

**16.03.01
Applied Physics**

Degree: Bachelor

Program length and study mode: 4 years, intramural

Language: Russian

Credits: 240

Start date: September 1, 2020

Location: Faculty of Physics, Rostov-on-Don

Program overview:

The main goal of the program is to train experts for high-tech innovations based on R&D in physics of multifunctional active materials, in which SFedU holds leading positions in Russia and the world, and including the entire chain of knowledge-based innovations in active condensed-matter physics: from basic research to search, design and study of new multifunctional materials properties and their application as elements of high-tech devices; development and application of methods and hardware for research, analysis and control of solid-state systems. To achieve the goal, it is necessary to develop an in-depth natural-science knowledge base, which will allow a student easily adapting to new tasks in the future.

Program structure:

- Unit 1

Courses (modules), total - 213 credits

The basic part, total - 109 credits

The variable part, total -104 credits

- Unit 2

Practical training, including R&D - 21 credits

The basic part (if applicable)

The variable part - 21 credits

- Unit 3

State final certification - 6 credits

The basic part - 6 credits

Typical units of study may include:

Mathematical analysis. Analytical geometry and linear algebra. Elementary mathematics. Vector and tensor analysis. Complex variable theory. Differential equations. Theoretical mechanics. Mechanics of continua. Electrodynamics. Quantum mechanics. Thermodynamics. Statistical physics. Physical kinetics. General electrical engineering and electronics. Metrology, standardization and certification.

Careers:

The graduates are able to identify, study and model new physical phenomena and patterns; develop and implement new technologies, devices and materials for various purposes in the knowledge-intensive fields of applied and technical physics.

The graduates are experts in physical processes and phenomena that determine functioning, efficiency and technology of production of physical and technological devices, systems and facilities for various purposes, as well as methods of research, development, manufacturing and application.

Get in touch:

- *Vyacheslav S. Malyshevsky*

- *Doctor of Physical and Mathematical Sciences*

- +7(863) 218-40-00 ext. 11434

- *vsmalyshevsky@sfedu.ru*

- *WoS/Scopus ID R-4337-2016*



	<p>Research areas: Study of scientific and technical information, Russian and foreign experience; analysis of the research task in the field of technical physics based on the selection and study of literary and patent sources; construction of mathematical models for the analysis of properties of research objects and choice of tools and software for their implementation; execution of measurements and study of physical and technical objects using technical instruments of measurement and processing of results; describing the research, preparation of data for reports, reviews and other technical documentation; writing the reports, articles, abstracts using the modern editing and printing tools; adjustment and testing of certain types of complex physical and technical devices and systems in a laboratory and on site.</p>	
--	---	--