

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

CURRICULUM

to train specialists as 2013 year entrants

Educational qualitative level	“Master”
Know loads	0507 “Electrical machinery and electro mechanics”
Specialty	8.05070103 “Electrical power system”
Specialization	manufacture
Master program	Electric networks and system
Specialization	research
Master’s program	Electric stations, systems and networks
Form of studying	full-time
Term of training	1,5 year
Qualification	Master in power supply systems

Implement master’s program

Institute of	energetics and automation
faculty of	energetics and automation
Department of	Electrical power system

1. SCHEDULE OF STUDYING PROCESS

a) to train masters as 2013 year entrants
Specialty 8.05070103 “Electrical power system”

Course	2013 year																		2014 year																																					
	September				30	October			November				December				30	January			27	February			24	March				31	April			28	May				June			30	July			28	August									
	2	9	16	23	IX 5	7	14	21	X 2	4	11	18	25	2	9	16	23	XII 4	6	13	20	I 1	3	10	17	II 1	3	10	17	24	III 5	7	14	21	IV 3	5	12	19	26	2	9	16	23	VI 5	7	14	21	VII 2	4	11	18	25				
	7	14	21	28	X	12	19	26	XI	9	16	23	30	7	14	21	28	I	11	18	25	II	8	15	22	III	8	15	22	29	IV	12	19	26	V	10	17	24	31	7	14	21	28	VII	12	19	26	VIII	9	16	23	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					
																			:	:																																				
Course	2014 year																																																							
	September				29	October			November				December				29	January			27	February			24	March				31	April			28	May				June			30	July			28	August									
	1	8	15	22	IX 4	6	13	20	X 1	3	10	17	24	1	8	15	22	XII 3	6	13	20	I 1	3	10	17	II 1	3	10	17	24	III 5	7	14	21	IV 3	5	12	19	26	2	9	16	23	VI 5	7	14	21	VII 2	4	11	18	25				
	6	13	20	27	X	11	18	25	XI	8	15	22	29	6	13	20	27	I	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70																				
II																																																								

b) to train masters as 2012 year entrants
Specialty 8.05070103 “Electrical power system”

Course	2013 year																		2014 year																																				
	September				30	October			November				December				30	January			27	February			24	March				31	April			28	May				June			30	July			28	August								
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	7	14	21	28	X	12	19	26	XI	9	16	23	30	7	14	21	28	I	11	18	25	II	8	15	22	III	8	15	22	29	IV	12	19	26	V	10	17	24	31	7	14	21	28	VII	12	19	26	VIII	9	16	23	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																																																							

Symbols:

- | | | | | | | | | | | | | | |
|--|--------------------------|---------------------|---|----------------------|---|------------|---|---|--------------------------|----|--------------------|----|-----------------------|
| <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="padding-left: 5px;">- Theoretical study</td></tr> <tr><td style="border: 1px solid black; width: 20px; height: 20px; text-align: center;">:</td><td style="padding-left: 5px;">- Examination period</td></tr> <tr><td style="border: 1px solid black; width: 20px; height: 20px; text-align: center;">-</td><td style="padding-left: 5px;">- Holidays</td></tr> </table> | | - Theoretical study | : | - Examination period | - | - Holidays | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 20px; height: 20px; text-align: center;">X</td><td style="padding-left: 5px;">- Manufacturing practice</td></tr> <tr><td style="border: 1px solid black; width: 20px; height: 20px; text-align: center;">II</td><td style="padding-left: 5px;">- Diploma planning</td></tr> <tr><td style="border: 1px solid black; width: 20px; height: 20px; text-align: center;">//</td><td style="padding-left: 5px;">- State certification</td></tr> </table> | X | - Manufacturing practice | II | - Diploma planning | // | - State certification |
| | - Theoretical study | | | | | | | | | | | | |
| : | - Examination period | | | | | | | | | | | | |
| - | - Holidays | | | | | | | | | | | | |
| X | - Manufacturing practice | | | | | | | | | | | | |
| II | - Diploma planning | | | | | | | | | | | | |
| // | - State certification | | | | | | | | | | | | |

II. PLAN OF STUDYING PROCESS
Specialty 8.05070103 “Electrical power system”

№	Course title	The total amount		Forms of knowledge control according to semesters			Classroom hours			self study	The practical training		Distribution weekly hours according to courses and semesters			
		acad hours	credits	course project	exam	test	In all	including			educational practice	manufacturing practice	1-st year		2-nd year	
								lectures	laboratory classes				practical classes	1-st	2-nd	3-d
														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																
1.1. Cycle of humanitarian and socio-economic training*																
1	Intellectual property	36	1,0		1		18	18			18			1		
2	Occupational safety and health in the industry (electrical safety)	144	4,0	2			54	18	36		90			3		
3	Energy Forecasting and Planning	54	1,5		2		36	18		18	18				2	
4	Philosophy of science and innovation development	54	1,5	1			36	18		18	18			2		
5	Civil protection	54	1,5		1		18	9		9	36			1		
6	Business Foreign Language	54	1,5	1			36			36	18			2		
The total number of cycles		396	11				198	81	36	81	198			2	9	0
1.2. Cycle of natural science (basic) training*																
1	Information and computer systems in the energy sector	72	2,0		2		36	18	18		36				2	
2	Fundamentals of Patent and Copyright	72	2,0		1		36	18		18	36			2		
3	Power control and experimental methods of electric modes	72	2,0	1			36	18	18		36			2		
4	Progressive methods of energy conservation and the development of electricity	72	2,0		2		36	18	18		36				2	
The total number of cycles		288	8				144	72	54	18	144			4	4	0
1.3. Cycle of professional and practical training*																
1	Power saving mode power supply	180	5,0	2		36	72	36	18	18	108				4	
2	A typical electric drive	108	3,0		2		36	18	18		72				2	
3	Robot and automated management of power supply systems	180	5,0	2			54	36	18		126				3	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4	Electric supply for industrial enterprises	180	5,0	1		36	72	36	18	18	108			4		
The total number of cycles		648	18			72	234	126	72	36	414			4	9	0
In all		1332	37			72	576	279	162	135	756			17	15	0
2. SELECTIVE COURSES																
2.1. University Choice Disciplines																
1	Agricultural, land and environmental law	72	2,0		1		18	18			54			1		
2	Energy Management and Energy Audit	144	4,0		3		20	10		10	124					2
3	Mathematical models in the optimization problem of power supply	180	5,0		2		54	18		36	126				3	
4	Relay protection and automation of distribution power networks	180	5,0	3			40	20	10	10	140					4
5	Automated control system and electricity consumption control	180	5,0		3		30	20	10		150					3
The total number of cycles		756	21				162	86	20		594	0	0	1	3	9
2.2. Student Choice Disciplines																
Production specialization																
1	Energy efficiency for industrial processes and installations	216	6,0	3			30	20		10	186					3
2	Design of Power Consumption systems	180	5,0	3		36	30	20		10	150					3
3	Technology of maintenance and repair of electrical installations for power consumption systems	180	5,0		3		30	10	20		150					3
The total number of cycles		576,0	16,0				90	50	20	20	486,0			0,0	0,0	9,0
Research specialization																
1	Mathematical and simulation in electrical networks and systems	144	4,0		3		20	10		10	134					2
2	Small plants with renewable energy	144	4,0		3		20	10	10		144					2
3	Grid-systems and artificial intellect in power engineering	144	4,0	3		36	20	10		10	98					2
4	Electromechanical transients in electrical systems	144	4,0	3			20	10	10	10	134					3
Total		2664,0	74,0				828,0	415,0	202,0	155,0	1836,0			18	18	18
Practical training		360	10,0									360				
Preparation and defense of master's thesis		216	6,0													
Quantity of course projects					X	X	3							1	1	1
Quantity of tests						9								4	3	2
Quantity of exams				15										5	5	5
Total		3240	90				828	415	202	155	1836	360		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			
1.1. The cycle of social and economic disciplines*	396	11	112
1.2. Cycle of natural science training disciplines*	288	8	99
1.3. Cycle of professionally oriented disciplines	648	18	220
2. Selective Courses			
2.1. Courses at the choice of University	756	21	223
2.2. Disciplines at the choice of student	576	16	118
3. Other load	576	16	118
In all for GLR	3240	90	1100

* 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	Electricity Supply for industrial enterprises	36	1		CP
2	Energy saving modes for power supply	36	1		CP
3	Designing of systems of electrical consumption	36	1		CP
4	Grid-systems and artificial intellect in power engineering	36	1		CP

VII. STATE ATTESTATION

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

