

Bionanotechnologies

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: **167 700 rubles per semester**

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OBJECTIVES:

Biomedical nanotechnologies program is a multidisciplinary field of expertise at the interface of physics, chemistry, biology, computer science, and medicine. Biomedical nanotechnologies are expected to lead to a qualitative leap in the development of new drugs that will help to manage previously incurable diseases, as well as in the design of devices and methods of diagnostics and treatment.

A large part of the curriculum is devoted to the research activities, that will help to develop the skills of working with state-of-the-art equipment, to provide knowledge of practical use of physics approaches for practical challenges in the field of radiodiagnostics and therapeutics, radioisotope diagnostics methods for medicine.

Professional Activities:

- Nanotechnologies for biomedical purposes
- Material science for medicine
- Research into laser radiation propagation and its interaction with human tissues and organs
- Research, development and technologies for imaging and analysis of biomedical diagnostic images
- Methods and materials for nanosensorics
- Experimental investigation and implementation of methods and materials for biomedicine

THE MAIN SCIENTIFIC DIRECTIONS:

- Development of laser methods for synthesis of ultrapure nanomaterials for biomedicine.
- Investigation of the interaction between the optical radiation and biosystems
- Development of methods for designing the smart nanomaterials for biomedicine
- Development of methods of biosensorics with the use of nanoparticles and nanocomposites
- Development of cellular nanotechnologies for treatment of oncological diseases and other socially significant diseases
- Development of methods for high precision medical diagnostics nanobiosystems imaging

INTERSHIP AND EMPLOYMENT:

- State Atomic Energy Corporation ROSATOM
- National Research Center «Kurchatov Institute»
- N .N. Burdenko National Scientific and Practical Center for Neurosurgery
- N.N. Blokhin Russian Cancer Research Center
- Emergency Children's Surgery and Traumatology Research Institute
- Russian Scientific Center of Roentgen Radiology

- P.N. Lebedev Physical Institute of the Russian Academy of Sciences

This programme is also available in English.

Specializations within this programme