Security of Open Informatiom Systems

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

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

Language of study: **Russian**
Mode of study: **full-time**
Duration: **5 years**
Availability of free education: **yes**
Price: **113 500 rubles per semester**

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Goals of the Program

To form the main theoretical and practical skills in mathematical modelling of information security systems, efficient application of computer facilities, design of protected software and other directions of information security.

Characteristics of the scope and objects of professional activity of future graduates

- information security,
- data processing,
- mathematical modelling of information security systems,
- efficient application of computer facilities,
- design of protected software and other directions of information security.

Brief description of the curriculum

The programm helps to develop skill for scientific research and allows to apply knowledge in practice. The main advantages of the programm are unique disciplines and high-qualified teachers. Also the graduates are familiar with information technologies that form information structure of critical objects and are able to protect them in case of information security threats.

Modules

- Humanitarian module: English, history, law, philosophy, economics, management, sociology, culture, humanitatian problems of information security, politics, psychology and pedagogics;
- Scientific module: algebra and geometry, mathematical analysis, discrete mathematics, probability theory and mathematical statistics, mathematical logic and agrorithm theory, phisics, computer science, information theory, open systems, cryptographic protocols and stantards, differential equations, functions from complex variables theory; special topics of descrete mathematics, cybernetics, numerical methods;

- Professional module: life safety, programming languages, programming technologies, electronics, operating systems security, network security, data base security, information security, cryptography, networking, technical security, information security law, design and operation of automated systems, information security management, engineering graphics, open systems security, software protection, nuclear objects security, audit, virtual private networks, accident protected information systems, malware protection, public key infrastructure, secured documents circulation in banking, information systems modelling, e-commerce security, English for special purposes, cryptography in banking, steganography, quantum cryptography, reliability of software and information security tools.

The base of industrial and/or scientific practice and employment

Federal Security Service of the Russian Federation, Eleron Special Scientific and Production Association, Infotecs, CROC, Atombezopasnost, Atlas, Positive Technologies Company, Greenatom, KRIPTO-PRO, etc.

Specializations within this programme

Objects of the professional activity

Public key infrastructure for security of web technologies, payment systems, wireless public key infrastructure, authentication athorities; quantum communications and cryptography; security of untrusted environment, GRID and cloud computing; effective complex protected systems; audit of information security; intelligent control systems; indrusion detection systems; systems for alalysis and protection of executable code.