Systems of automation of physical installations and their elements

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Master degree**

Language of study: **Russian**
Mode of study: **full-time**
Duration: **2 years**
Availability of free education: **yes**
Price: **207 610 rubles per semester**

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The goal of the educational program: Getting studying in the magistracy professionally profiled education, allowing graduates to work successfully in fields related research, designing, building and operating of the systems of monitoring, control and automation of physical and including nuclear power installations.

Area of professional activity of graduates: nuclear installations, nuclear power plants, safety operation systems, I&C systems, process control systems, diagnostics and automated control of nuclear power installations and NPP, technology of their design, development, implementation and maintenance. Target companies for the employment of graduates: industrial research institutes, design and manufacturing enterprises and institutions.

A distinctive feature of the program is the active use of modern hardware and software means of laboratories of the Department, including actual software and equipment of NPP, as well as modern software systems of computer-aided research, modeling and design of systems of automation of physical installations.

General scientific cycle:

- Management and marketing,
- Optimal control, Decision Making,
- Ecology,
- Safety,
- Random processes in automatic control systems.

Professional cycle: Computer systems and networks, Physics of nuclear reactors, problems of proliferation of nuclear materials, Normative-technical basis for the development of electronic equipment and automated systems, Information technology: theoretical basis, Control of nuclear power plants, automation of nuclear power plants, Nuclear power plants: types, equipment, technology, maintenance, Reliability of technical systems, Microprocessors and microcontrollers, Automation of physical installations and scientific research, Automated control systems of technological processes of nuclear power plants,
System radiation monitoring, Modelling of processes in equipment of NPP, Research work.

Part of the curriculum is also implemented in English.

Enterprises for practice and employment of graduates: Enterprises and organizations of Rosatom, the Russian research centers, including: Dukhov All-Russia Research Institute of Automatics, Research Institute of Nuclear Power Plants, Specialized Scientific Research Institute for Instrumentation Engineering, National Research Centre “Kurchatov Institute,” JSC Atomenergoproekt, Dollezhal Research and Development Institute of Power Engineering, Eleron Special Scientific and Production Association, Luch Research and Production Association, FSUE Almaz-Antey, Institute for High Energy Physics, etc.

Specializations within this programme

Nuclear physics and technologies

The objects of professional activity of graduates:

- automated control systems for nuclear reactors and nuclear-physical installations and their elements,
- electronic and electrical systems and equipment of nuclear and physical installations,
- radiation monitoring system of physical installations and facilities,
- equipment and measuring systems and control systems,
- diagnosis, control and protection of nuclear-physical installations