

Nanoelectronic tools for modern physical installations

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

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

Language of study: **Russian**

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

Duration: **5,5 years**

Availability of free education: **yes**

Price: **242 320 rubles per semester**

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Brief characteristics of the program

Goal: preparation of highly qualified specialists in the following fields:

- research and design of new operation principles of microelectronic devices, creation of the techniques and means of their design and manufacture;
- research of the properties of microelectronic devices and sensors, organization of their operation in measuring and control systems;
- development of theoretical models for taking into account the effect of ionizing, laser and electromagnetic radiation on electronic equipment;
- development of the systems of control, data acquisition and processing, based on up-to-date microprocessor, programmable logic integrated circuits (ICs), analog circuits, optoelectronic and nanoelectronic devices;
- design of new types of ICs, systems on a chip, sensor and transducers, nanoelectronic devices and circuits;
- design and manufacture of up-to-date microelectronic devices and circuits including the creation of radiation-hard articles;
- development of asynchronous analog-digital architectures of a new generation of read-out electronics for super-multichannel radiation detectors.

Training programs

“Personnel Training for Scientific Centers,” “Nuclear Power Technologies of a New Generation for the Period of 2010-2020,” “Program of the Innovational Development of the “Rosatom” State Corporation,” and “National Technologic Basis.”

Characteristics of the scope and objects of professional activity of future graduates

Employment at research and design institutions and enterprises of the nuclear, aerospace, and radioelectronic industries and adjoining branches in the capacity of specialists-researchers and designers of new types of microelectronic devices and systems for various purposes, including systems implemented on a chip.

Modules

(1) Basic Module (basic training in the humanities, natural sciences, and general professional disciplines for all-round development of the personality);

(2) Professional Module (special courses for mastering the basics of the profession).

The base of industrial and/or scientific practice and employment

Dukhov All-Russia Research Institute of Automatics, Research Institute of Instruments, Eleron Special Research and Production Association, Institute for System Studies of the Russian Academy of Sciences, Institute of Space Instrument Engineering, Module Research Center, Research Center of Computer Technology, JSC Russian Space Systems.

The program of continuous training: Specialist's Degree - Master of Science - Post Graduate

Specializations within this programme

Objects of the professional activity

High-performance electronic systems, VLSI design, electronic systems of nuclear and physical installations, automated control systems of nuclear installations, electronic systems working in the fields of microwave and ionizing radiation, radiation technology for CAD, mathematical models for theoretical and experimental investigations of phenomena and laws in physics, ecological environmental monitoring, security of nuclear materials, facilities and installations of atomic industry and energy.