

The bachelor program "Heterostructural nanoelectronics"

Purpose of the program: training of bachelors in the area of electronics and nanoelectronics for engineering activity in the development and operation of micro- and nanoelectronics devices.

Duration of the study: 4 years

Program supervisor: Vasilevskii I. S, Dr. Sci. in Physics and Mathematics, Professor.

Graduation department: the program is implemented at the Condensed Matter Physics Department (№67) of the Institute for Nanotechnologies in Electronics, Spintronics and Photonics.

The area of professional activity of graduates:

- tools and methods of the design, engineering, mathematical and computer modeling in the field of electronics and nanoelectronics;
- production technology and application of materials, components, electronic devices for solid-state, microwave, optical, micro- and nano-electronics of various functional purposes;
- an application of the next-generation technical solutions for use in modern and prospective electronic complexes and systems;
- an estimation of economic efficiency of design-and construction decisions, maintenance of a necessary level of unification and standardization of products

Learning outcomes:

- ability to perform the modeling and design of electronic devices, circuits and installations of various functional purposes in accordance with the technical specifications;
- capability to perform work on the technological preparation of the production of electronic materials and products;
- competence in the service of measuring, diagnostic, technological equipment in the field of electronics and nanoelectronics;
- the ability to propose the simplest physical and mathematical models of devices, circuits, and installations of electronics and nanoelectronics, as well as to use standard software tools for their computer simulation;
- ability to conduct preliminary studies of technical and economic feasibility of the projects.

Brief description of the curriculum: the curriculum includes two general steps:

- 1) Basic training in humanitarian, natural sciences and general professional disciplines, during 2 years.
- 2) Professional (engineering) training. Basic courses: Solid State Electronics, Programming Languages and Techniques, Introduction to modern nanotechnologies, Microprocessor systems, Basics of Spintronics, Materials science in micro and nanoelectronics, Digital devices and systems, Electrical Engineering and Electronics, Electronics (analog and digital electronics), VLSI Technology, Radio and microwave electronics.

Organizations for the practice and employment of graduates: The Institution of Functional Nuclear Electronics NRNU MEPhI, scientific centers and industrial companies, Institutions of the Academy of Sciences