7M07153 Digital technologies in the electric power industry

**PASSPORT of the EP**

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| Nameofthe EP | 7М07153 Digital technologies in the electric power industry  |
| Code and Classification of Education | 7M07 Engineering, Manufacturing and Civil engineering |
| Code and Classification of Areas of Training | 7M071 Engineering and Engineering Trades  |
| Group of educational programs (EP) | М099 Energy and Electrical Engineering |
| Languagelearning | Kazakh, Russian |
| The complexity of EP | 120 credits |
| Distinctivefeaturesof EP | - |
| PartnerUniversity (JEP) - | - |
| Purpose of the EP  | 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 |
| Name of the degree awarded | Master of technical science |
| Fieldofprofessionalactivity | • scientific - research;• design;• production and technological;• organizational and managerial;• innovative;• pedagogical. |
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| 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. |

 | LO1 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.LO2 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.LO3 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.LO4 Demonstrate up-to-date knowledge and practical skills in the field of integration of renewable energy into an intelligent energy management system using digital twins, creating schematic diagrams of self-synchronization of generators of power plants.LO5 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.LO6 Demonstrate knowledge of the principles of functioning of intelligent energy systems and renewable energy complexes, advanced trends in the development of "green" technologies, reducing the consumption of non-renewable energy resources, reducing the negative environmental impact of energy sector enterprises.LO7 To apply at a professional level their knowledge, understanding and abilities on the scientific and technical foundations of the use of renewable sources in the energy processes of power supply systems that provide solutions to energy and resource conservation problems.LO8 Apply their knowledge, understanding and abilities at a professional level to solve the problems of planning and managing economically optimal and reliable operation of power systems using digital and information technologies.LO9 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.LO10 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. |