

# Management in biotechnical systems (Information-measuring and operating systems)

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Researcher. Lecturer-researcher**

Language of study: **Russian, English**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **325 000 rubles per year**

Programme curator: **Dr.Valentin G. Nikitaev**

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**Basic department:** Computer medical systems (№ 46)

**Head of the program:** Dr.Valentin G. Nikitaev, Head of the Department of Computer medical systems NRNU MEPhI,

**The area of professional activity includes:**

- information-measuring and control system, including medical diagnostics, telemedicine, nuclear medicine, development and application of technology of systems and devices for analysis of substances and materials, high-tech multipurpose hardware-software complexes of support of decision-making, including in medicine, radiation technology in medicine.
- development of new methods of managing and processing of information, the search for new technical solutions in the creation of systems of control and management of the technical facilities;
- research conducting in the field of control theory, artificial intelligence methods, technologies of control of physical and technological parameters, control operation of technical systems and technological management facilities, including the physical and nuclear-power plants.

**The objects of professional activities:**

- development and maintenance of high-tech hardware and software complexes for medical diagnostics and quality control systems materials and products (including products of the nuclear industry), the creation of expert systems and decision support, recognition systems.
- nuclear facilities, nuclear and physical installations, systems and tools to ensure their safe operation;
- system of monitoring and control, technical diagnostics and automation of technical objects, including the physical and nuclear-power plants, including information-sensory, executive and control modules, program-technical complexes of information and measuring systems, control systems and automation;
- математическое, алгоритмическое, информационное и программное обеспечение; • mathematical, algorithmic, information and software support for the system;
- methods and tools for design, modeling, experimental studies, verification and validation of design solutions, design and creation of equipment control systems and control of nuclear reactors and power plants using modern instrumentation systems engineering analysis and design;
- conducting theoretical and experimental research of control systems of technical objects of various purpose

**Features of the curriculum**

Educational process is combined with active research work, which is done under the guidance of experienced professionals in the scientific laboratories of the Department and base enterprises.

Research work of students is carried out in close connection with the work conducted at the Department and in the research together with N. N. Blokhin Russian Cancer Scientific Center, A. I. Evdokimov Moscow State Medical and Dentistry University, clinics of Federal medical-biological Agency.

The postgraduates receive fundamental training in a wide range of tasks in the first place, such as the design of information-measuring systems of diagnosis used in many fields, for example in the field of cancer diagnostics, metallographic control, etc.

#### **List of businesses for internships and employment of graduates**

Russian research centres; enterprises of SC "Rosatom"

#### **Specializations within this programme**