

## SCIENTIFIC AREAS OF ACTIVITIES OF THE DISSERTATION COUNCIL

**Field of education: 8D07 Engineering, manufacturing and construction industries**

**Direction of training: 8D071 Engineering and engineering**

**Educational program group: D105 «Aviation engineering and technology»**

Training of a highly qualified specialist capable of conducting research in innovative areas of development of aviation equipment and technology that meets the international standards EASA PART-66 and allows Kazakhstan to integrate into the world educational space. The graduate is awarded the PhD degree. Doctoral students will receive practical skills in specialized laboratories equipped with modern equipment and instruments, computers and software. The training uses the latest methods and technologies of research, analysis, modeling, data processing, as well as computer-aided design systems of international level.

The Civil Aviation Academy interacts with many foreign universities and maintains links with related departments and faculties of universities as Russia - Moscow State University of Civil Aviation, Ukraine - National Aviation University, Latvia - Transport and Communications Institute (TSI), Lithuania - EASA Certified Training Center (European flight safety agency) FL-TECNICS and others. Doctoral students undergo internships at leading foreign technical universities.

Graduates work in higher educational institutions, research organizations, engineers in the machine-building and transport industries, managing managers in higher educational institutions and scientific organizations.

The direction of training “8D071 - Engineering and engineering science”, the group of the educational program D105 “Aviation equipment and technologies” is aimed at training specialists with the award of a degree - Doctor of Philosophy (PhD) with a standard period of study of at least 3 years.

*Mission of the educational program 8D07101 “Aviation equipment and technologies”* is to achieve the provision of high quality educational services in the field of higher and postgraduate education, leadership in the national space in training personnel in the direction of training “8D071 - Engineering and Engineering” in the educational program – “Aviation Equipment and Technologies” through the implementation of the principles of the Bologna process and modern quality standards.

*The task of the educational program* - training of highly qualified competent specialists for the transport and communication sector of the economy of the Republic of Kazakhstan, able to quickly adapt to rapidly changing socio-economic conditions.

*Objectives of the educational program:*

1. Formation of a personality capable of self-improvement and professional growth with versatile humanitarian, natural science and professional knowledge and interests.

2. Formation of the ability to critically rethink the accumulated experience, change, if necessary, the profile of one's professional activity, awareness of the social significance of one's future profession, and high motivation to perform professional activities.

3. Formation of the ability to find a compromise between various requirements (cost, quality, safety and deadlines) when planning and solving technological and applied problems encountered in the production process; own a culture of thinking,

4. Formation of the ability to generalize, analyze, perceive information, set a goal and choose ways to achieve it.

5. Assistance in the formation of a graduate's readiness to solve creative problems that arise in the course of professional, research and teaching activities that require in-depth professional knowledge; selection of the necessary research methods, modification of existing and development of new methods, based on the objectives of a particular study.

6. Formation of graduates' readiness to conduct scientific research, analyze experiments and observations, develop theoretical models based on them, allowing:

- predict the change in the technical condition of aviation equipment and the dynamics of the parameters of the efficiency of its technical operation;

- ensure aviation safety and flight safety, offer new solutions for flight and technical operation technologies, reduce the influence of the human factor, develop radio exchange phraseology, introduce computer hardware and software, profiling, legal and environmental aspects, linguistic features of aviation English in air transport.

7. Formation of skills in managing the maintenance of aircraft, the processes of technical operation of aircraft at an aviation enterprise and ensuring flight safety.

*Sphere of professional activity of a doctoral student*- the field of science and technology, which includes a set of means, methods of methods of human activity aimed at solving complex problems related to the organization of maintenance and repair of aircraft at aviation enterprises, increasing the efficiency of the functioning of aviation systems and technologies to ensure aviation safety and security flights.

*The objects of scientific research are:* Air transport, airports, air navigation, aircraft repair enterprises, unmanned aircraft systems, production processes.

*Subjects of scientific research*

1. Aviation technology:

- Development of structural elements and assemblies, methods and technologies for their design;

- Diagnostics and analysis in the field of applied mechanics, aviation instrumentation, energy, aviation materials science, automation and control;

- Systems for the technical operation and repair of aircraft and engines, including unmanned systems;

- Aviation equipment testing processes;

2. Technologies:

- development of innovative technologies, digitalization and digital transformation to improve the efficiency of the aviation industry;

- improvement of the flight safety system and aviation security, labor protection and safety of engineering and technical ground handling personnel;

- reduction of the influence of the human factor on the efficiency of the aviation industry;

- development of radio exchange phraseology technologies;

- implementation of new technical and technological solutions for profiling, psychological, legal and environmental aspects in air transport;
- research of linguistic features and development of technologies for improving aviation English;
- mathematical, simulation and 3D modeling, technologies and systems of virtual and augmented reality of aviation equipment and processes in air transport;
- computer modeling, automation and control, artificial intelligence, control, identification, neural network technologies of production processes, monitoring, diagnostics and maintenance;
- innovative technical methods and means of teaching;
- "green" technologies and environmental aspects in air transport.