

Computer technology in research

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: **110 800 rub**

Programme curator: **Ryabov P.N.**

Tel.:

E-mail: pnryabov@mephi.ru

The purpose of the program:

Training of highly qualified specialists providing solutions to the problems of informatization and management in the field of scientific research and design work in high-tech industries.

Annotation:

The program "Computer Technologies in Scientific Research" includes both a block of in-depth mathematical disciplines and a block of disciplines in the field of information technology. Such a curriculum design allows you to prepare masters able to use modern mathematical apparatus, programming languages and software products in their professional activities, which allows us to design and develop new algorithms based on modern achievements in the field of mathematics. Within the program, students study the following disciplines: High-performance computing, Modern programming languages and their application, Modern software for scientific computing, Non-linear mathematical models, Digital data processing in information systems, etc.

Program relevance:

The rapid development of modern science and information technology creates an urgent need for specialists who are able to easily adapt to market requirements and effectively solve problems arising from the work of state and commercial enterprises. Global digitalization leads to the emergence of a huge number of tasks requiring an engineer's skills located on the border between applied mathematics and information technology, which explains the relevance of this program. The tasks successfully solved by our graduates include data analysis and processing, mathematical modeling of physical processes, optimization, software development for solving scientific and practical problems, etc.

Core disciplines:

The program allows you to get in-depth knowledge that lies at the intersection of mathematical and computer sciences, which allows you to successfully solve problems in the development of system and application software.

- o Nonlinear mathematical models
- o Neural networks
- o Computer image processing
- o Computer image processing
- o Management Theory
- o Numerical methods for solving problems on non-orthogonal grids
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- o Mathematical methods for processing data of chaotic time processes

PROFESSIONAL ACTIVITY

Alumni Competencies:

Graduates of the program have universal and subject-specific competencies in the field of applied mathematics and information technology, contributing to their social mobility, stability in the labor market and opportunities for professional growth. Graduates are able to apply their knowledge in the field of computational mathematics and

modern IT technologies to solve applied problems of science and technology; capable of abstract thinking, work in a scientific team, can generate new ideas, improve and develop their intellectual and cultural level; capable of independent development and use of new research methods, as well as receive, analyze, process and critically evaluate information, be able to transmit and operate it; use modern computer technology; capable of professional communication in the state language of the Russian Federation and a foreign language.

Labor market demand:

Our graduates are in demand on the Russian and international labor markets and occupy leading positions in such state organizations and commercial companies, research institutes, universities and research laboratories

- o Rosatom
- o University of Manchester, England
- o University of Göttingen, Germany
- o KTH Royal Institute of Technology, Sweden
- o Imperial college, London
- o Sberbank
- o Hewlett Packard
- o Mail.ru
- o Yandex
- o Oracle
- o Samsung

Practice and internships:

As part of the training, students practice at the international scientific laboratory "Methods of Nonlinear Mathematical Physics and Mathematical Modeling" NRNU MEPhI, in the largest scientific centers of the Russian Academy of Sciences, such as the Institute of Applied Mathematics M.V. Keldysh, SIC Kurchatov Institute, FIC "Fundamentals of Biotechnology" and others, in the enterprises of the state corporation ROSATOM, as well as in large IT companies.

Specializations within this programme