E-223i.e

Форма Б1-23 м2

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

NATIONAL TECHNICAL UNIVERSITY "KHARKIV POLYTECHNIC INSTITUTE"

CURRICULUM

educational professional program

Electromechanics

APPROVED BY

Rector of NTU "KhPI" **Yevgen SOKOL**

for the training **first (bachelor`s) level** (higher education level) **by specialty** **-** **141** **Electrical Power Engeneering, Electrical Engeneering and Electromechanics**

in the field of knowledge **14 Electrical engineering** (knowledge field code and title)

Qualification **The Bachelor of Electric Power Engineering, Electrical Engineering and Electromechanics**

Period of study **3 years 10 months**

June 02, 2023

on the basis of **complete secondary education**

Form of study **full-time**

I. Schedule of education process

Курс	September				October				November					December				January					February				March				April				May					June				July					August			
	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																	T	V	E	E	E	V																	T	E	E	E	V	V	V	V	V	V	V	V	V	V
II																	T	V	E	E	E	V																	T	E	E	E	V	V	V	V	V	V	V	V	V	V
III																	T	V	E	E	E	V													T	E	E	E	P	P	P	P	V	V	V	V	V	V	V	V	V	V
IV																	T	V	E	E	E	V											E	E	P	P	P	P	Q	Q	D	D										

Legend: Theoretical study; **E** Exam Session; **P** Practice; **Q** Preparation of qualification work; **T** Test week; **V** Vacation; **D** Defending of qualification work

II. Consolidated budget time (in weeks)

Course	Theoretical study	Exam Session	Practice	Attestation	Preparation of qualification work	Vacation	Total
I	32	8	0	0	0	12	52
II	32	8	0	0	0	12	52
III	28	8	4	0	0	12	52
IV	26	6	4	2	2	2	42
total	118	30	8	2	2	38	198

III. Practice

Type of practice	Duration (in weeks)	Semester
Practical	4	6
Pre-graduation	4	8

IV. Attestation

Measures	Number of ECTS credits	Semester
Preparation of qualification work	3,0	8
Defending of qualification work	3,0	8
Proficiency examination		

V. EDUCATION PROCESS PLAN

Code in accordance with the EPP	Name of academic discipline	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester																Department
							Classroom				Independent work	I course				II course		III course		IV course								
							including					Semesters																
												1		2		3		4		5		6		7		8		
												Number of weeks in the semester																
												20		20		20		20		20		20		20		20		
		Exams	Tests	Individual tasks		Total amount	Total	Lectures	Laboratory works	Practical studies		Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	Classroom hours	ECTS credits	
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
1	**Obligatory educational components**				**132,0**	**3960,0**	**1744,0**	**688,0**	**192,0**	**864,0**	**2216,0**	**22,0**	**27,0**	**20,0**	**24,0**	**22,0**	**26,0**	**21,0**	**24,0**	**12,0**	**15,0**	**9,0**	**9,0**	**4,0**	**5,0**	**2,0**	**2,0**	
1.1	**General training**				79,0	2370,0	1068,0	320,0	80,0	668,0	1302,0	19,0	23,0	17,0	20,0	13,0	15,0	9,0	10,0	4,0	5,0	2,0	2,0	2,0	2,0	2,0	2,0	
GT 1	**History and Culture of Ukraine**	1		R	4,0	120,0	48,0	16,0		32,0	72,0	3,0	4,0															**310**
GT 2	**Philosophy**	4		R	3,0	90,0	32,0	16,0		16,0	58,0							2,0	3,0									**307**
GT 3	**Jurisprudence**		3	R	3,0	90,0	32,0	16,0		16,0	58,0					2,0	3,0											**306**
GT 4	**History of Science and Technology**		5	R	3,0	90,0	32,0	16,0		16,0	58,0									2,0	3,0							**310**
GT 5	**English Language for professional purposes**		3,4,5, 6, 7,8	R	12,0	360,0	172,0			172,0	188,0					2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	**275**
GT 6	**Language for Professional Training**	2	1	R	7,0	210,0	96,0			96,0	114,0	2,0	2,0	4,0	5,0													**275**
GT 7	**Ukrainian as a Foreign Language**	4	1,2,3	R	8,0	240,0	128,0			128,0	112,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0									**273**
GT 8	**Ecology**		2	R	3,0	90,0	32,0	16,0	16,0		58,0			2,0	3,0													**144**
GT 9	**Chemistry**		1	C	4,0	120,0	48,0	32,0	16,0		72,0	3,0	4,0															**192**
GT 10	**Higher Mathematics p.1**	1		C	6,0	180,0	80,0	48,0		32,0	100,0	5,0	6,0															**170**
GT 10	**Higher Mathematics p.2**	2		C	6,0	180,0	80,0	32,0		48,0	100,0			5,0	6,0													**170**
GT 10	**Higher Mathematics p.3**	3		C	4,0	120,0	48,0	16,0		32,0	72,0					3,0	4,0											**170**
GT 10	**Higher Mathematics p.4**	4		C	3,0	90,0	48,0	16,0		32,0	42,0							3,0	3,0									**170**
GT 11	**Physics p.1**	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0															**168**
GT 11	**Physics p.2**	2		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0			4,0	4,0													**168**
GT 11	**Physics p.3**	3		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0					4,0	4,0											**168**
1.2	**Professional training**				**53,0**	**1590,0**	**676,0**	**368,0**	**112,0**	**196,0**	**914,0**	**3,0**	**4,0**	**3,0**	**4,0**	**9,0**	**11,0**	**12,0**	**14,0**	**8,0**	**10,0**	**7,0**	**7,0**	**2,0**	**3,0**	**0,0**	**0,0**	
PT 1	**Descriptive Geometry, Engineering and Cumputer Graphics**	1		CG	4,0	120,0	48,0	16,0		32,0	72,0	3,0	4,0															**163**
PT 2	**Fundamentals of Power Electrical Engineering**	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0													**125**
PT 3	**Fundamentals of Metrology and Electrical Measurements**	3		C	5,0	150,0	64,0	32,0	32,0		86,0					4,0	5,0											**173**
PT 4	**Theoretical Basics of Electrical Engineering p.1**	3		C	6,0	180,0	80,0	48,0	16,0	16,0	100,0					5,0	6,0											**137**
PT 5	**Theoretical Basics of Electrical Engineering p.2**	4		C	5,0	150,0	80,0	32,0	16,0	32,0	70,0							5,0	5,0									**137**
PT 6	**Fundamentals of Electronics**	4		C	5,0	150,0	64,0	48,0	16,0	0,0	86,0							4,0	5,0									**128**
PT 7	**Technical Mechanics**		4	CG	4,0	120,0	48,0	32,0		16,0	72,0							3,0	4,0									**148**
PT 8	**Electrical Machines**	5		C	6,0	180,0	80,0	48,0	16,0	16,0	100,0									5,0	6,0							**126**
PT 9	**Electrical Apparatus**	5		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0									3,0	4,0							**127**
PT 10	**Fundamentals of Electrical Drive**	6		C	4,0	120,0	48,0	24,0		24,0	72,0											4,0	4,0					**129**
PT 11	**Fundamentals of Occupational Safety and Health**	6		R	3,0	90,0	36,0	24,0		12,0	54,0											3,0	3,0					**144**
PT 12	**Enterprise Economics**		7	C	3,0	90,0	32,0	16,0		16,0	58,0													2,0	3,0			**202**
2	**Practical Preparation**				**12,0**	**360,0**	**0,0**	**0,0**	**0,0**	**0,0**	**360,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**6,0**	**0,0**	**0,0**	**0,0**	**6,0**	
PP1	**Practical Training***		6		6,0	180,0	0,0				180,0												6,0					**120**

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
PP2	**Pre-graduation Practice***		8		6,0	180,0	0,0				180,0																6,0	**120**
3	**Attestation***				**6,0**	**180,0**	**0,0**				**180,0**																**6,0**	**120**
4	**Optional educational components**				**90,0**	**2700,0**	**1120,0**	**430,0**	**194,0**	**224,0**	**1580,0**	**3,0**	**3,0**	**5,0**	**6,0**	**3,0**	**4,0**	**5,0**	**6,0**	**12,0**	**15,0**	**14,0**	**15,0**	**19,0**	**25,0**	**20,0**	**16,0**	
4.1	**Profile training**				30,0	900,0	392,0	190,0	102,0	100,0	508,0	3,0	3,0	0,0	0,0	0,0	0,0	0,0	0,0	5,0	6,0	0,0	0,0	4,0	5,0	20,0	16,0	
4.1.1	**Profiled discipline package 01 "Electrical Machines"**				**30,0**	**900,0**	**392,0**	**190,0**	**102,0**	**100,0**	**508,0**	**3,0**	**3,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**5,0**	**6,0**	**0,0**	**0,0**	**4,0**	**5,0**	**20,0**	**16,0**	
OP1.1	**Introduction to Speciality. Introductory Practice**	1		C	3,0	90,0	48,0	16,0		32,0	42,0	3,0	3,0															**126**
OP1.2	**Theory of Electromagnetic Fields and Processes in Electrical Engineering**	5		CW	6,0	180,0	80,0	32,0	32,0	16,0	100,0									5,0	6,0							**126**
OP1.3	**Asynchronous Machines Designing**	7		CP	5,0	150,0	64,0	32,0		32,0	86,0													4,0	5,0			**126**
OP1.4	**Exploitation and Repair of Electrical Machines**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**126**
OP1.5	**Production of Electrical Machines**	8		C	4,0	120,0	50,0	30,0	20,0		70,0															5,0	4,0	**126**
OP1.6	**Testing and Diagnostics of Electrical Machines**	8		C	4,0	120,0	50,0	30,0	20,0		70,0															5,0	4,0	**126**
OP1.7	**Electrical Machines Design in CAD**		8	C	4,0	120,0	50,0	20,0	30,0		70,0															5,0	4,0	**126**
4.1.2	**Profiled discipline package 02 "Electrical Apparatus"**				**30,0**	**900,0**	**392,0**	**200,0**	**52,0**	**140,0**	**508,0**	**3,0**	**3,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**5,0**	**6,0**	**0,0**	**0,0**	**4,0**	**5,0**	**20,0**	**16,0**	
OP2.1	**Introduction to Speciality. Introductory Practice**	1		C	3,0	90,0	48,0	16,0		32,0	42,0	3,0	3,0															**127**
OP2.2	**Mechanical Engineering Technology**	5		C	6,0	180,0	80,0	32,0	16,0	32,0	100,0									5,0	6,0							**127**
OP2.3	**Low Voltage Electromechanical Apparatus**	7		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0													4,0	5,0			**127**
OP2.4	**High Voltage Electromechanical Apparatus and Assemblies**		8	C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**127**
OP2.5	**Semiconductor Switching Units and Automatics Elements**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**127**
OP2.6	**Microprocessor Devices**	8		C	4,0	120,0	50,0	30,0	10,0	10,0	70,0															5,0	4,0	**127**
OP2.7	**Electromagnetic Apparatus and Induction-Dynamical Systems**	8		C	4,0	120,0	50,0	30,0	10,0	10,0	70,0															5,0	4,0	**127**
4.1.3	**Profiled discipline package 03 "Household Appliances"**				**30,0**	**900,0**	**392,0**	**200,0**	**52,0**	**140,0**	**508,0**	**3,0**	**3,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**5,0**	**6,0**	**0,0**	**0,0**	**4,0**	**5,0**	**20,0**	**16,0**	
OP3.1	**Introduction to Speciality. Introductory Practice**	1		C	3,0	90,0	48,0	16,0		32,0	42,0	3,0	3,0															**127**
OP3.2	**Mechanical Engineering Technology**	5		C	6,0	180,0	80,0	32,0	16,0	32,0	100,0									5,0	6,0							**127**
OP3.3	**Electromechanical Apparatus and Distribution Devices for Household Use**	7		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0													4,0	5,0			**127**
OP3.4	**Household Appliances**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**127**
OP3.5	**Automatic Elements in Household Appliances**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**127**
OP3.6	**Microprocessor Devices**	8		C	4,0	120,0	50,0	30,0	10,0	10,0	70,0															5,0	4,0	**127**
OP3.7	**Electromagnetic Apparatus and Induction-Dynamical Systems**	8		C	4,0	120,0	50,0	30,0	10,0	10,0	70,0															5,0	4,0	**127**
4.1.4	**Profiled discipline package 04 "Electric transport"**				**30,0**	**900,0**	**392,0**	**200,0**	**16,0**	**176,0**	**508,0**	**3,0**	**3,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**5,0**	**6,0**	**0,0**	**0,0**	**4,0**	**5,0**	**20,0**	**16,0**	
OP4.1	**Introduction to Speciality. Introductory Practice**	1		C	3,0	90,0	48,0	16,0		32,0	42,0	3,0	3,0															**125**
OP4.2	**Diagnostics and Measurements on Railway Transport**	5		C	6,0	180,0	80,0	32,0	16,0	32,0	100,0									5,0	6,0							**125**
OP4.3	**Rolling Stock Traction Drive (Electrical Part)**	7		C	5,0	150,0	64,0	32,0		32,0	86,0													4,0	5,0			**125**
OP4.4	**Production Technology and Rolling Stock Repair**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**125**
OP4.5	**Control Systems of Rolling Stock of Railway**	8		C	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**125**
OP4.6	**Rolling Stock Auxiliary Systems**		8	R	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**125**
OP4.7	**Rolling Stock Operation and Maintenance**	8		R	4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	**125**
4.2	**Optional student disciplines of the profile preparation according to the list**				**48,0**	**1440,0**	**596,0**	240,0	92,0	124,0	**844,0**			5,0	6,0	3,0	4,0	5,0	6,0	4,0	5,0	11,0	11,0	12,0	16,0			

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
4.3	**Optional student disciplines from the general university catalog of disciplines**				**12,0**	**360,0**	**132,0**	**0,0**	**0,0**	**0,0**	**228,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**3,0**	**4,0**	**3,0**	**4,0**	**3,0**	**4,0**	**0,0**	**0,0**	
OPG1	**Discipline 1**		5		4,0	120,0	48,0				72,0									3,0	4,0							
OPG2	**Discipline 2**		6		4,0	120,0	36,0				84,0											3,0	4,0					
OPG3	**Discipline 3**		7		4,0	120,0	48,0				72,0													3,0	4,0			
	Total for education period				**240,0**	**7200,0**	**2864,0**				**4336,0**	**25,0**	**30,0**	**25,0**	**30,0**	**25,0**	**30,0**	**26,0**	**30,0**	**24,0**	**30,0**	**23,0**	**30,0**	**23,0**	**30,0**	**22,0**	**30,0**	

Hours per week	25,0	25,0	25,0	26,0	24,0	23,0	23,0	22,0
Number of exams	5	5	4	4	4	4	4	3
Number of tests	2	2	3	3	3	3	3	2
Number of course projects (works)		1		1	1	1	1	
Numbers of disciplines per semester	8	6	7	7	6	4	4	5

Individual tasks	
C	Calculated task
CG	Calculated and graphic task
R	Report
CP	Course project
CW	Course work

Approved by the Academic Council of NTU "KhPI"
PROTOCOL №5 from June 02, 2023

Vice-rector of Scientific-and-Pedagogical Work — **Gennadiy KHRYPUNOV**

Head of the educational program — **Olena YURIEVA**

Head of the Institute of Education and Science in Power Engineering, Electronics and Electromechanics — **Roman TOMASHEVSKYI**

Head of the Department of Electrical Machines — **Volodymyr MILYKH**

Head of the Department of Electrical Apparatus — **Yevhen BAIDA**

Head of the Department of Electrical Transport and Locomotive Engineering — **Borys LIUBARSKYI**

* Practices and attestations are carried out by graduating departments

List of optional student disciplines of the profile training

Code in accordance with the EPP	Name of academic discipline	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester																Department	
							Classroom						I course				II course				III course				IV course					
								including					Semesters																	
													1		2		3		4		5		6		7		8			
													Number of weeks in the semester																	
													20		20		20		20		20		20		20		20			
		Exams	Tests	Individual tasks		Total amount	Total	Lectures	Laboratory works	Practical studies	Independent work	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits	Classroom hours	ECTS creits		
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	
2.2	**Optional student disciplines of the profile training**																												E-223i.e
OPT1	**Information Technology in Electrical Machines**	2		CW	6,0	180,0	80,0	32,0	32,0	16,0	100,0			5,0	6,0													**126**	E-223i.e
OPT2	**Fundamentals of Information Technologies**	2		CW	6,0	180,0	80,0	32,0	32,0	16,0	100,0			5,0	6,0													**127**	E-223i.e
OPT3	**Information Technology on Transport**	2		CW	6,0	180,0	80,0	32,0	32,0	16,0	100,0			5,0	6,0													**125**	E-223i.e
OPT4	**Theoretical Mechanics**	3		C	4,0	120,0	48,0	32,0		16,0	72,0					3,0	4,0											**166**	E-223i.e
OPT5	**Electrotechnical Materials**	3		C	4,0	120,0	48,0	32,0		16,0	72,0					3,0	4,0											**133**	E-223i.e
OPT6	**General Course of Railways**	3		C	4,0	120,0	48,0	32,0		16,0	72,0					3,0	4,0											**125**	E-223i.e
OPT7	**Fundamentals of Programming and Computer Graphics in Electrical Machines**	4		CP	6,0	180,0	80,0	32,0	48,0		100,0							5,0	6,0									**126**	E-223i.e
OPT8	**Computer-aided Design Systems**	4		CP	6,0	180,0	80,0	32,0		48,0	100,0							5,0	6,0									**127**	E-223i.e
OPT9	**Fundamentals of Automated Design of Railway Transport Elements**	4		CP	6,0	180,0	80,0	32,0		48,0	100,0							5,0	6,0									**125**	E-223i.e
OPT10	**Technology of Electric Machinery Industry**	5		C	5,0	150,0	80,0	32,0	16,0	32,0	70,0									5,0	5,0							**126**	E-223i.e
OPT11	**Theory of Electromagnetic Fields**	5		C	5,0	150,0	80,0	32,0		48,0	70,0									5,0	5,0							**137**	E-223i.e
OPT12	**Theory of Automatic Control**	5		C	5,0	150,0	80,0	32,0	32,0	16,0	70,0									5,0	5,0							**125**	E-223i.e
OPT13	**General Theory of Electrical Machines**	6		CP	4,0	120,0	48,0	24,0	12,0	12,0	72,0											4,0	4,0					**126**	E-223i.e
OPT14	**Microprocessors and Microcontrollers**	6		CP	4,0	120,0	48,0	24,0	12,0	12,0	72,0											4,0	4,0					**127**	E-223i.e
OPT15	**Traction Theory of Trains**	6		CP	4,0	120,0	48,0	24,0	12,0	12,0	72,0											4,0	4,0					**125**	E-223i.e
OPT16	**Design of Electrical Machines**	6		C	4,0	120,0	48,0	24,0		24,0	72,0											4,0	4,0					**126**	E-223i.e
OPT17	**Fundamentals of Relay Protection Systems for Electrical Networks**	6		C	4,0	120,0	48,0	24,0		24,0	72,0											4,0	4,0					**127**	E-223i.e
OPT18	**Service and Repair of House-hold Appliances**	6		C	4,0	120,0	48,0	24,0		24,0	72,0											4,0	4,0					**127**	E-223i.e
OPT19	**Modelling Processes of Work of Railways Rolling Stock**	6		C	4,0	120,0	48,0	16,0		32,0	72,0											4,0	4,0					**125**	E-223i.e
OPT20	**Electromagnetic Computer Calculation of Electrical Machines**	6		C	3,0	90,0	36,0	24,0	12,0		54,0											3,0	3,0					**126**	E-223i.e
OPT21	**Contact and Arcing Systems, Thermal Processes in Electrical Apparatus**	6		C	3,0	90,0	36,0	24,0		12,0	54,0											3,0	3,0					**127**	E-223i.e
OPT22	**Fundamentals of Household Appliances**	6		C	3,0	90,0	36,0	24,0		12,0	54,0											3,0	3,0					**127**	E-223i.e
OPT23	**Rolling Stock Traction Drive (Mechanical Part)**	6		CG	3,0	90,0	36,0	24,0		12,0	54,0											3,0	3,0					**125**	E-223i.e
OPT24	**Thermal, Hydraulic and Aerodynamic Processes in Electrical Machines**	7		C	4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			**126**	E-223i.e
OPT25	**Microcontroller programming**	7		C	4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			**127**	E-223i.e
OPT26	**Brake Systems and Traffic Safety on Rolling Stock**	7		CG	4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			**125**	E-223i.e
OPT27	**Electrical Machines for Automation and House-hold Appliances**	7		C	4,0	120,0	48,0	32,0	16,0		72,0													3,0	4,0			**126**	E-223i.e
OPT28	**Electrical Equipment of Industrial Enterprises and Power Plants**	7		C	4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			**126**	E-223i.e

OPT29	**Mathematical Simulation of Electrical Machines**	7		C	4,0	120,0	64,0	32,0	32,0		56,0												4,0	4,0			**126**	E-223i.e
OPT30	**Information Technologies**	7		C	4,0	120,0	48,0	16,0	32,0		72,0												3,0	4,0			**127**	E-223i.e
OPT31	**Power Supply of Industrial Enterprises and Civil Buildings**	7		C	4,0	120,0	48,0	32,0		16,0	72,0												3,0	4,0			**127**	E-223i.e
OPT32	**Simulation of Electromechanical Systems**	7		C	4,0	120,0	64,0	32,0		32,0	56,0												4,0	4,0			**127**	E-223i.e
OPT33	**Control Systems of Rolling Stock Traction Drive**	7		C	4,0	120,0	64,0	32,0		32,0	56,0												4,0	4,0			**125**	E-223i.e
OPT34	**Mechanical Part of Rolling Stock**	7		CG	4,0	120,0	48,0	32,0		16,0	72,0												3,0	4,0			**125**	E-223i.e
OPT35	**Traction Substations and Networks**	7		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0												3,0	4,0			**125**	E-223i.e

Форма Б1-23 м2

E-223i.e

CONTENT of CURRICULUM

for the training of the first (bachelor) level:
by specialty

141

Electrical Power Engeneering, Electrical Engeneering and Electromechanics

Number in order	Discipline title	Total amount				Department code
		ECTS credits	Hours	Semesters		
				Exam	Test	
1	2	3	4	5	6	7
1	**Obligatory educational components**	**132,0**	**3960,0**			**55,00%**
1.1	**General training**	79,0	2370,0			**60%**
GT 1	History and Culture of Ukraine	4,0	120,0	1		**310**
GT 2	Philosophy	3,0	90,0	4		**307**
GT 3	Jurisprudence	3,0	90,0		3	**306**
GT 4	History of Science and Technology	3,0	90,0		5	**310**
GT 5	English Language for professional purposes	12,0	360,0		3,4,5,6, 7,8	**275**
GT 6	Language for Professional Training	7,0	210,0	2	1	**275**
GT 7	Ukrainian as a Foreign Language	8,0	240,0	4	1,2,3	**273**
GT 8	Ecology	3,0	90,0		2	**144**
GT 9	Chemistry	4,0	120,0		1	**192**
GT 10	Higher Mathematics p.1	6,0	180,0	1		**170**
GT 10	Higher Mathematics p.2	6,0	180,0	2		**170**
GT 10	Higher Mathematics p.3	4,0	120,0	3		**170**
GT 10	Higher Mathematics p.4	3,0	90,0	4		**170**
GT 11	Physics p.1	5,0	150,0	1		**168**
GT 11	Physics p.2	4,0	120,0	2		**168**
GT 11	Physics p.3	4,0	120,0	3		**168**
1.2	**Professional training**	53,0	1590,0			**40%**
PT 1	Descriptive Geometry, Engineering and Cumputer Graphics	4,0	120,0	1		**163**
PT 2	Fundamentals of Power Electrical Engineering	4,0	120,0	2		**125**
PT 3	Fundamentals of Metrology and Electrical Measurements	5,0	150,0	3		**173**
PT 4	Theoretical Basics of Electrical Engineering p.1	6,0	180,0	3		**137**
PT 5	Theoretical Basics of Electrical Engineering p.2	5,0	150,0	4		**137**
PT 6	Fundamentals of Electronics	5,0	150,0	4		**128**
PT 7	Technical Mechanics	4,0	120,0		4	**148**
PT 8	Electrical Machines	6,0	180,0	5		**126**
PT 9	Electrical Apparatus	4,0	120,0	5		**127**
PT 10	Fundamentals of Electrical Drive	4,0	120,0	6		**129**
PT 11	Fundamentals of Occupational Safety and Health	3,0	90,0	6		**144**
PT 12	Enterprise Economics	3,0	90,0	0	7	**202**
2	**Practical Preparation**	**12,0**	**360,0**			**5,00%**
PP1	Practical Training*	6,0	180,0		6	**120**
PP2	Pre-graduation Practice*	6,0	180,0		8	**120**
3	**Attestation***	**6,0**	**180,0**			**2,50%**
4	**Optional educational components**	**90,0**	**2700,0**			**37,50%**
4.1	**Profile training**	**30,0**	**900,0**			**33%**
4.1.1	**Profiled discipline package 01 "Electrical Machines"**	**30,0**	**900,0**			
OP1.1	Introduction to Speciality. Introductory Practice	3,0	90,0	1		**126**
OP1.2	Theory of Electromagnetic Fields and Processes in Electrical Engineering	6,0	180,0	5		**126**
OP1.3	Asynchronous Machines Designing	5,0	150,0	7		**126**
OP1.4	Exploitation and Repair of Electrical Machines	4,0	120,0	8		**126**
OP1.5	Production of Electrical Machines	4,0	120,0	8		**126**
OP1.6	Testing and Diagnostics of Electrical Machines	4,0	120,0	8		**126**
OP1.7	Electrical Machines Design in CAD	4,0	120,0	0	8	**126**
4.1.2	Profiled discipline package 02 "Electrical Apparatus"	30,0	900,0			
OP2.1	Introduction to Speciality. Introductory Practice	3,0	90,0	1		**127**
OP2.2	Mechanical Engineering Technology	6,0	180,0	5		**127**
OP2.3	Low Voltage Electromechanical Apparatus	5,0	150,0	7		**127**
OP2.4	High Voltage Electromechanical Apparatus and Assemblies	4,0	120,0		8	**127**
OP2.5	Semiconductor Switching Units and Automatics Elements	4,0	120,0	8		**127**
OP2.6	Microprocessor Devices	4,0	120,0	8		**127**
OP2.7	Electromagnetic Apparatus and Induction-Dynamical Systems	4,0	120,0	8		**127**
4.1.3	Profiled discipline package 03 "Household Appliances"	30,0	900,0			
OP3.1	Introduction to Speciality. Introductory Practice	3,0	90,0	1		**127**
OP3.2	Mechanical Engineering Technology	6,0	180,0	5		**127**
OP3.3	Electromechanical Apparatus and Distribution Devices for Household Use	5,0	150,0	7		**127**
OP3.4	Household Appliances	4,0	120,0	8		**127**
OP3.5	Automatic Elements in Household Appliances	4,0	120,0	8		**127**
OP3.6	Microprocessor Devices	4,0	120,0	8		**127**
OP3.7	Electromagnetic Apparatus and Induction-Dynamical Systems	4,0	120,0	8		**127**
4.1.4	Profiled discipline package 04 "Electric transport"	30,0	900,0			
OP4.1	Introduction to Speciality. Introductory Practice	3,0	90,0	1		**125**
OP4.2	Diagnostics and Measurements on Railway Transport	6,0	180,0	5		**125**
OP4.3	Rolling Stock Traction Drive (Electrical Part)	5,0	150,0	7		**125**
OP4.4	Production Technology and Rolling Stock Repair	4,0	120,0	8		**125**
OP4.5	Control Systems of Rolling Stock of Railway	4,0	120,0	8		**125**
OP4.6	Rolling Stock Auxiliary Systems	4,0	120,0		8	**125**
OP4.7	Rolling Stock Operation and Maintenance	4,0	120,0	8		**125**
4.2	Optional student disciplines of the profile preparation according to the list	48,0	1440,0			**53%**
4.3	Optional student disciplines from the general university catalog of disciplines	12,0	360,0			**13%**
OPG1	Discipline 1	4,0	120,0		5	
OPG2	Discipline 2	4,0	120,0		6	
OPG3	Discipline 3	4,0	120,0		7	
0	**Total for education period**	**240,0**	**7200,0**			