7M07109 Integrated smart energy systems

**PASSPORT of the EP**

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| Nameofthe EP | 7М07109 "Integrated smart energy systems"  |
| 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 | 144 credits |
| Distinctivefeaturesof EP | Collaborative |
| PartnerUniversity (JEP) - | National Research University "Moscow Power Engineering Institute", Moscow с. |
| Purpose of the EP  | Provision of educational services within the framework of a joint educational program for the preparation of competitive highly qualified masters of scientific, pedagogical and industrial fields of activity in the field of intelligent energy systems |
| Name of the degree awarded | Master of technical science |
| Fieldofprofessionalactivity | The scope of the master's professional activity is the field of science and technology, which includes a set of technical means, methods and techniques of human activity for production, transmission, distribution, transformation, application of electric energy and intelligent energy systems |
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| Provision of educational services within the framework of a joint educational program for the preparation of competitive highly qualified masters of scientific, pedagogical and industrial fields of activity in the field of intelligent energy systems. |

 | **LO1**- Demonstrate the skills of analyzing the issues of the development of the electric power system as a science from a philosophical point of view, using foreign languages and knowledge of an interdisciplinary and professional nature in solving the tasks set;**LO2**– Demonstrate the skills of scientific-pedagogical and professional-technical thinking, the skills of conducting scientific research, teaching specialized disciplines and management psychology;**LO3**– To form skills of building research strategies, solving scientific, technical and optimization problems in the electric power industry by conducting experiments and taking into account methodological aspects of scientific research**LO4**–To develop skills in designing and managing the implementation of projects of power plants, hydropower plants and power plants based on renewable energy at all stages of the life cycle, using methods of building a dispatching system, technological management, modern energy-saving technologies in the electric power industry and unconventional energy;**LO5 –** To form the skills of developing mathematical models of high-voltage electrical installations, electric power systems using innovative technologies to control the modes of operation of local electric networks;**LO6**- Demonstrate skills in applying methods and means of digital, emergency operational and automatic control of technological processes of an electric power system for regulating electric energy flows;**LO7**– To develop skills in identifying the economic and environmental aspects of the use of renewable energy sources, the introduction of intelligent power systems for successful decision-making in matters of electricity supply to autonomous consumers;**LO8 –**Critically analyze and evaluate modern scientific achievements and generate new ideas in solving research and practical problems in the field of integrated intelligent energy systems |