Physics of materials for high-tech industries

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Degree or qualification is awarded:

Bachelor's degree

Language of study: **Russian**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **316 290 rubles per semester**

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The goal is

- to prepare bachelor's graduates for professional engineering and technology activities for solving research and technological problems by using modern equipment and methods of research in the field of physics of modern materials and processes of their treatment;
- provide them with basic humanitarian, social, economic, mathematical and scientific knowledge, universal and subject-specialized competencies; and
- prepare a bachelor to enter the magistracy.

Programs for which personnel training is planned are "Personnel Training for Science Centers", "Nuclear Power Technologies of New Generation for the Period of 2010-2020," "Program of Innovative Development of State Corporation Rosatom," and "National Technological Base."

The sphere of professional activity of graduates is the development of new materials based on physico-chemical analysis and solid-state physics, the development and use of physical methods to investigate materials, and the development of technologies to obtain and treat new materials of the energy-intensive techniques.

The objects of professional activity of graduates are materials of energy and physical facilities, condensed matter, methods and systems for research and diagnosis of the state and properties of materials.

Bachelors not admitted to magistracy can work as engineers or technicians.

The curriculum is developed using the basic principles of preparation of engineers-physicists at MEPhI during the last 30 years. This is physico-mathematical training and study of experimental methods, mastering of engineering sciences, and professional training.

Characteristics of the educational process are single basic training for faculty in humanitarian, natural science and engineering disciplines for the first two years and professional training at the Department No. 9 at the 3rd and 4th courses.

The main professional disciplines are physics of condensed state, physical materials science, computer modeling, physical methods of materials investigation, functional and structural materials, processes to obtain and treat materials, structure and properties of materials, physics of strength and mechanical properties. On the 4th year there is a deepening of professional competences, work in the laboratories of the Department and at scientific and educational centers of the industry.

The attractive parts of the program are profound physical and mathematical preparation, as well as professional materials science and information technologies, and competences in the field of materials that provide reliable employment.

Practices. The scientific and production training is conducted on the third course for 2 weeks and the scientific and research (distributed) training is conducted during the 8th semester.

Humanities module; Natural Sciences module; Overall professional unit; Professional module; Practice and research work; Final qualifying work.

The bases of practical training are industry-leading enterprises of Rosatom: Bochvar High-technology Research

Institute of Inorganic Materials, National Research Centre "Kurchatov Institute," Baikov Institute of Metallurgy and Materials Science of the Russian Academy of Sciences, Luch Research and Production Association, Dollezhal Research and Development Institute of Power Engineering, Leading Research Institute of Chemical Technology, Gydropress Experimental and Design Organization, NPO ENERGY Research and Production Association, Specialized Scientific

Research Institute for Instrumentation Engineering, and other scientific and engineering centers.

The program of continuous training: Bachelor's Degree - Master of Science - Post Graduate

Specializations within this programme