[Masters](https://it.auezov.edu.kz/kaz/paraktar-kz/258-celi-i-rezultaty-obucheniya-obrazovatelnoy-programmy-magistratury-1). [Aims and results of module educaion programms](https://it.auezov.edu.kz/rus/stranitsy-ru/256-celi-i-rezultaty-obucheniya-obrazovatelnoy-programmy-bakalavriata-1)

|  |
| --- |
| 7M07150 Electroenergetics |
| EP purpose | Educational outcomes |
| EP objective «7М07150 Electroenergetics» is providing comprehensive and high-quality training of qualified, competitive specialists in the field of electric power industry, based on a combination of modern educational technologies, knowledge, accumulated experience, corporate intelligence and moral potential | 1 To be a competent intermediary between languages ​​and cultures, in interpersonal communication, to obtain information of professional content from scientific sources, writing scientific articles.2 Have the ability to analyze the main worldview and methodological problems, incl. interdisciplinary character, arising in science and technology at the present stage of their development in the field of electric power industry, evaluate various facts and phenomena based on the provisions and categories of the philosophy of science.3 To apply mathematical modeling methods, to conduct experimental studies and analyze their results, to solve problems associated with the development of innovative methods that increase the efficiency of operation and design of electric power systems and facilities.4 To be able to competently, skillfully and intelligibly formulate and solve problems that arise in the course of research, scientific, technical and pedagogical activities and require in-depth professional knowledge.5 To develop training and methodical complex of disciplines, critically evaluate the scientific organization of higher school teacher labor, analyze the nature of pedagogical phenomena, use innovative methods of pedagogy and psychology to enhance the educational process using modern information technologies.6 To use research, entrepreneurial skills and skills to work in conditions of uncertainty, systematize the methods of scientific research in the processes of generation, transmission and distribution of electrical energy for use in specific situations, be able to evaluate the technical and economic effectiveness of decisions made.7 To have a high motivation to perform professional activities; possession of technology of independent learning and self-education, the ability to improve and develop their intellectual, cultural and professional level.8 To manage a team of specialists, to solve production problems associated with multiple interrelated factors, to take responsibility for setting the task and the obtained results |
| 7М07153 Digital technologies of electric power industry |
| Providing comprehensive and high-quality training of qualified, competitive specialists in the field of electric power industry, based on a combination of modern educational technologies, knowledge, accumulated experience, corporate intelligence and moral potential. | 1 Have the ability to think abstractly, be mobile and flexible mediator between languages ​​and cultures, to obtain information of professional content from scientific sources, write scientific articles, communicate information, ideas, conclusions, problems and solutions to both specialists and non-specialists.2 Have the ability to analyze the main philosophical and methodological problems, incl. in the interdisciplinary and multidisciplinary contexts that arise in science and technology at the present stage of their development in the field of electric power industry, evaluate various facts and phenomena based on the provisions and categories of the philosophy of science.3 Apply mathematical modeling methods, conduct experimental studies and analyze their results, solve problems related to the development of innovative methods that increase the efficiency of operation and design of systems and electric power facilities.4 To have the ability to competently, skillfully and intelligibly formulate and solve problems that arise in the course of research, scientific, technical and pedagogical activities and require in-depth professional knowledge.5 Develop an educational and methodological complex of disciplines, critically evaluate the scientific organization of the work of a teacher of higher education, analyze the nature of pedagogical phenomena, use innovative methods of pedagogy and psychology to enhance the educational process using modern information technologies.6 Apply research, entrepreneurial skills and skills of working in conditions of uncertainty, systematize scientific research methods in the processes of managing the production, transmission and distribution of electricity for their use in specific situations, be able to evaluate the technical and economic efficiency of decisions made.7 Possess high motivation to perform professional activities; possession of technologies of self-study and self-education, the ability to improve and develop their intellectual, general cultural and professional level.8 Lead a team of specialists, solve production problems associated with multiple interrelated factors, take responsibility for setting the task and the results obtained.9 To be able to apply design and technological and research methods to solve professional problems in the field of electric power technologies, including the design of smart grids and the creation of renewable energy sources, as well as to choose effective options for solving scientific and technical problems that provide the required level of reliability of electrical equipment and the quality of electrical energy.10 Be able to design power generation and distribution systems, as well as organize safe, reliable and economical operation of electrical equipment, fulfillment of the dispatcher load schedule, uninterrupted power supply to consumers, maintaining the standard quality of supplied energy. |
| 7М07155 Digital energy systems: generation, distribution and consumption of electricity |
| To train highly qualified, multilingual and competitive energy specialists with research and teaching skills during the training period; with advanced knowledge in the field of digital technologies | 1 Analyze the philosophical, psychological, pedagogical, problems of the development of civilization, using sources, including: freely use foreign languages for interpersonal and professional communication, independently acquire, develop skills in applying knowledge of an interdisciplinary and professional nature to solve non-standard tasks, own social and psychological management technologies.2 To form professional and pedagogical skills and culture of scientific and pedagogical thinking in higher education; develop the professional competence of the teacher; have skills in working with methods and forms of training in the preparation of future specialists; application of modern educational technologies, including Distance educational technologies.3 To compare the main methods of designing thermal power plants, methods of identification, adaptation and optimization of thermal diffusion processes in technological thermal physics;4 Manage and operate the existing power systems through monitoring and self-diagnostics systems for power electrical equipment of local power systems; use technologies of non-traditional energy sources (nuclear energy and radiation components);5 To work practically with software products for modeling heat and mass transfer processes; have the skills to develop digital twins of power equipment; own modern methods for solving optimization problems and numerical analysis of physical processes and systems, as applied to energy facilities6 Have the skills to use mathematical (including numerical) modeling of heat, mass and momentum transfer processes; methods of collecting, storing and processing large amounts of data in relation to energy processes and systems.7 To apply in practice the methods of computer modeling of combustion of hydrocarbon fuels; software products for modeling gas and heat supply networks; applied tools for modeling dynamic systems in relation to the problems of heat engineering and heat power engineering.8 Compare informational, mathematical models: power energy equipment; switching equipment; distributed generation systems, renewable energy sources; power plant control facilities, relay protection and automation devices.9 To practically operate automated control and measuring systems of electrical and heat engineering specialization; to carry out modeling in physical and chemical analysis; apply thermal analysis and calorimetry in production.10 Have skills in modeling the boundary layer in heating equipment; compare technical methods of gas combustion.11 Choose the necessary research methods; carry out scientific research and experimental work; process the results obtained, analyze and present them in the form of completed research projects; be able to self-organize in their professional development, owning modern problems in the field of energy. |
| 7M07152 Electroenergetics |
| Providing comprehensive and high-quality training of qualified, competitive specialists in the field of electric power industry, based on a combination of modern educational technologies, knowledge, accumulated experience, corporate intelligence and moral potential | 1 Ability to be a mobile and flexible intermediary between languages and cultures, in interpersonal communication, for obtaining professional information from scientific sources.2 Ability to analyze the main ideological and methodological problems, incl. of an interdisciplinary nature arising in science and technology at the present stage of their development in the field of electric power industry, to evaluate various facts and phenomena.3 To apply mathematical modeling methods, conduct experimental studies and analyze their results, solve problems related to the development of innovative methods that increase the efficiency of operation and design of electric power industry systems and facilities.4 To integrate knowledge, cope with difficulties and make judgments based on incomplete or limited information, taking into account ethical and social responsibility for the application of these judgments and knowledge.5 To use research, entrepreneurial skills and skills to work in conditions of uncertainty, systematize the methods of scientific research in the processes of generation, transmission and distribution of electric energy to solve them in specific situations, be able to evaluate the technical and economic efficiency of decisions made.6 To provide high motivation to perform professional activities; Possession of technology of independent learning and self-education, the ability to improve and develop their intellectual, cultural and professional level.7 To manage a team of specialists, solve production problems associated with multiple interrelated factors, take responsibility for setting the task and the results obtained.8 To demonstrate the skills of logical and analytical thinking in solving problems and documenting them correctly |