

Advanced diagnostic systems

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded: **Master's Degree**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **2 years**

Availability of free education: **yes**

Price: **178 750 rubles per semester**

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Basic department: "Computer medical systems" (No. 46)

The aim of the program: preparation of masters with in-depth knowledge in the field of mathematical modeling, technologies of development of cybernetic systems of medical diagnostics with the use of image recognition methods, capable of successfully working in the field of activities related to the research and development of high-tech information and measurement software and hardware systems for nuclear medicine, telemedicine, industry, research and medical institutions, providing graduates with universal and subject-specialized competencies, contributing to their social mobility and sustainability in the labor market.

The area of professional activity: design of intelligent support medical decision-making systems, combining different physical principles of diagnosis, using expert systems and image recognition systems, remote diagnostic and training technologies. Methods of research of regularities of manifestation of diseases in structure of tissues and cells of an organism for increase of accuracy of diagnostics of diseases. Robotic complexes of computer microscopy for laboratory research methods. Creation of knowledge bases, expert systems and intelligent diagnostic systems. Development of technical means for telemedicine.

The objects of professional activity: Medical systems and technologies, the structure of which included any live system and associated control and state management of live systems, ensuring their livelihoods, as well as maintaining the optimal conditions of labor rights

Features of the curriculum: The educational process is combined with active research work, which is carried out under the guidance of experienced specialists in the scientific laboratories of the Department and the basic enterprises. Important distinctive features of the Department "Computer medical systems": work in the field of basic research, applied research and implementation of developments; the combination of classical information technologies (databases, programming, computer networks) with new artificial intelligence technologies-pattern recognition, knowledge bases, expert systems, decision support systems; teaching of special disciplines is based on the Department's own developments, which have no domestic and foreign analogues and have been successfully implemented in clinical practice.

The list of enterprises for practice and employment of graduates:

Companies for the development of information medical systems, enterprises for the development and implementation of medical equipment, firms for the supply and maintenance of high-tech medical equipment, medical research centers. The obtained knowledge, as experience has shown, is successfully applied by graduates in various fields - interdisciplinary research, banking, industry, state and municipal administration.

Examples:

N. N. Blokhin National medical research center of Oncology

Clinical hospitals of FMBA of Russia

National medical research center for endocrinology

N. N. Burdenko National Medical Research Center for Neurosurgery

A. N. Bach Institute of biochemistry RAS

V. N. Orekhovich Institute of biomedical chemistry.

Federal Institute of industrial property

General Electric Healthcare (representative office in Russia)

Philips (representative office in Russia)

Pfizer (representative office in Russia)

etc.

Specializations within this programme