Code n/a	Components of the educational program (education disciplines, course projects (paper), practice, qualification work)	Amount of credits ECTS	The final control
1. GENERAL TRAINING CYCLE			
Compulsory components of ERP			
1	Safety in Electrical Installations	3	exam
2	Electromagnetic Compatibility	3	exam
3	Information Technology	3	exam
4	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	3	exam
5	Agricultural Policy	3	exam
6	Business Foreign Language	3	exam
Optional components of ERP			
Optional subjects by Student's Choice			
1	Optional subject 1	4	exam
2	Optional subject 2	4	exam
2. SPECIAL (PROFESSIONAL) TRAINING CYCLE			
Compulsory components of ERP			
7	Energy Security	4	exam
8	Mathematical Modeling of Electrotechnical Systems and Their Components	4	exam
9	Basics of Energy Saving	4	exam
10	Methods of Synthesis and Analysis of ACS	4	exam
11	Optimization Theory	4	exam
12	Energy Supply	4	exam
13	Design of electrification, automation and power supply	4	exam
14	Heat and Water Supply	4	exam
15	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	4	exam
Optional components of ERP			
Optional Block by specialty			
Optional Block 1 "Energy Efficient Control Systems of Biotechnological Objects"			
1.1	Automation systems in power engineering	4	exam
1.2	Methods of modern control of technological processes andproduction in energy	4	exam
1.3	Hardware and hardware of control systems in power engineering	4	exam
1.4	Typical technological processes in energy and methods of their modeling	4	exam
1.5	Biotechnological Objects of Automation, Methods of Their Research and Modeling	7	exam
1.6	Information Technology in Control Systems	5	exam
1.7	Computer Integrated Control Systems in Agriculture	7	exam
1.8	Modern Methods of Developing Automation Systems for Biotechnological Objects	6	exam
Optional Block 2 "Electrical networks and systems"			
2.1	Automatics and Telemechanics of Power Supply Systems	4	exam
2.2	Electrical Networks and Systems	4	exam
2.3	Electrical Plants and Systems of Energy Supply.	4	exam
2.4	Design of Power Supply Systems	4	exam
2.5	Intelligent Systems of Electroenergy	7	exam
2.6	Mathematical Tasks in Optimization Problems of Power Supply	5	exam
2.7	Transients in Power Supply Systems	7	exam
2.8	Modes Control of Electrical Networks	6	exam
Optional Block 3 "Energy Supply"			
3.1	Energy Saving in Heating Technologies	4	exam
3.2	Account and Regulation of Energy Distribution and Costs	4	exam
3.3	Heat and Energy Installations and Systems	4	exam

3.4	Heating Technologies of Production and Processing of Agricultural Product	4	exam
3.5	Integrated Use of Alternative and Renewable Energy Sources	5	exam
3.6	Modelling of Thermal and Hydrodynamic Processes	7	exam
3.7	Nanotechnology of Heat and Mass Transfer Intensification	6	exam
3.8	Optimization of Energy Supply Systems and EnergyEfficiency	7	exam
Optional Block 4 "Scientific and technical principles of electromechanical energy conversion"			
4.1	Reliability of Technical Systems and Technogenic Risks	4	exam
4.2	Accounting and Regulation of Energy Resources Costs	4	exam
4.3	Software of Physical Researches	4	exam
4.4	Technical Service of Power Equipment	4	exam
4.5	Mathematical Modeling of Electromagnetic Devices and Electromechanical Power Converters	7	exam
4.6	Reliability of Electromagnetic Devices and Electromechanical Power Converters	5	exam
4.7	Special Sections of Theoretical Electrical Engineering	7	exam
4.8	Asynchronous machines of high energy efficiency	6	exam
Optional Block 5 "Electrotechnical systems of power consumption"			
5.1	Renewable Sources of Electric Energy Generation	4	exam
5.2	Design of Power Consumption Systems	4	exam
5.3	Relay Protection and Automation of Distribution Power Networks	4	exam
5.4	Telemechanics and ACS of Power Supply Systems	4	exam
5.5	Mathematical and Simulation Modeling of Processes in Electrical Networks and Systems	7	exam
5.6	Estimation of Electrical Systems Modes	5	exam
5.7	Electromechanical Transients in Electrical Systems	7	exam
5.8	Algorithmization of Electric Power Problems	6	exam
Optional Block 6 "Electrotechnics and electrotechnology"			
6.1	Electrotechnology Processing of Agricultural Products	4	exam
6.2	Modeling of Adjustable Electric Drives, Aggregates andProduction Lines	4	exam
6.3	Fundamentals of energy efficiency of consumer grids	4	exam
6.4	Fundamentals of bioenergy technologies	4	exam
6.5	Electromagnetic Processing of Agricultural Products	7	exam
6.6	Electrotechnology Research Methods	5	exam
6.7	Energy Efficiency of Closed Biosystems	7	exam
6.8	Physical and Technological Properties of Agricultural Products And Materials	6	exam
Optional Block 7 "Lighting engineering and light sources"			
7.1	Laser Technics	4	exam
7.2	Design, Installation and Operation of Lighting Installations	4	exam
7.3	Lighting Installations and Systems	4	exam
7.4	Physical Bases of Light Sources and Energy Saving inLighting Installations	4	exam
7.5	Electrotechnical Devices of Lighting Systems	7	exam
7.6	Modern Research Trends in Light Engineering	5	exam
7.7	Methodology of Optoelectronic Systems Construction	7	exam
7.8	Photonics and Application of Coherent Radiation Sources	6	exam
Optional Block 8 "Energy and automation of biosystems"			
8.1	Design solutions for energy management	4	exam
8.2	Accounting and management of energy consumption	4	exam
8.3	Energy audit and management in agriculture	4	exam
8.4	Energy management and project management	4	exam
8.5	Intelligent systems in electricity	7	exam
8.6	Mathematical problems in optimization problems of powersupply	5	exam
8.7	Transients in power systems	7	exam

8.8	Control of operating modes of electric networks	6	exam
The total amount of compulsory components		**54**	
The total amount of optional components		**49**	
3. OTHER TYPES OF TRAINING			
16	Practical Training	8	
17	Research Practice	5	
18	State certification	4	
THE TOTAL AMOUNT OF ERP		**120**	

Code n/a	Components of the educational program (education disciplines, course projects (paper), practice, qualification work)	Amount of credits	The final control
OB 5.3	Relay Protection and Automation of Distribution Power Networks	4	exam
OB 5.4	Telemechanics and ACS of Power Supply Systems	4	exam
OB 5.5	Mathematical and Simulation Modeling of Processes in Electrical Networks and Systems	7	exam
OB 5.6	Estimation of Electrical Systems Modes	5	exam
OB 5.7	Electromechanical Transients in Electrical Systems	7	exam
OB 5.8	Algorithmization of Electric Power Problems	6	exam
Optional Block 6 "Electrotechnics and electrotechnology"			
OB 6.1	Electrotechnology Processing of Agricultural Products	4	exam
OB 6.2	Modeling of Adjustable Electric Drives, Aggregates and Production Lines	4	exam
OB 6.3	Fundamentals of energy efficiency of consumer grids	4	exam
OB 6.4	Fundamentals of bioenergy technologies	4	exam
OB 6.5	Electromagnetic Processing of Agricultural Products	7	exam
OB 6.6	Electrotechnology Research Methods	5	exam
OB 6.7	Energy Efficiency of Closed Biosystems	7	exam
OB 6.8	Physical and Technological Properties of Agricultural Products And Materials	6	exam
Optional Block 7 "Lighting engineering and light sources"			
OB 7.1	Laser Technics	4	exam
OB 7.2	Design, Installation and Operation of Lighting Installations	4	exam
OB 7.3	Lighting Installations and Systems	4	exam
OB 7.4	Physical Bases of Light Sources and Energy Saving in Lighting Installations	4	exam
OB 7.5	Electrotechnical Devices of Lighting Systems	7	exam
OB 7.6	Modern Research Trends in Light Engineering	5	exam
OB 7.7	Methodology of Optoelectronic Systems Construction	7	exam
OB 7.8	Photonics and Application of Coherent Radiation Sources	6	exam
Optional Block 8 "Energy and automation of biosystems"			
OB 8.1	Design solutions for energy management	4	exam
OB 8.2	Accounting and management of energy consumption	4	exam
OB 8.3	Energy audit and management in agriculture	4	exam
OB 8.4	Energy management and project management	4	exam
OB 8.5	Intelligent systems in electricity	7	exam
OB 8.6	Mathematical problems in optimization problems of power supply	5	exam
OB 8.7	Transients in power systems	7	exam
OB 8.8	Control of operating modes of electric networks	6	exam
The total amount of compulsory components		**54**	
The total amount of optional components		**49**	
3. OTHER TYPES OF TRAINING			
CC 16	Practical Training	8	
CC 17	Research Practice	5	
CC 18	State certification	4	
THE TOTAL AMOUNT OF ERP		**120**	