

"Ground transportation and technological means and complexes"

Orientation "Wheeled and tracked vehicles"

Institute of Aircraft Engineering and Transport

Department of Motor Transport

Standard period of study: 4 years

Form of study: full-time

**THE PURPOSE** of the postgraduate program:

The program involves the training of highly qualified personnel in the field of science, studying the theory and modeling of working processes of transport and technological means and their complexes for industry purposes, including transport, (cars, auxiliary transport and technological equipment).

Calculation and design methods aimed at the creation of new and improvement of existing transport and technological means and their complexes taking into account the full life cycle of products with high quality, including increased efficiency, reliability, productivity, environmental friendliness and ergonomics, ensuring energy efficiency and operational safety. Optimization of structures and synthesis of the laws of motion control of ground-based transport and technological means and their complexes, as well as their individual functional units, mechanisms and systems.

Experimental research, testing and technical operation of transport and technological means and their complexes, as well as individual systems, aggregates, assemblies, parts and technological equipment.

Technological processes of interaction with the working environment (objects) of mechanized (automated and/or robotic) mounted, trailed and other technological equipment of ground-based transport and technological means and their complexes.

The training is conducted on the basis of the Department of Motor Transport

The research work is carried out on the basis of an interdisciplinary scientific school conducting research in the field of fundamental and applied problems related to mathematical modeling of information and measurement complexes and expert systems for monitoring the technical condition, diagnostics and testing of traditional and autonomous (unmanned) wheeled vehicles.

Practical training is conducted in the research laboratory for monitoring the technical condition and diagnostics of vehicles of the Department of Motor Transport, using the most modern methods and tools that allow performing in-depth experimental research, three-dimensional design, simulation mathematical modeling, as well as synthesis of testing and diagnostics processes of rolling stock, as well as its aggregates, mechanisms, traditional and intelligent systems.

Results of mastering the postgraduate graduate program:

- The results of scientific (research) activities are:
  - ✓ revealed new knowledge, developed new high-tech methods, techniques, equipment and systems obtained in the process of scientific research on the approved topic;

- ✓ scientific qualification work (dissertation) for the degree of candidate of technical sciences in the scientific specialty 2.5.11. "Ground transport and technological means and complexes";
- ✓ written and published scientific articles, protected objects of intellectual property, necessary and sufficient for the defense of a dissertation.
- The results of mastering the disciplines are:
  - ✓ acquired competencies that allow graduate students to carry out the full range of research work from the moment of formulation of the purpose and objectives of the study, to obtaining scientifically sound conclusions;
  - ✓ practical skills in mathematical modeling of work processes, as well as the creation of digital counterparts of transport and technological means and complexes, as well as technological, test equipment, information and measurement complexes and expert systems;
  - ✓ skills of optimization of structures and synthesis of laws of motion control of ground-based transport and technological means and their complexes, as well as their individual functional units, mechanisms and systems;
  - ✓ practical skills in designing, technical expertise and testing of traditional and autonomous (unmanned) wheeled vehicles, their automated and intelligent systems and aggregates.

The results of mastering the practice are the acquisition of skills and competencies for conducting experimental scientific research of transport and technological means and their complexes with the use of modern research equipment, computer measurement systems, modern technologies, gaining work experience in a creative team.

Organizations and institutions in which a graduate of a postgraduate course in this scientific specialty can carry out professional activities:

- □ educational organizations:
- institutions of higher education that train bachelors, masters, engineers and postgraduates in educational programs:
  - 23.05.01 – Ground transport technological means;
  - 23.05.02 – Special purpose vehicles;
  - 23.06.01 - Land transport equipment and technologies;
- educational institutions that train technical personnel and drivers of wheeled vehicles of all categories;
- research organizations that carry out research in the field of design, operation, testing, certification and technical expertise of wheeled vehicles;
  - □ enterprises (landfills, factories, firms) conducting certification tests, technical expertise, design of wheeled vehicles, their aggregates, mechanisms and systems.