

**Division:** *Institute of Engineering and Technology*

**Academic programme:** *13.04.02 Power Engineering and Electrical Engineering, major in Intelligent Electric Power Systems and Networks*

**Mode of study:** *full-time, part-time*

**Programme length:** *2 years*

**Programme level:** *Master's degree*

**Language of instruction:** *Russian*

**Programme description:** *Intelligent Electric Power Systems and Networks are among the most complex technical systems. In a single operation mode, they unite various electrical installations: from generators at power plants to electrical appliances and electrical motors of the end-users of electricity. They all simultaneously participate in the production, transmission and distribution of electricity. That is why, for making operational and managerial decisions in such complex systems, specialists need in-depth knowledge in the fields of normal and emergency modes, digital relay protection and automation devices, intelligent control, and the ability to analyse the operating modes and conditions of electric power systems and to optimize them.*

*Graduates of this Master's degree programme can work at power plants, high-voltage step-down substations, regional and federal electrical power systems and grids, electrical power grids of industrial enterprises and productions.*

*In the process of training, students obtain the skills and experience of designing the main equipment of electric power plants and substations, organizing and performing the works on installation, set-up and maintenance of the electrical power grids equipment, calculating the performance characteristics and optimal modes of operation of electrical equipment, and engineering control of the operated equipment. To complete the training, students write and defend their Master's degree theses, in which they design a new or study an already existing facility of the electrical power system.*

**Main programme-specific classes:**

- *Innovative Electrical Equipment*
- *Supercomputer Modelling of Engineering Devices and Processes*
- *Operation Reliability and Diagnostics*

- *Intelligent Electric Power Systems*
- *Extra-high-voltage Long Distance Power Transmission*
- *Modern Models of Analysing and Forecasting*
- *System and Emergency Control Automatics*
- *Relay Protection and Automation of Digital Substations*
- *Computer-aided Control Systems for Technological Processes*
- *Stability of Electrical Power Systems*
- *Active-adaptive Electrical Grids*
- *Digital Technologies of Operational Mode Control*

**Programme manager:** *K.E. Gorshkov, Candidate of Sciences (Engineering), Associate Professor*