

Protected automated information processing and control 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: **123,700 rubles.**

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The purpose of the program:

Training in the interests of scientific and manufacturing enterprises, scientific organizations and government agencies, industrial enterprises and enterprises of defense industry complex (DIC) of qualified specialists for research and development and design and technological activities in the field of creation and operation of high-tech automated information processing and management systems that satisfy modern requirements for security and information protection.

Abstract:

The sphere of professional activity of graduates under the program of master's degree "Protected automated systems of information processing and management" includes: creation and operation of automated systems of information processing and management taking into account the requirements to information security and protection. The objects of professional activity of masters are: automated systems of information processing and management, mathematical, informational, technical, linguistic, software, ergonomic, organizational and legal support of systems. The protected automated systems of processing of the information and management are the difficult computing complexes possessing artificial intelligence, intended for management of objects and processes. The theory, methods and means of designing such systems form the basis of professional activity of masters in automated information processing and control systems. After mastering the program graduates possess knowledge in the field of the modern theory of traditional and intellectual control systems, and also obtain skills in designing and application of similar systems for management of the distributed objects and technological processes in the industry. The curriculum of the program combines theoretical training and execution of research works within the framework of production practices, the topics of which are formed on the basis of scientific interests of the future Master, and also takes into account the needs of enterprises in the target training. Research work (R&D) is an independent work of future masters and is a theoretical and experimental study related to the solution of individual, specific problems determined by the peculiarities of training under the master's program "Protected automated information processing and management systems". Research topics are aimed at researching methods of solution and solving a specific practical or scientific problem. The master's program takes into account the requirements of professional standards in the field of communications, information and communication technologies.

Actuality of the program:

The important question at creation and operation of the automated systems of processing of the information and management is a question of protection of the information and maintenance of information safety of systems. The experts with knowledge of features of designing and operation of the automated systems meeting requirements to safety and protection of the information, as never claimed in the labour market. The competences got by graduates of the program at studying of professional disciplines, and also at performance of research work/practice, prepare the future masters for successful work in all hi-tech spheres where it is required to apply the modern protected information technologies. Graduates of MEPhI traditionally have wide opportunities for professional and career growth in the leading companies-developers of automated systems and research and innovation centers.

Basic disciplines:

System simulation	Theories of information and coding
Digital signal processing	Operating system architectures
Design of secure information systems	Assessment of information risks in complex systems

PROFESSIONAL ACTIVITY

Graduates' competencies:

During the training the graduates of the master's program form professionally-specialized competences in the field of creation (modification) and support of information systems (IS), automating the tasks of organizational management and business processes in the organizations of various forms of ownership in order to increase the efficiency of the organizations - users of IS. Graduates of the program are capable to carry out designing, creation, application and operation of the automated systems of processing of the information and management taking into account requirements to safety and protection of the information, and also to estimate, supervise and operate process of working out of an information maintenance, to organise work on interface and software as a part of the automated systems, to plan working out of the automated systems. Objects of professional activity of graduates are:

- automated information processing and management systems;
- Computers, complexes, systems and networks;
- methods and means of designing, modeling, experimental research and control of special purpose automated systems;
- Mathematical, informational, technical, linguistic, software, ergonomic, organizational and legal support of automated systems.

Demand in the labor market:

Our graduates successfully carry out the professional activity in such well-known organisations, establishments as:

- MEPhI;
- at the leading enterprises of the state corporation ROSATOM;
- In the banking sector (Bank of Russia, Sberbank and Sberbank-Technology, Gazprombank, Vnesheconombank, etc.);
- in well-known IT-companies (Oracle, Hewlett Packard, Yandex, Kaspersky Lab, CROC, LANIT, IBS, LUXOFT, etc.);

- at the leading enterprises of the defense industry (Concern Morinformsystem-Agat, Concern Almaz-Antey, etc.);
- in the leading institutes of the Russian Academy of Sciences.

Practice and internships:

Within the framework of the training, master's students undergo practical training and carry out research and development work at the enterprises of the state corporation ROSATOM, large IT-companies, MEPhI and target enterprises and partner enterprises such as Concern Morinformsystem-Agat, Concern of Air Defense Almaz-Antey.

Specializations within this programme