

Brief Description of the Program

Career

The first discoveries in the field of physics appeared in Ancient Greece. The very name of this science derives from the work of the same name by Aristotle, who developed many physical hypotheses and theories. Physics in translation from the ancient Greek language means nature, and the purpose of the first experiments was to explain natural phenomena and laws.

Physicists study the objects of the environment and the laws of their interaction with each other. The most important way to research for them is experimenting. Each expert, with the help of experimental observations, checks certain ideas that can be applied in many fields of activity of modern man. Since there are a large number of areas in physics, such scientists, as a rule, specialize in a particular one. So, there are nuclear physicists, radio physicists and nanophysicists. They are also classified according to what physical phenomena they investigate: biophysicists, geophysicists, medical physicists, etc.

Educational process

During their first year of study, students are intensively immersed in the profession. They receive excellent knowledge in the field of fundamental physics, nanotechnology, higher mathematics and computer technology. TSU students have a unique opportunity to undergo educational, research and production and pre-diploma practical trainings at the Research Institute "Nanotechnologies and Nanomaterials" of the TSU named after G.R. Derzhavin. Training sessions are conducted by highly qualified professors who have a doctoral degree. Multimedia equipment is widely used in the educational process. Laboratory work is performed on modern automated installations. Students are actively involved in conferences at various levels.

Disciplines

- ✓ Molecular Physics
- ✓ Theoretical Mechanics and Continuum Mechanics
- ✓ Mechanics
- ✓ Electricity and Magnetism
- ✓ Thermodynamics
- ✓ Interdisciplinary Aspects of Physics
- ✓ Electrodynamics
- ✓ Economy
- ✓ Law
- ✓ Psychology and Pedagogy
- ✓ Russian Language and Culture of Speech
- ✓ Mathematical Analysis
- ✓ Analytical Geometry and Linear Algebra
- ✓ Differential Equations
- ✓ Ecology
- ✓ Quantum Theory
- ✓ Physical Basis for Microsystems and Nanosystems Engineering
- ✓ Basics of Nanotesting
- ✓ Condensed Matter Physics

- ✓ Physics of Semiconductors and Dielectrics
- ✓ Analytical Methods in Physics
- ✓ Physics of Random Processes

✓ **Practical training**

Each year, students undergo practical trainings in schools, industrial enterprises, factories, research institutes, where they develop their analytical skills, rational thinking, and logic, and acquire necessary experience operating high-tech equipment.

Career

After completing the educational program, graduates will be able to do physical research, process the results obtained, work with scientific literature, and teach in educational institutions. They can be employed in the scientific field, in the field of education, medicine, ecology, etc., as well as continue their studies at postgraduate and doctoral levels.