

V. EDUCATION PROCESS PLAN

№ зп	Назва навчальної дисципліни	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester						Department
		Exams	Tests	Individual tasks		Total amount	Classroom			Independent work	1 course		2 course		3			
							Total	including			Semesters		Semesters		Semesters			
								Lectures	Laboratory works		Practical studies	1	2	1	2	1	2	
												Number of weeks in the semester						
							20	20	16									
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
1	Obligatory educational components				25,0	750,0	288,0	128,0		160,0	462,0	9,0	13,0	9,0	12,0			
1.1	General training				9,0	270,0	96,0	32,0		64,0	174,0	6,0	9,0					
GT1	Intellectual Property		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0					202
GT2	Innovative entrepreneurship and management of startup projects		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0					202
GT3	Foreign language for professional purposes		1	R	3,0	90,0	32,0			32,0	58,0	2,0	3,0					275
1.2	Special (professional) training				16,0	480,0	192,0	96,0		96,0	288,0	3,0	4,0	9,0	12,0			
ST1	Fundamentals of scientific research		1	C	4,0	120,0	48,0	16,0		32,0	72,0	3,0	4,0					120
ST2	Labor and professional safety		2	R	3,0	90,0	32,0	16,0		16,0	58,0			2,0	3,0			120
ST3	Reliability and Diagnostics	2		C	5,0	150,0	64,0	32,0		32,0	86,0			4,0	5,0			120
ST4	Problems, Technologies, and Prospects of Electrical Power engineering and electromechanics	2		R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			120
2	Practical training				15,0	450,0					450,0						15,0	
PT1	Pre-graduation practice				15,0	450,0					450,0						15,0	129
3	Attestation				15,0	450,0					450,0						15,0	129
4	Optional educational component				35,0	1050,0	480,0	272,0	80,0	128,0	570,0	15,0	17,0	15,0	18,0			
4.1	Profile training				17,0	510,0	224,0	128,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
4.1.1	Profiled discipline package 01 "Electric Power Stations"				17,0	510,0	224,0	128,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
OP1.1	Power Plants Auxiliary Systems	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					130
OP1.2	Technologies of Energy Storage and Load	1		R	4,0	120,0	64,0	32,0	16,0	16,0	56,0	4,0	4,0					130
OP1.3	Optimization Tasks of Power Engineering	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			130
OP1.4	Energy Management		2	R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			130
4.1.2	Profiled discipline package 02 "Electrical systems and networks"				17,0	510,0	224,0	128,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
OP2.1	Control of Electric Power Systems Modes and Automation	1		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0	4,0	4,0					131
OP2.2	Mathematical Basis of Technical Diagnostics	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					131
OP2.3	Dispatch Management and information-management systems		2	R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			131
OP2.4	Basics of objects electrical systems and networks operation	2		R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			131
4.1.5	Profiled discipline package 05 "Energy Management and Energy Efficient Technologies"				17,0	510,0	224,0	128,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
OP5.1	Renewable energy systems and secondary energy resources	1		R	4,0	120,0	64,0	48,0		16,0	56,0	4,0	4,0					130
OP5.2	Energy Management and Audit	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					130
OP5.3	Ecological Aspects of Power Industry	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			130
OP5.4	Accounting and measurement of energy parameters		2	R	4,0	120,0	48,0	16,0	16,0	16,0	72,0			3,0	4,0			130
4.1.6	Profiled discipline package 06 "Renewable energy sources"				17,0	510,0	224,0	128,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
OP6.1	Hydrogen energetics and nanotechnology	1		R	4,0	120,0	64,0	48,0		16,0	56,0	4,0	4,0					135
OP6.2	Photoelectric converters	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					135
OP6.3	Technique and design of experiments	2		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0			3,0	4,0			135

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	29
OP6.4	Ecological Aspects of Power Industry		2	R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0			135
4.1.7	Profiled discipline package 07 "High voltage techniques and electrophysics"				17,0	510,0	224,0	96,0	32,0	64,0	286,0	8,0	9,0	6,0	8,0			
OP7.1	Technique of strong electric and magnetic fields	1		R	4,0	120,0	64,0	48,0		16,0	56,0	4,0	4,0					135
OP7.2	Calculation and design of magnetic pulse installations	1		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0					135
OP7.3	Technique and design of experiments	2		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0			3,0	4,0			135
OP7.4	High frequency currents and ultrasound in engineering		2	R	4,0	120,0	48,0	32		16,0	72,0			3,0	4,0			135
4.2	Optional student disciplines of the profile preparation according to the list (the list is attached)				18,0	540,0	256,0	144,0	48,0	64,0	284,0	7,0	8,0	9,0	10,0			120
Total for education period					90,0	2700,0	768,0	400,0	80,0	288,0	1932,0	24,0	30,0	24,0	30,0		30,0	
Hours per week												24,0		24,0				
Number of exams												4		5		1		
Number of tests												4		2		1		
Number of course projects (works)												1		1				
Numbers of disciplines per semester												8,0		7,0				

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

Approved by the Academic Council of NTU "KhPI"

PROTOCOL № 5 from 2.06.2023

Vice-rector of Scientific-and-Pedagogical Work

Gennadyi KHRYPUNOV

Head of the educational program Electrical Power Engineering

Oleksandr LAZURENKO

Head of the Institute of Education and Science in Power Engineering, Electronics and Electromechanics

name of the Institute

Roman TOMASHEVSKYI

Head of the Department Engineering Electrophysics

name of department

Sergiyi MOSTOVYI

Head of the Department of Power Stations

name of department

Oleksandr LAZURENKO

Head of the Department of Electric power transmission

name of department

Sergiyi SHEVCHENKO

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	29
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----

List of optional student disciplines of the profile training

Number in order	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	
		Exams	Tests	Individual tasks		Total amount	Classroom				Independent work	1 course				2 course					
							Total	including				Semesters		Semesters							
								Lectures	Laboratory works	Practical studies		1	2	3							
		Number of weeks in the semester								20		20		16		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	29	
2.2	Optional student disciplines of the profile training																				
OPT1	Modeling of electric power equipment and processess	1		CW	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0							130	
OPT2	Power Plant Dispatching and SCADA	1		C	3,0	90,0	48,0	32,0		16,0	42,0	3,0	3,0							130	
OPT3	Ecological Aspects of Power Industry	2		R	5,0	150,0	64,0	32,0		32,0	86,0			4,0	5,0					130	
OPT4	Design of electric power facilities and	2		CP	5,0	150,0	80,0	32,0		48,0	70,0			5,0	5,0					130	
OPT5	Modern computer technologies in the transmission and distribution of electricity	1		CW	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0							131	
OPT6	Organization of Energy Consumption	1		R	3,0	90,0	48,0	32,0		16,0	42,0	3,0	3,0							131	
OPT7	Design of objects of electric power branch	2		CP	5,0	150,0	80,0	32,0		48,0	70,0			5,0	5,0					131	
OPT8	Basics of power safety	2		C	5,0	150,0	64,0	48,0		16,0	86,0			4,0	5,0					131	
OPT9	Modeling of electric power equipment and	1		CW	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0							130	
OPT10	Ukraine's energy policy and energy	1		C	3,0	90,0	48,0	32,0		16,0	42,0	3,0	3,0							130	
OPT11	Design of electric power facilities and	2		CP	5,0	150,0	80,0	48,0		32,0	70,0			5,0	5,0					130	
OPT12	Electricity quality and quality management	2		C	5,0	150,0	64,0	32,0	16,0	16,0	86,0			4,0	5,0					130	
OPT13	Modelling of electro-physical and electric power equipment and processes	1		CW	5,0	150,0	64,0	32,0	16,0	16,0	86,0	4,0	5,0							135	
OPT14	Fundamentals of thermoelectricity and its application	1		C	3,0	90,0	48,0	32,0	16,0		42,0	3,0	3,0							168	
OPT15	Physics of electrostatic processes and technologies	1		C	3,0	90,0	48,0	32,0		16,0	42,0	3,0	3,0							135	
OPT16	Design of electro-physical and electric power equipment	2		CP	5,0	150,0	80,0	48,0		32,0	70,0			5,0	5,0					135	
OPT17	Experimental studies of electro-physical	2		C	5,0	150,0	64,0	48,0		16,0	86,0			4,0	5,0					135	

CONTENT of CURRICULUM

for the master's training:

by specialty

141

Electric Power Engineering,
Electrical Engineering and
Electromechanics

№ з/п	Назва дисципліни	Загальна кількість				Код кафедри
		Кредитів ECTS	Годин	Семестри		
				Екз	Зал	
1	2	3	4	5	6	7
1	Obligatory educational components	25,0	750,0			28%
1.1	General training	9,0	270,0			10%
GT1	Intellectual Property	3,0	90,0		1	202
GT2	Innovative entrepreneurship and management of startup projects	3,0	90,0		1	202
GT3	Foreign language for professional purposes	3,0	90,0		1	275
1.2	Special (professional) training	16,0	480,0			18%
ST1	Fundamentals of scientific research	4,0	120,0		1	120
ST2	Labor and professional safety	3,0	90,0		2	120
ST3	Reliability and Diagnostics	5,0	150,0	2		120
ST4	Problems, Technologies, and Prospects of Electrical Power engineering and electromechanics	4,0	120,0	2		120
2	Practical training	15,0	450,0			17%
PT1	Pre-graduation practice	15,0	450,0			129
3	Attestation	15,0	450,0			17%
4	Optional educational component	35,0	1050,0			39%
4.1	Profile training	17,0	510,0			19%
4.1.1	Profiled discipline package 01 "Electric Power Stations"	17,0	510,0			
OP1.1	Power Plants Auxiliary Systems	5,0	150,0	1		130
OP1.2	Technologies of Energy Storage and Load Following in Power Systems	4,0	120,0	1		130
OP1.3	Optimization Tasks of Power Engineering	4,0	120,0	2		130
OP1.4	Energy Management	4,0	120,0		2	130
4.1.2	Profiled discipline package 02 "Electrical systems and networks"	17,0	510,0			
OP2.1	Control of Electric Power Systems Modes and Automation	4,0	120,0	1		131
OP2.2	Mathematical Basis of Technical Diagnostics	5,0	150,0	1		131
OP2.3	Dispatch Management and information-management systems	4,0	120,0		2	131
OP2.4	Basics of objects electrical systems and networks operation	4,0	120,0	2		131
4.1.5	Profiled discipline package 05 "Energy Management and Energy Efficient Technologies"	17,0	510,0			
OP5.1	Renewable energy systems and secondary energy resources	4,0	120,0	1		130
OP5.2	Energy Management and Audit	5,0	150,0	1		130
OP5.3	Ecological Aspects of Power Industry	4,0	120,0	2		130
OP5.4	Accounting and measurement of energy parameters	4,0	120,0		2	130
4.1.6	Profiled discipline package 06 "Renewable energy sources"	17,0	510,0			
OP6.1	Hydrogen energetics and nanotechnology	4,0	120,0	1		135
OP6.2	Photoelectric converters	5,0	150,0	1		135
OP6.3	Technique and design of experiments	4,0	120,0	2		135
OP6.4	Ecological Aspects of Power Industry	4,0	120,0		2	135
4.1.7	Profiled discipline package 07 "High voltage techniques and electrophysics"	17,0	510,0			
OP7.1	Technique of strong electric and magnetic fields	4,0	120,0	1		135
OP7.2	Calculation and design of magnetic pulse installations	5,0	150,0	1		135
OP7.3	Technique and design of experiments	4,0	120,0	2		135
OP7.4	High frequency currents and ultrasound in engineering	4,0	120,0		2	135
4.2	Optional student disciplines of the profile preparation according to the list (the list is attached)	18,0	540,0			20%
	Total for education period	90,0	2700,0			