Safe Nuclear Materials Management

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

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

Language of study: **Russian**
Mode of study: **full-time**
Duration: **2 years**
Availability of free education: **yes**
Price: **207 610 rubles per semester**

Programme webpage at the university website:
http://eis.mephi.ru/AccGateway/index.aspx?report_url=/Accreditation/program_annotation&report_param_pid=76

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"Main purpose of the MS Graduate Program "Safe Nuclear Materials Management" consists in acquiring the higher professional education that gives to the graduates (Masters of Science) an opportunity to work successfully in the areas related with nuclear and radiation physics, nuclear materials (NM) and nuclear technologies, safe and secure handling of nuclear materials, including their physical protection, control and accountability.

The MS Graduate Program was designed for those persons who have already acquired the higher technical education or the Bachelor of Science degree. The MS Graduate Program was launched for the first time in 1997, and the first specialists were graduated from the Program in 1999. Till now, twelve generations, i.e. about 100 Masters of Science, were graduated from the Program for further activity in the area of safe NM management.

The specialists graduated from the Program (the graduates) acquired the deepened scientific and technical knowledge in the area of nuclear technologies, nuclear facilities and the operations used for NM physical protection, control and accountability. The graduates studied the basic legislative, political and economical aspects of NM management, the generalized approach to designing and evaluation of physical protection systems for nuclear materials and nuclear objects. The graduates mastered the most updated computerized and information technologies to be used for NM control and accountability. The graduates passed a special training in English.

Knowledge acquired by the specialists graduated from the MS Program "Safe Nuclear Materials Management" allows them to have some universal and object-oriented competencies that can promote their social mobility and stability in the labor market". The following objects are the main ones for future professional activity of the specialists graduated from the MS Program "Safe Nuclear Materials Management" in the educational direction "Nuclear Power and Thermal Physics":

- nuclear facilities;
- nuclear materials and nuclear technologies;
- the newest systems for NM physical protection, control and accountability;
- the measuring systems for NM characterization;
- mathematical models for theoretical and experimental studies in the area of safe and secure NM management;
- devices and systems for physical protection of nuclear dangerous objects;
- safety and security assurance of nuclear materials, nuclear objects and nuclear facilities of atomic industry and nuclear power.

The MS Graduate Program “Safe Nuclear Materials Management” consists of the following specialized disciplines:

- problems of nuclear power industry;
- legislative and international aspects of NM management;
- fundamentals of systems for NM physical protection, control and accountability;
- methods for vulnerability assessment and optimization of NM physical protection systems;

- methods and procedures for NM control and accountability;
- designing of physical protection systems;
- methods for NM control;
- methods and devices for NM measurements;
- applied mathematical statistics, etc.

Part of the curriculum is also implemented in English.

The MS students perform the internship works in the leading Russian research and development institutions of the State Corporation "Rosatom" and in the international organizations involved into the projects related with NM safety, security and non-proliferation assurance. The list of Russian nuclear institutions includes, for example, National Research Centre "Kurchatov Institute", "State Research Center" Institute of Physics and Power Engineering, Rostechnadzor of the Russian Federation, the Science and Technology Center of Nuclear and Radiation Safety, Dukhov All-Russia Research Institute of Automatics, Luch Research and Production Association, and some others. The graduates are offered to work at research institutes and authorities of the State Corporation "Rosatom", as well as in international organizations involved into the projects on NM safety, security, and non-proliferation assurance. Head of the program: N. I. Geraskin, PhD, Associate Professor, the First Deputy Head of the Basic Department, Head of the Training and Methodological Center on Engineering-Physics Education.

Specializations within this programme