty 8.05020201 “Automated Control of Technological process”

Course	2013 year																		2014 year																																	
	September				30	October			28	November				December				30	January			27	February			24	March				31	April			28	May				June				30	July			28	August			
	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	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
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	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											:	:	II	II	II	II	//																																			

Legend:

☐ - Theoretical study

: - Examination period

- - Vacation

X - Manufacturing Practice

II - Diploma planning

// - State certification

II. PLAN OF STUDYING PROCESS

№	Course title	The total amount		Forms of knowledge control according to semesters			Classroom hours				self study	The practical training		Distribution of weekly hours for the courses and semesters		
		acad hours	credits	course projec	exam	test	In all	including				educational ptactice	manufacturing practice	1 year		2 year
								lectures	laboratory classes	practical classes				1 s.	2 s.	3 s.
														Quantity of weeks for semester		
														18	18	10
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
1. NORMATIVE ACADEMIC DISCIPLINES																
1	Automated accounting of energy and material resources	108	3,0		1		36	18	18		72			2		
2	Computer simulation control system in agriculture	162	4,5		2		54	18	18	18	108				3	
3	Automation of technological processes	162	4,5	1		18	54	18	18	18	108			3		
4	CAM in agriculture	108	3,0	2			36	18	18		72				2	
5	CAD automation in agriculture	108	3,0	2		36	36	18	18		72				2	
6	Installation, commissioning and operation of automation systems	162	4,5	1		18	54	18	36		108			3		
7	Fundamentals of engineering	108	3,0		1		36	18		18	72			2		
8	Occupational health in the field	108	3,0	1			36	18	18		72			2		
9	Technology research	108	3,0		2		36	18		18	72				2	
10	Special sections of mathematics	108	3,0	2			36	18		18	72				2	
11	Calculations of cost-effectiveness of investigations	72	2,0		3		20	10		10	52					2
12	Business foreign language	108	3,0	1			36			36	72			2		
13	Philosophy of science	108	3,0	1			36	18		18	72			2		
14	Civil protection	54	1,5		1		18	9		9	36			1		
The total number of cycles		**1584**	**44,2**			**72,0**	**524,0**	**217,0**	**144,0**	**163,0**	**1060,0**			**17,0**	**11,0**	**2,0**
2. SELECTIVE STUDYING DISCIPLINES																
2.1. Selective disciplines (University Choice Disciplines)																
1	Agricultural, land and environmental law	72	2,0		1		18	18			54			1		

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
2	Object-Oriented Programming	108	3,0		2		36	18	18		72				2	
3	Information Technology	108	3,0	3			30	10	20		78					3
Master's program “Computer-integrated process control systems of livestock production”																
1	Typical technological objects and processes in husbandery	108	3,0	2			36	18	18		72				2	
2	Modeling of biotechnical objects in livestock breeding	162	4,5	2			54	36	18		108				3	
Master's program “Computer-integrated process control systems of crop production”																
1	Typical technological objects and processes in agriculture	108	3,0	2			36	18	18		72				2	
2	Modeling of biotechnical objects in crop growing	162	4,5	2			54	36	18		108				3	
Master's program “Computer-integrated process control systems processing and storage of agricultural products”																
1	Typical technological objects and processes in the processing and storadge of agricultural products	108	3,0	2			36	18	18		72				2	
2	Modeling of biotechnical objects in the processing and storage of agricultural products	162	4,5	2			54	36	18		108				3	
Master program “Energy efficient management biotechnical objects”																
1	Typical technological objects and processes for processing and storadge of agricultural products	108	3,0	2			36	18	18		72				2	
2	Modeling of biotechnical objects	162	4,5	2			54	36	18		108				3	
The total number of cycles		**558**	**15,0**				**174**	**100**	**74**		**384**			**1**	**7**	**3**
2.2. Student’s Choice Discipline																
Production specialization																
1	Methods and tools of modern automated process control	126	3,5	3		18	30	20	10		96					3
2	Energy efficient technologies in biotechnical facilities management	126	3,5		3		30	20	10		96					3
3	Robotic systems and systems in agriculture	126	3,5	3			30	20	10		96					3
Research specialization																
1	Identification of automation objects	126	3,5	3			30	20	10		96					3
2	Operations research	126	3,5		3	18	30	20	10		96					3
3	Robotic complexes and systems in agriculture	126	3,5	3			30	20	10		96					3

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
According to the tjpic of Master’s thesis																
Production specialization (one discipline to be choosen)																
1	Systems and technologies of database management	144	4,0	3			40	20	20		104					4
2	Computer-integrated control system	144	4,0	3			40	20	20		104					4
3	Optimal systems of automated control	144	4,0	3			40	20	20		104					4
Research specialization (one discipline to be choosen)																
1	Computational Intelligence Systems	144	4,0	3			40	20	20		104					4
2	Neuro Information Systems	144	4,0	3			40	20	20		104					4
The total number of cycles		**522,0**	**14,5**			**18,0**	**130,0**	**70,0**	**60,0**	**0,0**	**392,0**			**0,0**	**0,0**	**13,0**
In all		**2664,0**	**74,0**				**828,0**	**387,0**	**278,0**	**173,0**	**1836,0**			**18,0**	**18,0**	**18,0**
Practical training		**360**	**10,0**									**180**	**180**			
Preparation and defense of master's thesis		**216**	**6,0**								**480**					
Quantity of course project				**x**	**x**	**3**								**1**	**1**	**1**
Quantity of test					**9**									**4**	**3**	**2**
Quantity of exam				**15**										**5**	**5**	**5**
Total to train master		**3240**	**90**	**15**	**9**	**3**	**828**	**387**	**278**	**163**	**2316**	**144**	**216**	**18**	**18**	**18**

* Names cycles of disciplines as required by industry standards for higher education approved after 27.08.2010 year, EQC and EPP

III. STRUCTURE OF THE CURRICULUM

Educational disciplines	Hours	Credits	%
1. Statutory subjects	1584	44	49
2. Selective Courses			
2.1. Courses at the choice of University	558	15,5	17
2.2. Disciplines chosen by the student	522	14,5	16
3. Other load	576	16	18
In all for GLR	**3240**	**90**	**100**

* Names cycles of disciplines as required by industry standards for higher education approved after 27.08.2010 year, EQC and EPP

IV. SUMMARY TIME BUDGET, WEEKS

Course	Theoretical study	Examination period	Practical training	Preparation of master's thesis	State certification	Holidays	In all
1	36	4	8			8	56
2	10	2		4	1		18
In all for GLR	**46**	**6**	**8**	**4**	**1**	**8**	**74**

V. PRACTICAL TRAINING

№	Kind of practise	Semester	Hours	Credits	Weeks
1	Manufacturing of operation of computer systems	1	180	5	4
2	Research on the topic of master's thesis	2	180	5	4

VI. COURSEWORK PAPERS AND PROJECTS

№	Subjects	Hours	Credits	Coursework	Course project
1	Comprehensive course project in the disciplines “Automation of technological processes” and “Mounting, commissioning and exploitation of automation systems”	36	1		КП
2	CAD system of automation of AIC	36	1		КП
3	Methods and tools of modern automated control	18	0,5	КР	
4	Research operations	18	0,5	КР	

VII. STATE ATTESTATION

№	Component of certification	Hours	Credits	Weeks
1	Preparation and defense of master's thesis	216	6	**5**