**15.03.03 Applied mechanics**

**Program Summary**

**Program title**: Dynamics and strength of machines, devices and equipment

**Program goals**: Training of bachelors in the field of theoretical and experimental work with elements of scientific research, solving applied mechanics problems such as problems of dynamics, strength, sustainability, sustainable optimization, durability, resource, survivability, reliability and safety of machines and structures; development of mathematical models of structural analysis of advanced materials under extreme conditions; the creation and development of analytical and numerical methods of calculation of durability of machines, structures and devices at the enterprises of the nuclear weapons complex (NWC)

**Duration of full-time program** - 4 years.

**Department**: Department of theoretical and experimental mechanics, SPTI NRNU MEPhI.

**Areas of expertise**: physical and mechanical processes and phenomena, machines, structures, instruments and apparatus and other facilities of various RFNC-VNIIEF units, which require the development and application of experimental methods, mathematical and computer models based on the laws of mechanics for their research.

**The objects of professional activity**: scientific research in the field of applied mechanics on the basis of the classical technical theories and methods, advances in technology and technologies, primarily by using high-performance computing systems and research intensive computer technologies widely used in the industry; numerical and experimental activities with elements of research in the field of applied mechanics in the first place, by using the experimental equipment for mechanical testing, design and engineering; participation in the design of machines and structures to ensure their strength, sustainability, durability and safety, ensuring reliability and durability of units and parts of machines; participation in the design of parts and assemblies using software systems of computer-aided design based on the effective combination of advanced technologies and performing multivariate calculations.

**Curriculum features**: the curriculum is based on the higher education standards of NRNU MEPhI. Special courses have been introduced: explosives, physics of explosion and impact, methods and experimental techniques, mathematical modeling of explosion and impact, experimental methods of research of material properties.

**List of enterprises for internship and employment of graduates**: the laboratory of the Department of TEM of SPTI NRNU MEPhI; laboratory research and engineering divisions of the RFNC-VNIIEF.