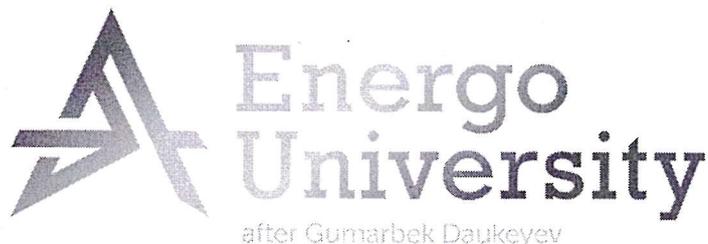


MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF
KAZAKHSTAN
NON-PROFIT JOINT STOCK COMPANY
"ALMATY UNIVERSITY OF ENERGY AND COMMUNICATIONS NAMED AFTER
GUMARBEB DAUKEEV"
INSTITUTE OF COMMUNICATIONS AND SPACE ENGINEERING



"Agreed"

Director of the «IAI»

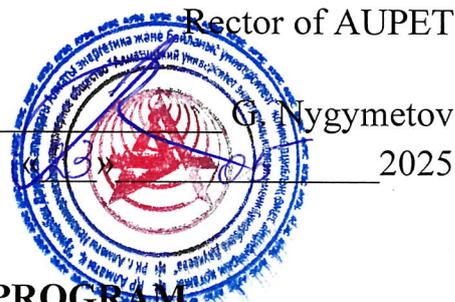


Sh. Omarov

2025

"I approve"

Rector of AUPET



G. Nygymetov

2025

MODULAR EDUCATIONAL PROGRAM
8D07105 SPACE ENGINEERING AND TECHNOLOGY
(DOCTORAL STUDIES IN SCIENTIFIC AND PEDAGOGICAL)
POSTGRADUATE EDUCATION

Direction of training (according to the classifier from 13.10.2019): 8D071 Engineering and Engineering Group of educational programs: D107 Space Engineering

The training period is 3 years

Degree awarded: Doctor PhD of Engineering and Technology

Qualification level in accordance with the National Qualifications Framework: Level 8.

Almaty 2025

The modular educational program was developed at the Department of Space Engineering.
Head of the educational program Uteliyeva N.K.

Director of ICSE Omarbekova A. Dr. PhD., S. Tolendiuly. Dr. PhD, Head of Department.

The OP was considered and approved at a meeting of the Department of Space Engineering dated 28 03 2025, Protocol No. 8

Head of the Department of SE _____  S. Tolendiuly

The EP was considered and approved at a meeting of the educational and methodological commission of the Institute of Communications and Space Engineering (protocol No. 8 of 29.04 2025).

Director of ITSE _____  A. Omarbekova

The EP was considered and approved at the AUES Academic Council (Protocol No. 11 of 23 05 2025).

List of Abbreviations and Acronyms

VO – Higher Education
GSES – State Compulsory Educational Standard
EQF – European Qualifications Framework
NCO – National Classification of Occupations
RK – Republic of Kazakhstan
NQF – National Qualifications Framework
NQS – National Qualifications System
GEM – General Education Module
EP – Educational Program
GED – General Education Disciplines
RC – Required Component
UC – University (Institutional) Component
BD – Basic Disciplines
MD – Major (Profile) Disciplines
IET – Individual Educational Trajectory
SQF – Sectoral Qualifications Framework
PS – Professional Standard
PGE – Postgraduate Education
ON – Competencies
LO – Learning Outcome
CW – Course Paper
CGA – Calculation and Graphic Assignment
SRW – Students' Research Work
CED – Catalog of Elective Disciplines

1. Passport of educational program

№	Field name	Note
1	Registration number	8D07105
2	Education Area Code and Classification	8D07 Engineering, Manufacturing and Construction Industries
3	Code and classification of training areas	8D071 Engineering and Engineering
4	Educational Program Group	D107 Space engineering
5	Name of the educational program	8D07105 Space engineering and Technology
6	Type of Generation Program	a) Current Educational Program;
7	Purpose of the Educational Program	Training of highly qualified personnel in the field of space engineering and who have theoretical and practical knowledge, skills and skills in the study of processes and spacecraft of space systems, design and implementation of technical projects, systematic solution of problems using innovative approaches, construction of concepts and strategies of activities that meet the needs of domestic and world markets of intellectual labor, ready to make a qualitative breakthrough in the development of astronomy, cosmophysics and cosmonautics.
8	National Qualifications Framework Level	8
9	Level by Industry Qualification Frame	8
10	Distinctive features of the Educational Program	no
	Partner Institution of Higher Education	
11	List of competencies	The training results and the correlation of educational program training results with the competencies to be formed are presented in Appendices 1 and 3
12	Training results	<p>ON-1 (PO-01). Demonstrate the ability to improve and develop their intellectual and general cultural level, independently acquire and use new knowledge and skills in practice, freely use a foreign language as a means of business communication;</p> <p>ON-2 (RO-02). Demonstrate the ability to actively social mobility, to self-study new research methods, to change the scientific or industrial profile of their professional activities in the process of changing socio-cultural and social conditions of activity;</p> <p>ON-3 (RO-03). Demonstrate skills and abilities in the organization of research work, in team management, in assessing the quality of performance results, take the initiative, resolve problematic situations;</p> <p>ON-4 (RO-04). Analyze scientific and technical information, set research objectives, conduct experiments and tests of space technology objects, design and present the results of scientific research, conduct bibliographic work, analyze, synthesize and critically summarize information;</p>

		<p>ON-5 (RO-05). Demonstrate the ability to use in-depth theoretical and practical knowledge, generate and use new ideas, find creative solutions to professional problems, apply modern research methods, conduct technical tests and (or) scientific experiments;</p> <p>ON-6 (RO-06). To develop technical solutions related to the modernization of elements and subsystems of spacecraft, measures to improve operational characteristics, save resources, increase reliability, industrial and environmental safety of space equipment and systems;</p> <p>ON-7 (RO-07). Demonstrate readiness to participate in the development of spacecraft elements and systems projects using modern achievements of science, practice and best practices, modern design automation tools;</p> <p>ON-8 (RO-08). To carry out technical calculations on projects, to carry out technical and economic analysis of the effectiveness of design solutions, to develop and apply application software for calculating parameters and selecting equipment, to determine indicators of the technical level of the projected objects or technological schemes.</p> <p>ON-9 (RO-09). To make descriptions of the principles of operation and device of nodes and elements of the studied (developed) object of space technology.</p>
13	Form of education	Full - time
14	Language of instruction	Russian, Kazakh
15	Volume of loans	180
16	Academic degree awarded	Master of Engineering and Technology
17	Availability of an appendix to the license for the direction of training	There is No. KZ80LAA00018161, 05.05.2020
18	Availability of accreditation Educational Program	Yes
	Name of the accreditation body	IAAR
	Validity period of accreditation	05.04.2024-04.04.2029
19	Information about disciplines	Information about the disciplines of the UC/OK ED, PD are presented in Appendix 1
20	Field of professional activity	The field of experimental, theoretical and applied astronomy and cosmophysics, as well as the fields of related natural and technical sciences; - the field of education, including the field of pedagogy, theory and methods of teaching physics and astronomy in secondary schools
21	Types of professional activity	Movement, physical structure; development of celestial bodies of natural and artificial origin, as well as systems of these bodies up to the Universe as a whole; matter filling outer space in any of its states; aerospace technology; products, materials, instruments, mechanisms and equipment used in astronomy, cosmophysics and cosmonautics.
22	Modular curriculum	Given in Appendix 2

2. Matrix of Alignment between Learning Outcomes of the Educational Program as a Whole and the Competencies Being Developed

№	Titles of Disciplines	ON1	ON2	ON3	ON4	ON5	ON6	ON7	ON8	ON9	ON10
1	Academic Writing	v			v						
2	Methods of Scientific Research	v		v							
3	Teaching Practice	v	v								
4	Research Practice	v									v
5	Theory and Methods of Rocket and Space Technology Testing / Fundamentals of Nanosatellite Development			v	v						
6	Doctoral Research Work, Including Internship and Doctoral Dissertation (DRW)			v	v						
7	Space Information Technologies / Global Positioning Systems		v	v							
8	Current Issues in Space Materials Science / Spacecraft Design		v	v							
9	Satellite Navigation Technologies / Motion and Navigation Control Systems of a Microsatellite	v	v					v	v		