**RESEARCH AREA**

**Field of Education: 8D07 Engineering, Manufacturing, and Construction**

**Area of study: 8D071 Engineering and Engineering**

**Education program group: D105 “Aviation Engineering and Technology” and 6D071400 “Aviation Engineering and Technology”**

Training of a highly qualified specialist, capable of conducting research in innovative areas of aviation engineering and technology development, meeting international standards EASA PART-66, and allowing Kazakhstan to integrate into the global educational space. The graduate is awarded a PhD degree with a regulatory period of study of not less than 3 years. Doctoral students will receive practical skills in specialized laboratories equipped with modern equipment and instruments, computer hardware 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.

Partners of the Civil Aviation Academy are related departments and faculties of foreign universities: Moscow State University of Civil Aviation, National Aviation University of Ukraine, Transport and Communications Institute (TSI, Latvia), EASA Certified Training Center (Lithuania), FL-TECNICS, etc. Doctoral students receive internships in leading foreign technical universities.

Graduates work at institutions of higher education, research organizations, engineers in the engineering and transport industries, managers in higher education and scientific organizations.

*The mission is to* achieve the provision of high-quality educational services in higher and postgraduate education, leadership in the national space to train aviation professionals through the implementation of the principles of the Bologna process and modern quality standards.

*The task* is to train highly qualified competent specialists for the transport and communications sector of the economy of the Republic of Kazakhstan, capable of quickly adapting to rapidly changing socio-economic conditions.

*Research Objectives:*

1. The formation of a person capable of self-improvement and professional growth with a variety of humanitarian, natural-science and professional knowledge and interests.

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

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

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

5. To promote the formation of the graduate's readiness to solve creative problems arising in the course of professional, research and pedagogical activity, requiring in-depth professional knowledge; the choice of necessary research methods, modification of existing and development of new methods, based on the tasks of a particular study.

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

- to predict changes in the technical condition of aviation equipment and the dynamics of parameters of the effectiveness of its technical operation;

- ensure aviation safety and flight safety, offer new solutions of flight and technical operation technologies, reducing the human factor, the development of radio communication phraseology, the introduction of computer technology and software, profiling, legal and environmental aspects, the linguistic features of aviation English in air transport.

7. Formation of skills to manage aircraft maintenance, processes of technical operation of aircraft at the aviation enterprise and ensure flight safety.

*The field of professional activity* is the field of science and technology, which includes a set of means, methods and techniques of human activity aimed at solving complex problems related to the organization of maintenance and repair of aircraft and equipment at aviation enterprises, the implementation of technologies and improving the efficiency of aviation systems to ensure aviation safety and flight safety.

*The objects of scientific research* are: air transport, airfields, air navigation, airlines, unmanned aircraft systems and vehicles

*Subjects of scientific research*

1. Aeronautical Engineering:

* development and modernization of structural elements and units, methods and technologies of their design;
* scientific provisions of analysis in the field of applied mechanics, instrumentation, energy, aviation materials science, automation and control;
* development and modernization of systems for production, operation and repair of vehicles and engines, including unmanned aircraft systems;
* development and modernization of testing, monitoring and diagnostic processes;

1. Technology:

* development of innovative technologies and digitalization to improve the efficiency of the aviation industry;
* improvement of flight safety and aviation security system, flight and technical operation;
* reducing the impact of the human factor on the efficiency of the aviation industry;
* the development of radio communication phraseology technologies;
* introduction of new technical and technological solutions for profiling, psychological, legal and environmental aspects in air transport;
* research of linguistic features and development of technologies to improve aviation English;
* Mathematical, simulation and 3D modeling, virtual and augmented reality technologies and systems in air transport, including unmanned systems and vehicles;
* systems of automation, control, artificial intelligence, control, identification of processes and objects in air transport, including unmanned systems and vehicles;
* innovative technical methods and means of teaching.