Information technology in robotics

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 per semester**

Programme curator: **Yevgeny Valentinovich Chepin**
Tel.:
E-mail: evchepin@mephi.ru

Program manager: Professor, Doctor of Physics and Mathematics, Sergey Yurievich Misurin

Associate Professor, Candidate of Technical Sciences (Ph.D.) Yevgeny Valentinovich Chepin

Contact person: Yevgeny Valentinovich Chepin, evchepin@mephi.ru

PROGRAM DESCRIPTION

The purpose of the program:

Training of qualified specialists for research and development and design and technological activities in the field of creation and operation of mobile robotic systems in the interests of research and production enterprises, scientific organizations and government agencies, industrial enterprises and enterprises of defense industry complex (DIC).

Abctract:

The program provides the formation of competencies in the field of computer technologies of mobile robotic systems (MRS) (including management, system and application software for MRS), algorithms and programs for the design of intelligent systems, architecture of modern microprocessor and computer technology for MRS, development of software interaction systems for the MRS team. Master's graduates also have competences in the field of architecture of information systems, development of secure system and application software (including for mobile devices) with the use of CASE-technologies. Much attention is paid to the training of competitive personnel in the interests of informatization of high-tech industries in the globalization of the world information space.

The field of professional activity of graduates under the master's program "Information Technologies in Robotics" includes: architecture and hardware-software systems for MRK, intelligent algorithms and software (including for MRK management), design of knowledge bases, design of neural networks, algorithms of movement planning, behavioral algorithms and many others. In addition, the sphere of professional activity of the graduates of this program includes: design of digital equipment on FPGA, development of system and applied software, development of computer systems and networks for MRK, high-performance and distributed computing and parallel programming of complex algorithms of information processing, algorithms and software for processing 2D and 3D images, complex analysis of security of information systems.

Actuality of the program:

Experts with knowledge of the design and operation of mobile robotic systems are more in demand than ever before in the labour market. Competencies acquired by the graduates of the program in the study of professional disciplines, as well as in the performance of research and development / practice, prepare future masters for successful work in all high-tech areas where it is required to use mobile robotic systems. Graduates of MEPhI traditionally have wide opportunities for professional and career growth in the leading companies-developers of computer systems and research and innovation centers.

Basic disciplines:

Sensors and interfaces for robotics
Cryptographic methods of information security
Computer systems
Intelligent systems
Simulation of robotic devices
Operating system architecture
Mathematical methods in robotics
Data science and big data analysis

PROFESSIONAL ACTIVITY

Graduates' competencies:

During the training period the graduates of the master's program develop professional and specialized competences in the field of creation and maintenance of mobile robotic systems and their software. Graduates of the program are able to design, create, use and operate mobile robotic systems, as well as assess, control and manage the process of software development, organize the work on the interface of hardware and software as part of mobile robotic systems, plan the development of mobile robotic 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;
- JSC "MTSST";
- at the leading enterprises of the defense industry (JSC Concern Air Defense "Almaz-Antey", etc.);
- at the leading institutes of the Russian Academy of Sciences.
- INEUM named after I.S. Brooke.

Practice and internships:

Within the framework of their 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 Almaz-Antey Air Defense Concern OJSC, ICST JSC, INEUM named after I.S. Brooke

Specializations within this programme