

Innovative nuclear reactors

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: **5,5 years**

Availability of free education: **yes**

Price: **242 320 rubles per semester**

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Goals of the program:

Preparing graduates for engineering, scientific support and the safety analysis of nuclear power installations. Providing graduate basic humanitarian, social, economic, mathematical and scientific knowledge, universal and subject-specialized competences, preparation for admission to post-graduate study, providing in-depth training on the neutron-physical and heat-hydraulic processes taking place in the reactor core under normal operating conditions as well as in the emergency state and transient conditions.

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

Research, development and technology, aimed at the registration and processing of information, the development of the theory, the creation and application of nuclear installations and systems; the study of non-equilibrium physical processes, distribution and interaction of radiation with objects animate and inanimate nature; Research and design of nuclear reactors, advanced and special nuclear power plants, nuclear and radiation safety systems to ensure the safety and security of nuclear materials and nuclear facilities.

Brief description of the curriculum:

The fundamental physical and mathematical and engineering training, which allows to master the main basic and special disciplines. Basic special disciplines graduating department (3-5th years): "Nuclear physics", "The theory of neutron transport", "Experimental reactor physics," "Physical theory reactors", "Dynamics and safety of nuclear power installations", "Engineering calculations and energy equipment of NPP ", " Fundamentals of radiation transport ", " Fundamentals of the economy of the nuclear fuel cycle ", " Course project: the design and selection of NPP equipment, safety and economy of nuclear power installations ", " Neutron effective cross-sections and presentation of data". One of the best practice of the educational program: students do their internship during of 5-6 year of study in the laboratories at the department of industry and scientific and educational centers for in-depth study of professional competencies. The benefits of the program: deep physical and mathematical and information technology training in critical high-end technologies that provide reliable employment.

The base of industrial and/or scientific practice and employment:

National Research Center "Kurchatov Institute", JSC NIKIET, OKB "Gidropress" IBRAE RAN, JSC "VNIIAES" and others scientific and technical centers, NPP departments involved in the management, operational safety justification of the nuclear power plant.

Specializations within this programme

Nuclear reactors and materials

Objects of the professional activity:

The atomic nucleus, elementary particles, nuclear reactors, reactor materials and heat transfer fluids, perspective, and special types of nuclear power plants (NPP), a system for converting thermal and nuclear energy into electrical energy, nuclear materials and systems to ensure their safety, the radiation impact of ionizing radiation on human beings and environment, mathematical models of theoretical and experimental studies of phenomena and laws in the field of reactor physics, nuclear reactors, nuclear materials, physical and mathematical models of processes in nuclear plants, propagation and interaction of light with objects animate and inanimate nature, the security of nuclear materials, facilities and facilities of the nuclear industry and energy.