Applied Mathematics in machinery systems education

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

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

Language of study: **Russian**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **213 460 rubles per semester**

Programme webpage at the university website:
http://eis.mephi.ru/AccGateway/index.aspx?report_url=/Accreditation/program_annotation&report_param_pid=1

Programme curator: **Alexey D. Modyaev**
Tel.: **Contact name: Olga N. Petukhova, Phone number. +74957885699, ext. 8045**
E-mail: ONPetukhova@mephi.ru

Field of study: "Applied Mathematics and Informatics".

Duration of training: 4 years, 240 credits.

Course delivery language: russian & english.

Basic department: (No. 17).

The aim of the program is to produce highly qualified bachelors in applied mathematics and computer science in information processing and control systems to ensure the nuclear and other branches of the modern industry.

Even for the first and the second years, along with the general mathematical and scientific training, the emphasis is placed on:

- learning programming languages, studying algorithms and data structures;
- using the software and hardware means of computer science and mathematical software;
- studying mathematical logic and discrete mathematics.

Along with the classical methods of information processing and control, students are familiarized with modern methods, such as:

- soft computing;
- fuzzy logic;
- neural networks;
- adaptation and self-organization;
- elements of social cybernetics.

Considerable attention is paid to research work as individual training students in the field of applied research in which they are interested.

Students have practice in the scientific laboratories of the department, at industrial enterprises, and leading academic and industrial organizations and firms.

Parts of the curriculum are taught in English

Specializations within this programme

The training includes the disciplines of the specialty units

- programming in C/C++ and application software;

- operating systems and system software;
- telecommunications, computer networks and web-based technologies;
- development and management of databases, query languages;
- elements of functional analysis, metrology, and standardization;
- probability theory, mathematical statistics, applied statistics;
- numerical methods, partial differential equations and optimization methods;
- mathematical modeling and simulation;
- operations research, theory of games and dynamic programming;
- theory of stochastic processes and queuing theory;
- control theory, digital and optimal control, nonlinear systems;
- computer graphics, signal and image processing, pattern recognition;
- knowledge bases, expert systems and decision support;
- artificial intelligence and learning technologies.