

Program: Nuclear Physics and Engineering (Training program «Innovative Nuclear Technologies») (14.03.02)

Training Area: Technical sciences

Duration: 4 years

Program supervisor: Associate Professor Roman V. Fomin, Candidate of Technical Sciences

Basic department: Department of Nuclear Physics and Technologies (Obninsk).

Goals of the Program

In the field of education, the goal of the Bachelor's degree program is:

- training in the basics of humanitarian, social, economic, mathematical and natural science knowledge;
- obtaining a higher education that allows graduates to successfully work in the field of activities related to education and science, nuclear industry, nuclear and radiation physics, nuclear materials and technologies, possess general cultural and professional competencies that contribute to their social mobility and stability in the labor market.

In the field of personality education, the goal of the program is to form the socio-personal qualities of graduates: purposefulness, organization, diligence, sociability, ability to work in a team, responsibility for the final result of their profession, their common culture, eco-culture and eco-awareness, the ability to independently acquire and apply new knowledge and skills.

Characteristics of the scope and objects of professional activity of future graduates: scientific research aimed at: development of the theory, design and application of laser and plasma systems; analysis of methods and systems for direct energy conversion; design and application of pulsed reactors and related reactor-laser systems.

Objects of the professional activity: atomic nucleus; elementary particles and plasma; condensed state of matter; lasers and their applications; nuclear reactors; nuclear reactor materials; nuclear materials and systems for ensuring their safety; particle accelerators; development and application technologies of instruments and installations for the analysis of substances; radiation impact of ionizing radiation on humans and the environment; radiation technologies in medicine; mathematical models for theoretical and experimental studies of phenomena and regularities in the field of physics of the nucleus, particles, plasma, condensed state of matter, nuclear reactors; distribution and interaction of radiation with objects of animate and inanimate nature; ecological monitoring of the environment; ensuring the safety of nuclear materials, facilities and installations of the nuclear industry and energy.

Brief description of the curriculum

The program is distinguished by a high level of theoretical training and a confident command of application software packages. The main scientific works are related to both fundamental and applied research in the following main areas:

- advanced NPP and technologies;
- theoretical and experimental nuclear physics;
- methods and systems of direct conversion of nuclear energy.

Areas of research and experts training:

- methods of direct conversion of nuclear energy;
- coupled laser-reactor systems;
- physics of lasers with nuclear pumping;
- multiparticle quantum scattering theory and its applications to nuclear and atomic collisions.

The base of industrial and/or scientific practice and employment

Russian research centers, enterprises of SC «Rosatom», Institute of the Academy of Sciences.