

NON-PROFIT JOINT STOCK COMPANY
“ALMATY UNIVERSITY OF POWER ENGINEERING AND TELECOMMUNICATIONS
NAMED AFTER GUMARBEK DAUKEYEV”

APPROVED BY
Academic Council of the NJSC
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STRATEGIC DEVELOPMENT PLAN OF THE NJSC
“ALMATY UNIVERSITY OF POWER ENGINEERING AND TELECOMMUNICATIONS
NAMED AFTER GUMARBEK DAUKEYEV” FOR 2021-2023

ALMATY
2021

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ABSTRACT AND PASSPORT

The strategic development plan of the Non-profit Joint Stock Company “Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev” for 2021-2023 (hereinafter referred to as AUPET, the AUPET Development Plan) defines the basic directions of development at the corporate level and in the main strategic directions, is a mid-term document and is approved within the framework of implementation of the AUPET transformation strategy until 2025, approved by the Board of Directors on December 29, 2017, Protocol No. 5-24.

The AUPET development plan for 2021-2023 is a set of interrelated procedures and activities covering changes in the academic, research, infrastructure and other areas of the university's activities.

The AUPET development plan was developed in accordance with the requirements of regulatory legal acts in the field of education and science of the Republic of Kazakhstan, the National Development Plan of the Republic of Kazakhstan until 2025, the State Program of Industrial and Innovative Development of the Republic of Kazakhstan until 2025; State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020-2025; By the message of the President of the Republic of Kazakhstan K.Zh. Tokayev “Kazakhstan in a new reality: time for action” dated September 1, 2020 and the National Action Plan for its implementation, the “Plan of the Nation - 100 Concrete Steps to Implement Five Institutional Reforms”; article of Elbasy dated November 21, 2018 “Seven Facets of the Great Steppe”.

Table 1. Passport of the Strategic Development Plan of the NJSC “Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev” for 2021-2023

Name	Strategic development plan for NJSC “Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev” for 2021-2023.
Basis for development	The need to develop a Development Plan is the University's need to respond to new challenges and threats of an unstable, uncertain, complex and ambiguous situation in the world associated with overcoming the COVID-19 pandemic, which directly affects the socio-economic situation in Kazakhstan. The presence of a strategic management system at the University allows, based on the analysis of the external and internal environment, to set specific, measurable, achievable, relevant and time-bound goals and objectives for the further development of the University and to monitor their implementation.
Tasks and goals	The goal is to implement the mission and vision of AUPET through the creation of a leading innovative research university in Central Asia, which provides training of competitive specialists in demand for the modern labor market. Tasks: - providing students and trainees with high-quality educational services based on national and international standards; - student-centered learning through the introduction of innovative

	<p>teaching methods and the attraction of highly qualified foreign and domestic specialists;</p> <ul style="list-style-type: none"> - expansion and development of new double-degree educational programs with leading international universities; - further development of fundamental and applied scientific research, introduction into production and commercialization of their results; - strengthening the quality management system aimed at improving the level of educational services and research products; - expanding international cooperation with foreign partners in order to implement mutually beneficial scientific, educational and other projects, academic mobility of teachers and students, as well as attracting foreign citizens to study at the University; - promoting harmonious development and creating the necessary conditions to meet the needs of students and teaching staff.
Developer	Department of Analysis and Development Strategy of AUPET
Terms and stages of implementation	<p>2021 (2021-2022 academic year)</p> <p>2022 (2022-2023 academic year)</p> <p>2023 (2023-2024 academic year)</p>
Sources of funding (indicated in the Development Plan)	<p>Activities that do not require funding.</p> <p>Activities funded by government grants.</p> <p>Self-funded activities.</p>

CURRENT STATE AND DEVELOPMENT PROSPECTS

History

Almaty University of Power Engineering and Telecommunications was established on January 10, 1997 on the basis of the Almaty Energy Institute, which existed from 1975 to 1996.

In 1989, Almaty University of Power Engineering and Telecommunications Institute was the first in Kazakhstan and one of the few in the Soviet Union to be certified by the commission of the State Inspection of the USSR State Committee on Public Education.

In May 1996, by a decree of the Government of the Republic of Kazakhstan (hereinafter - RK), a large-scale reorganization was carried out in the field of higher education - regional universities were created by merging former independent higher educational institutions (hereinafter - HEI). The Almaty Energy Institute was attached to the Kazakh National Technical University as a structural unit - the educational and scientific complex of energy and telecommunications, which in May 1997 was transformed into the Almaty Institute of Power Engineering and Telecommunications with the status of a non-profit joint stock company, and Gumarbek Daukeyev was elected rector.

In July 2010, the Almaty Institute of Power Engineering and Telecommunications got the status of a university with the right to prepare master's and doctoral PhD students, as well as a new name - the non-profit joint-stock company "Almaty University of Power Engineering and Telecommunications" (hereinafter - AUPET).

In August 2019, AUPET was named after Gumarbek Daukeyev.

Accreditation and ratings

In March 2019, AUPET successfully passed institutional and specialized accreditation for 23 educational programs in the Independent Agency for Accreditation and Rating for a period of 5 years.

In the National rating of the best technical universities in Kazakhstan, AUPET has the brand of a leading university for training personnel in the field of energy, information and communication technologies with a high level of employment of graduates and is in the top 10, holding leading positions in almost all specialties.

Over the past 3 years, AUPET has been in the top 5 of the best technical universities in the country. AUPET got the 6th place in the National rating of the best technical universities of Kazakhstan, and in the National rating of the demand for universities, the National Chamber of Entrepreneurs "Atameken" - 8th, occupying a leading position: in the institutional rating in the areas of training – "Information and communication technologies" (bachelor - 2nd place, master's degree - 1st place); by groups of educational programs: "Communications and Communication Technologies" - 1st place; "Information Security" - 1st place; "Electrical Engineering and Power Engineering" - 1st place; "Information Technologies" - 1st place; "Space Engineering and Technologies" - 2nd place, "Instrument Engineering" - 3rd place.

In 2021, AUPET took 5th place in the National rating of the best technical universities in Kazakhstan Independent Agency for Quality Assurance in Education and 9th place in the General Ranking of Universities of the IAAR.

In the institutional rating of universities in the areas of training specialists of the IAAR, AUPET took the 3rd place (bachelor's degree) and 4th place (master's degree) in ICT. In the rating of educational programs by the Independent Agency for Quality Assurance in Education: Radio engineering, electronics and telecommunications (bachelor's and master's degrees) - 1st place; Electric power engineering (bachelor's and master's degrees) - 1st place; Instrument Engineering (bachelor's

and master's degrees) - 1st place; Life safety (bachelor's and master's degrees) - 2nd place; Space engineering and technology - 2nd place (bachelor's degree); Heat power engineering - 1st place (bachelor's degree) and 3rd (master's degree); Automation and Control - 3rd place (Bachelor's degree) and 2nd (Master's degree); computer technology and software - 3rd place (bachelor's degree) and 2nd (master's degree); information security systems - 3rd place (bachelor's degree);

In 2019, AUPET for a period of two years entered the top 25 of the international U-Multirank rating according to the parameter “Cooperation with the working environment” (Contact to work environment) in the specialties of electrical and heat power engineering and information technologies (“Electric Engineering” and “Computer Sciences”).

In 2020, AUPET is ranked 461 out of 880 in the global rating of sustainable and environmentally friendly development UI Green metrics, while among participating universities from Kazakhstan, AUPET is ranked 7 out of 15.

Employment

Today, employment is the only objective indicator of the competitiveness of a university, the demand for its educational programs and graduates. This indicator in the AUPET, confirmed by the State Center for Supply and Development, is 88.6%.

Educational activities

Over the past 5 years, there has been a steady growth in the contingent of students. Since 2018, the average growth has been 22% per year.

The admission of students of all forms of education for the 2020-2021 academic year was 2440 people. This is more than the enrollment of the 2019-2020 academic year by 9.7% and has increased 2.6 times over five years. In 2020, there was a further increase in the contingent of grant students: bachelor's degree by 24.17%, undergraduates by 23%, doctoral students by 13.04%. The growth of the contingent is mainly due to the increase in the contingent for grant funding.

The enrollment for the undergraduate program in 2020 amounted to 2,234 people, which is 11% more than the enrollment in the 2019-2020 academic year. At the same time, 83.6% will be trained on grant funding.

The enrollment for the master's program was 179 people, which is 12.7% less than the enrollment in the 2019-2020 academic years. At the same time, 91% will be trained on grant funding.

The enrollment for doctoral studies was 27 people, which is 50% more than the enrollment in the 2019-2020 academic years. At the same time, 100% will be trained on grant funding.

On August 1, 2019, due to changes in the Classifier of areas for training personnel with higher and postgraduate education on the basis of the Order of the Ministry of Education and Science of the Republic of Kazakhstan (hereinafter - the Ministry of Education and Science of the Republic of Kazakhstan) dated June 3, 2019 No. 252, applications to the license for educational activities were reissued 23 educational bachelor's programs, 14 educational master's programs and 6 educational programs of doctoral studies.

All educational programs of AUPET are included in the Register of educational programs of higher and postgraduate education of the Ministry of Education and Science of the Republic of Kazakhstan, posted on the web portal of the Center for the Bologna Process and Academic Mobility.

In 2021, AUPET passed the license control of the Ministry of Education and Science of the Republic of Kazakhstan for a period of 4 years. AEUS is the basic educational and methodological association of the Republican Educational and Methodological Council (UMO RUMS) for 4 specialties "Electric Power Engineering", "Heat Power Engineering", "Radio Engineering, Electronics and Telecommunications", "Space Engineering and Technologies".

In 2021, AUPET passed the license control of the Ministry of Education and Science of the Republic of Kazakhstan for a period of 4 years. AUPET is the basic educational and methodological association of the Republican Educational and Methodological Council (Educational and Methodological Association of the Republican Educational and Methodological Council) for 4 specialties "Electric Power Engineering", "Heat Power Engineering", "Radio Engineering, Electronics and Telecommunications", "Space Engineering and Technologies".

AUPET has a doctoral council for the defense of dissertations in 3 specialties: "Electric Power Engineering", "Heat Power Engineering", "Radio Engineering, Electronics and Telecommunications".

In 2020, new and innovative educational programs were developed based on professional standards: "Modern and innovative technologies of renewable energy", "Energy audit and energy management", "Modernization and innovation of systems for generating electrical thermal energy", "Electric power systems", "Electronic engineering". All educational programs of the university have been updated, brought in line with the State Educational Standard and new disciplines have been added:

- the bachelor's EP includes disciplines that form IT competencies,

- to the EP magistracy - disciplines related to obtaining the competence "project management", which were taught by leading specialists of the Union of Project Managers of the Republic of Kazakhstan, accredited at the Project Management Institute - PMI (USA) as a Global REP Provider ID: 2758 and a member of the worldwide network of consulting companies PMI.

- to the EP of doctoral studies – "Academic writing"

Guided by the recommendations of the new State Compulsory Education Standards on granting significant powers to the university in defining basic and specialized disciplines, the university focuses on many years of experience in training specialists for educational programs for bachelor's, master's, doctoral studies and annually attracts leading specialists from large enterprises to develop and agree on educational programs, such as KEGOC JSC, Alatau Zharyk Companies JSC, AIES JSC, Kazteleport JSC, Kazakhstan Information Security Association, SKTB Granit LLP, Sberbank JSC, Azimut Solutions LLP, Eltex Alatau LLP, Information and Communication Technologies Academy Directorate, Kazakhtelecom JSC », Mobile Telecom Service LLP, Altel / Tele 2 brand, IEC Telecom Kazakhstan, NCKIT JSC, SIEMENS LLP, SAYMAN Instrument-Making Plant, etc.

AUPET has always been distinguished by its strong laboratory facilities and the fact that the actual equipment was always presented.

In 2019-2020, new laboratories were created, including international ones:

- measuring equipment of the Israeli company AYYEKA - for the educational program "Instrument Engineering";
- the opening of the HUAWAI Academy - to strengthen the IT competence of students;

- Equipping a distance learning room at the expense of an international grant under the ERASMUS + program (5 thousand euros);
- Schneider Electric laboratory on the basis of the Automation and Control Department;
- Creation of a branch of the laboratory of the European University of Cassino “Mechatronics and Robotics”;
- branch of the CTT department at the National Center for Space Research and Technology;
- On September 18, 2020, the research center “SpaCE - Space, Communications and Engineering” was opened in cooperation with the Engineeringium MSTU named after N.E. Bauman.

In 2020, an educational program (minor) “Modern Huawei technologies” was developed at the university on the basis of a certified Huawei laboratory.

Scientific, innovative and project activities

Research work of AUPET is concentrated in 4 research centers and 7 thematic research laboratories. For students there are more than 80 laboratories with modern equipment, including 7 teaching and research laboratories.

For 2019-2020, 11 grant projects were carried out under the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan, 2 projects under the Ministry of Digital Development, Innovation and Aerospace Industry of Kazakhstan, 21 projects were completed on a contract basis.

The customers of the contract research were such companies as: JSC Alatau Zharyk Kompaniyasy, JSC KEGOC, JSC Kazteleradio, Kazakh Institute of Oil and Gas, ALES, etc.

All this suggests that the university conducts relevant research that is in demand in the real sector of the economy.

At the same time, in terms of grant funding, the increase was 3 projects:

In April 2020, 1 Grant of young scientists of the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan was won,

In February 2020, AUPET officially launched 2 projects of the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan

For the period 2019-2020 15 contracts of economic activity were concluded with industrial enterprises of the Republic of Kazakhstan.

In terms of contract work, the most significant project is “Carrying out a feasibility study on the development of algorithms and the creation of WACS automation based on WAMS synchrophasor measurements” the customer of the work is KEGOC JSC. Within the framework of this project, for the first time in Kazakhstan, algorithms based on artificial intelligence were developed and proposed for controlling electric grids. This project was included in the State Program “Digital Kazakhstan”.

At present, the developed control system is expected to be introduced into the electric networks of KEGOC, where the author of this system is AUPET.

The amount of research and development funding in 2019 amounted to 414.93 million tenge, while in 2018 - 349.22, an increase of 65.7 million tenge or 19%.

In 2020, the volume of research and development funding amounted to 567.92 million tenge, which is more than 2018 by 152.99 million tenge or 37%.

For the past 1 quarter of 2021, it is accompanied by:

5 projects of grant financing:

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5 projects of grant financing:

- Technological modernization and innovative development of the energy industry in Kazakhstan customer: Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan;
- Development of methods, models and tools for managing security events and incidents for detecting and preventing cyberattacks on critical infrastructures of the digital economy - customer Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan;
- Development of a method and automation of searching for vulnerabilities in the machine code of telecommunication devices - customer Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan;
- Optimization of planning and control of electrical modes in Smart Grid systems - customer Committee of Science of the Ministry of Education and Science of the Republic of Kazakhstan;
- Development of the theory of focusing and aberrations of electron beams of relativistic energies in electrostatic lens-mirror systems and the calculation of electronic mirrors of real structures - the customer is the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan (Scientific Head. Bimurzaev SB), the amount of funding for 2021 - 18 971 556 tenge.

3 extra-budgetary projects out of them: 2 projects from 2019 (due to the COVID-19 pandemic):

- “Design and installation of 6kV reactive power compensation devices” - customer of JSC “Shymkent Cement”;
- Development of the section "Development of the heat supply system in zones in Almaty Teplokommunenergo" LLP as part of the feasibility study for “Heat supply schemes for the city of Almaty”;
- and 1 project, rolling over from 2020 according to the work schedule “Work on the implementation of the system (software and hardware complex for secondary automatic control of frequency and active power flows, central transceiver station and software of the centralized system).

For the 1st quarter of 2021, 2 projects were won for grant funding (customer: Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan): "Development of self-regulating electric drives for spacecraft" - customer of the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan and “Development of scientific and technical foundations of uranium mining technology”.

For extra budgetary projects:

“Implementation of the WACS control system based on WAMS synchro phasor measurements” - the customer is KEGOC JSC (head K.K. Tokhtibakiev);

- “Research work to determine the factors and source of pollution of insulation of electrical equipment of KEGOC JSC in the Atyrau region” - the customer is KEGOC JSC;
- “Calculation of electricity losses in transformer installations of the state municipal enterprise "Mangistauenergo” for 2022-2026” - customer of the State Enterprise “Mangistauenergo”;
- “Energy audit services” - the customer is Bureau Veritas LLP;

- “Technical Expertise of the Approved Investment Program for 2020” - the customer is KEGOC JSC;
- “Services for carrying out field tests for drawing up automatic control algorithms for the project:” Connection of the state regional power station Topar to the central system of automatic control of frequency and active power flows” - customer Scientific and Engineering Center Energetika LLP;
- “Development of the Data Center external power supply scheme” - customer GYG LLP;
- "Expertise of the calculated specific emission factors of greenhouse gases of SevKazEnergo JSC for 2020 and the planned specific emission factors for 2021, taking into account the operation of the station and the actual technical condition of the PTETs-2 equipment" - the customer is SevKazEnergo JSC;
- “Development of a joint Concept for the development of the European Economic Community of Kazakhstan and the United Energy System of Central Asia” - customer Coordination and Dispatch Center “Energy”;
- “Development of a preliminary feasibility study for the project” Integration of the energy system of Western Kazakhstan with the European Economic Community of Kazakhstan” - customer JSC" KEGOC”;
- “Evaluation of the efficiency of the implemented smart metering system and the prospects for further development of Smart Metering in AZhK JSC in Almaty” - customer, Branch of the Corporation “Tetra Tech ES, Inc.”;
- “Technical expertise of the investment program for 2020” - the customer is Alatau Zharyk Company JSC.

In total, in the 1st quarter of 2021, the Department of Science and Commercialization is accompanied by 7 projects of grant financing (total amount of 182 million tenge) and 16 projects of extra-budgetary funding (total amount of 751 million tenge).

Thus, the results of Research and development work carried out at AUPET are in demand by the real sector of the economy of Kazakhstan. And the traditional partners of AUPET in R&D and consulting work are the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan, the Customs Control Committee of the Ministry of Finance of the Republic of Kazakhstan, the State Revenue Committee of the Ministry of Finance of the Republic of Kazakhstan, the National Security Committee, the Ministry of Defense of the Republic of Kazakhstan, JSC “Kazakhstan Electricity Grid Management Company” KEGOC, RSE “Institute of Nuclear Physics”, State Institution “Academy of Law Enforcement Agencies under the General Prosecutor's Office of the Republic of Kazakhstan”, State Enterprise “Reserve” of the Ministry of Defense and Aerospace Industry of the Republic of Kazakhstan, JSC “Axelor Mital”, National Company KTZh, JSC “Samruk-Energo”, JSC “Intergas Central Asia”, JSC “Almaty Power Plants”, JSC “Alatau Zharyk Kompaniyasy”, JSC “Atyrau Zharyk”, LLP “Almatyteplokommunenergo”, Atyrau Thermal Power Plant, Zhambyl Electric Networks and a number of other organizations and enterprises with various forms of ownership.

In 2020, the rating of a qualified supplier was raised to 88% for “Samruk-Kazyna” JSC, which characterizes AUPET as a reliable supplier of works and services on a national scale. Scientific and practical conferences and round tables for the academic community, Olympiads and competitions for students are held on a regular basis.

In 2020, permission was obtained from the Committee for Atomic and Energy Supervision and Control of the Ministry of Energy of Kazakhstan for the right to conduct an energy examination of the 1st category.

Recognition of high professional competencies and confirmation of the authority of the expert opinion of AUPET scientists was the decision of the Committee for Regulation of Natural Monopolies of the Ministry of National Economy of the Republic of Kazakhstan AUPET in 2021 to include AUPET in the list of authorized persons (experts, expert organizations) to conduct a technical examination of the implementation of approved investment programs.

Staff

In the 2020-2021 academic years, the teaching staff was 452 people. The teaching staff in the 2020-2021 academic year is represented by 23 professors, 69 associate professors, 30 doctors of sciences, 132 candidates of sciences, 31 doctors of PhD, 96 masters.

In the 2020-2021 academic year, the level of full-time teaching staff was 53%, according to the areas of training is presented in Table 2 (meets the qualification requirements for organizations engaged in educational activities in the field of higher and postgraduate education). The average age of the teaching staff was less than 50 years.

In the 2019-2020 academic year, full-time teaching staff amounted to 526 people (in the previous year 474 people, an increase of 11%), including the full-time teaching staff 442 (84%), in the previous year 91%, that is, we involve everything in the educational process. more practitioners. The degree of graduation was 56%, the share of young teachers with academic degrees and titles increased in the last academic year by 3.5% and amounted to 17%.

Table 2. Staff

	2018-2019	2019-2020	2020-2021
Total number of teaching staff, people	474	526	452
The number of full-time teaching staff, people	439	442	370
The share of full-time teaching staff to the total number of teaching staff, %	93	84	82
Degree of staff teaching staff (bachelor's degree),%	54	56	53
The degree of full-time teaching staff (master's and doctoral studies), %	100	100	100
The share of young teachers (up to 40 years old) with academic degrees and titles of the total number of graduated full-time teaching staff	13,50%	17%	10 %
Average age of teaching staff, years	52	51	49,9

Internationalization and international cooperation

Academic mobility at AUPET is carried out within the framework of agreements and memorandums within the framework of the concluded international agreements on external academic mobility programs in foreign universities studied:

2019-2020 - 23 students (12 masters, 11 bachelors)

2020-2021 - 3 masters (Anhalt University of Applied Sciences) included with republican (12) and foreign (104) universities.

According to the USCO program of incoming academic mobility, 2 master students of Osh State University study at AUPET.

The number of foreign students at AUPET for 2020-2021 is 63 people, which confirms the increase in the number of foreign students compared to previous years (for the period 2019-2020, the contingent of foreign students was 58 people).

2 agency agreements have been concluded to attract students from Arab countries; work is underway to attract foreign students from China and other countries.

Table 3. The number of international agreements concluded and students enrolled in dual degree programs for the last 4 years for foreign students.

№	Academic year	Number of foreign students	Number of concluded international agreements	Number of students under the MPEI-AUPET double-diploma program
1	2017-2018	45	32	135
2	2018-2019	57	19	129
3	2019-2020	58	11	4
4	2020-2021	63	6	-

Under external academic mobility programs, students, undergraduates and doctoral students receive training and internships at leading partner universities, including the University of Birmingham (UK), University of Southampton (UK), Institute of Aviation and Cosmonautics of the Berlin Technical University, (Germany), Riga Technical University (Republic of Latvia), “Angel Kanchev” University of Ruse (Bulgaria), Bialystok Technical University (Poland), Tomsk Polytechnic University (Russia), Technical University of Varna (Bulgaria), Moscow Power Engineering Institute (Russia), Saint-Petersburg State University of Telecommunications named after Prof. Bonch-Bruевич and others.

As part of the outgoing academic mobility of students in the fall semester of the 2019-2020 academic year:

- 7 AUPET students received grants from the Ministry of Education and Science of the Republic of Kazakhstan and were sent to Poznan University of Technology to study within the framework of academic mobility 6 students and the Czech Technical University in Prague 1 student;
- 1 student - to the University of Genoa (Italy);
- 2 students - to the Poznan University of Technology;
- 3 students - to the Lodz University of Technology;
- 1 master's student and 2 bachelor's degrees were trained at Sendai College (Japan) in the summer semester;
- 2 master's student received grants from the Abay-Vern scholarship program and were sent to study at the University of Lorraine (France);
- 2 master's student - to the University of Oviedo (Spain);
- 2 master's student - at the Anhalt University of Applied Sciences (Germany).

In total, in the fall semester 2019-2020, training was organized for 17 people: 10 bachelors and 7 master's students.

In the spring semester of the 2019-2020 academic year, training was organized for 6 students - 1 student and 1 undergraduate were sent to study within the framework of Mathematical and Computer Modeling Erasmus + at Kadir Has University (Turkey) and 4 master's student were sent to study

within the framework of academic mobility at his own expense to Poznan University of Technology (Poland).

AUPET is a participant of 3 grant projects of the Erasmus + program:

- APPLE "Applied Curriculum for Space Exploration and Intelligent Robotic Systems";

- KUTEL "Universities of Kazakhstan for improving quality assurance processes in teaching using new technologies";

- ACeSYRI "Center of Excellence for Doctoral Students and Young Researchers in Informatics")

and 2 programs for international credit mobility (with the University of Oviedo in Spain and the University of Anhalt in Germany).

According to the MAPREE project, the master's program "Renewable Energy sources and energy efficiency improvement in buildings" was developed, equipment was obtained that is used to provide energy audit services for industrial enterprises, administrative and residential buildings.

Within the framework of the USAID program "Energy Audit of Industrial Enterprises" together with the "Kazakhstan Program to Curb Climate Change", the Center for Industrial Energy Audit was opened at AUPET.

Together with USAID, under the Future Energy project, educational programs in the field of renewable energy are being developed and equipment worth 50 thousand US dollars has been received.

AUPET is a member of the universities of the Shanghai Cooperation Organization (SCO) and a co-founder of the Union of Power Engineers of the Republic of Kazakhstan.

In 2010, AUPET, as the main organization from Kazakhstan in Moscow, signed a Memorandum of Cooperation between higher educational institutions of the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Russian Federation and the Republic of Tajikistan on the establishment of the University of the Shanghai Commonwealth Organization (SCO). Since 2013, in accordance with the Agreement of the SCO member states on a joint training program in the field of energy and IT-technologies - AUPET is a basic university in the field of energy. In the 2021 academic year, the first experience of incoming academic mobility in the direction of "IT technologies" was implemented within the framework of the USOS program with the Osh State University under quotas allocated by the Ministry of Education and Science of the Republic of Kazakhstan. Agreements on the SCO were signed with the universities of Kyrgyzstan (OshSU), Tajikistan (TSU named after Osimi) and the Russian Federation (Astrakhan State University).

Infrastructure

The organizational structure of AUPET includes 4 institutes - the Institute of Electric Power and Electrical Engineering, the Institute of Heat Power Engineering and Control Systems, the Institute of Information Technologies, the Institute of Telecommunications and Space Engineering, which include 16 departments, of which 13 are graduating ones.

There is an Institute for Advanced Studies and Continuing Education, where, among other things, employees of enterprises in the manufacturing and other sectors of the economy take specialized courses.

The university campus includes 3 educational buildings with canteens and cafes, lecture halls and an assembly hall with wireless Internet access. AUPET has a Student Service Center and a Career and Employment Center. It has its own Publishing Center and a Library with reading rooms of 500 square meters and a fund of 610 thousand copies, gyms and a football field.

There are 3 dormitories with a total area of 19,748.9 square meters and 1644 beds for

nonresident students, two of which (dormitories No. 2 and No. 3) are the property of the university, hostel No. 1 with an area of 3343 square meters was received in trust from the Territorial Committee of the State property and privatization of Almaty. There are medical posts with treatment rooms with a total area of 104.4 square meters in each educational building.

Dormitories No. 2 and No. 3 have medical posts with a total area of 85 square meters with treatment rooms and isolation wards. All academic buildings and 3 dormitories are located on a total area of 4.86 hectares owned by the university on the right of private ownership.

The dormitory number 3 has the “Entel” Youth Center with an area of more than 700 square meters with a disco hall, rooms for the brain-ring and KVN teams (Club of the Funny and Inventive People Kazakh and Russian leagues), debate clubs, dance ensembles.

AUPET College

Since 2017, AUPET has been providing training on educational programs of technical and vocational education and working specialties. The total contingent of the AUPET College as of April 1, 2021 amounted to 474 students.

Thus, AUPET has created a chain of continuous education “college - bachelor's - master's - doctoral studies”.

In 2020, AUPET College has successfully passed institutional and specialized accreditation in the non-profit “Independent Kazakhstan Center of Education”.

Report on the achievement of the Target Indicators for 2020.

Ученым советом АУЭС были приняты Целевые индикаторы на 2017-2020 гг. (протокол №8 от 20 марта 2018 г.), для мониторинга достижения основных стратегических целей НАО «АУЭС». Ввиду превышения исполнения по ряду Целевых индикаторов АУЭС за 2019 г. пороговых значений 2020 г., на заседании Ученого совета №15 от 23 июня 2020 г. были утверждены новые пороговые значения на 2020 г.

Table 4. Comparison of planned and actual values of Target indicators for 2018-2020

	2018		2019		2020	
	(plan)	(actual)	(actual)	(actual)	(actual)	(actual)
Total contingent of students	4 423	4 594	4 968	5 947	6 779	7 159
The proportion of undergraduates and doctoral students in the total contingent of students	7,03%	8%	8,29%	7,93%	7,74%	7,12%
Number of publications in Scopus per teacher	0,09	0,10	0,10	0,12	0,12	0,21
The amount of research funding per full-time teaching staff, million tenge	0,837	0,975	0,86	0,908	1,04	1,757
Share of patents and copyright certificates per one full-time teaching staff	5%	6%	5,50%	7%	7,2%	7,7%
The share of academic mobility per full-time student *	0,85%	1%	1,50%	4%	0,6%	0,4%
Proportion of international students to full-time students *	1,31%	1%	1,80%	2%	1,2%	0,8%

The share of foreign teaching staff in the total staff invited to lecture, conduct classes *	6%	7%	7%	20%	18,6%	10,3%
The share of young scientists under the age of 35 from full-time teaching staff	21%	25%	22%	4%	3,4%	8,6%
The share of teaching staff from the total number of teaching staff working part-time, attracted from among the specialists of enterprises	6%	6%	9%	5%	30%	6,6%
Number of innovative programs	9	12	14	14	17	24
Number of joint educational programs with foreign universities and other organizations with the issuance of diplomas or certificates	8	8	10	11	13	15
Employment of graduates		82%		83%	85%	84%
Number of site visits	94900 0	949000	1043262	405020	1500000	1211 685

* The decline was driven by the COVID-19 pandemic and quarantine restrictions.

The total contingent (bachelor's, master's, doctoral and college) in 2020 exceeded the target for 2020 by 380 people, which is explained by high enrollment in 2020. Thus, planning for this indicator needs to be revised taking into account the growth of the contingent.

Table 5. Comparison of planned and actual values of the contingent of students for 2020

2020г.	Contingent		Enrolment		Graduates	
	plan	actual	plan	actual	plan	actual
AUPET	6 779	7 159	1 797	2 555	965	1 167
Bachelor	5 842	6 209	1 475	2 234	765	874
Master program	418	399	201	179	156	215
Doctoral program	72	77	21	27	18	32
College	447	474	100	115	26	46

Employment of graduates in 2020 amounted to 84%, which is 1% below the target. At the same time, the actual figure for 2019 was 83%. The proportion of teachers working part-time and recruited from among the specialists of enterprises in the total staff of the teaching staff is 6.6% (29 people) below the planned indicators for 2020 by 23.4% (133 people). At the same time, the target for 2020 was set significantly higher than the fact for 2019 (5.4%).

The number of innovative programs in 2020 (24) is noticeably higher than the planned value for 2020 (17) and the actual level of 2019 (14).

The number of joint educational programs with foreign universities and other organizations with the issuance of diplomas or certificates is higher (15) than the planned (13) and higher than the actual value in 2019 (11).

The number of publications per faculty member in Scopus is higher than the 2020 plan by 37 publications and amounted to 92 publications (0.21), while the target for 2020 was 55 publications (0.12). The same figure for 2019 was 0.12.

The share of the number of patents per one full-time teacher according to the plan for 2020 was 7.2%, while according to actual data this figure is 7.7%, while in 2019 the actual figure was 6.7%.

The share of masters and doctoral students in the total contingent of students according to the plan for 2020 was 7.74%, while according to actual data this figure is 7.12% (fact for 2019 - 7.93%).

The share of young scientists under the age of 40 from full-time teaching staff in 2020 (8.6%), which is significantly higher than the planned value for 2020 (3.4%). At the same time, the fact for 2019 is 3%.

The amount of research funding per one full-time teaching staff in 2020 (615.1 million tenge) is higher than the planned one for 2020 (391.09 million tenge). At the same time, the planned figure for 2020 was set higher than the actual figure for 2019 - 325.9 million tenge).

The proportion of foreign specialists invited to lecture, conduct classes, supervise theses / projects in the total staff of the teaching staff in 2020 (10.3%), which is lower than the planned for 2020 (18.6%), while in 2019 this figure was 20.3%.

The same can be said about the share of foreign students in the total contingent of full-time education: the actual value in 2020 is 0.8%, while the plan is 1.2%, while in fact for 2019 it was 1.7%.

The proportion of students enrolled in academic mobility programs per full-time student in 2020 (0.4%), which is lower than planned (0.6%). The similar figure for 2019 was 4.5%.

The number of visits to the AUPET website for the period from 01.01.2020 to 31.12.2020 (1 211 685) is significantly lower than the planned one for 2020 (1 500 000).

Global trends in modern education

The main thing is that education in the world is becoming more and more accessible. This applies to universities as organizations, educational technologies, digitalization opportunities, and people who are ready to learn throughout their lives.

The format of the traditional university is changing, the pandemic and quarantine restrictions have shifted the emphasis to distance learning, which allows you to reach large groups of the population, regardless of place of residence, age, gender, religious and other beliefs.

Accessibility of education imposes special requirements on the quality of educational programs and educational technologies. New learning formats provide many opportunities for the delivery of educational material, monitoring progress and feedback from students, but they also carry risks. The digitalization of education should not compromise its quality.

Accessibility also implies inclusiveness, the ability to learn for people with special learning needs.

The global trend is continuity of learning, Life-Long Learning. The population of all ages can study according to the appropriate educational programs of preschool, secondary, higher, postgraduate, post-secondary, additional, dual, technical and vocational training.

It is never too late to acquire new competencies and improve old ones. Confirmation of this is the active development of the so-called "silver universities" - the education of elderly people.

The involvement (accessibility) of broad segment of the population in the world educational processes) is facilitated by the recognition of the results of non-formal and informal learning - another trend of the world level.

Any educational activity outside the formal system should be considered non-formal learning. This type of training includes training in clubs, circles, courses, trainings, short programs. As part of

this type of training, certain certificates and certificates may be issued, but they are not educational documents that are recognized by the state as official. Informal learning is learning that takes place in everyday life, in the workplace, with the family or in free time. Training objectives, duration, content are not structured and do not lead to certification.

Technology development.

In the world and in Kazakhstan, the educational programs of AUPET are among the most preferred in the medium term. Such areas as renewable energy sources, telecommunications, IT of all directions, robotics, space technologies, industrial and information security will need new specialists. Blockchain, Big Data, AI, Internet of Things, neural networks and artificial intelligence technologies are also actively developing.

In general, we can say that the level of development of these technologies has become decisive in the modern world. Humanity cannot imagine its existence without new technologies and accepts them with pleasure.

In general, we can say that the level of development of these technologies has become decisive in the modern world. Humanity cannot imagine its existence without new technologies and accepts them with pleasure. The globalization of all social relations and the digitalization of technologies are penetrating deeper into all spheres of life. That is, the future development of AUPET as a modern research university is within the existing paradigm and has good prospects.

The future is characterized by the active development of innovative educational technologies.

Distance education, virtual laboratories have already become an objective reality. Without their development the competitiveness of a modern university is impossible.

State policy in the field of education and science

It is aimed at expanding the academic and managerial independence of universities. Changes in legislation in the field of education (the Law of the Republic of Kazakhstan “On Education”, the Law of the Republic of Kazakhstan “On Science”, the Law of the Republic of Kazakhstan “On the status of a teacher”, Qualification requirements for educational activities, State mandatory Standards of higher and postgraduate education, Standard Rules for the activities of organizations of Higher and Postgraduate Education and the adoption of the State Program for the Development of Education and Science for 2020-2025) are aimed at further improving the quality of education and the competitiveness of the education system, as well as strengthening the responsibility of educational organizations themselves.

Thus, state regulation in the field of education and science is being reoriented towards providing more freedom in making managerial decisions with a simultaneous increase in responsibility for their adoption.

The state actively participates in social and economic development by adopting appropriate program documents and allocating funding from budgets of all levels for their implementation. The Strategic Development Plan of the Republic of Kazakhstan until 2025 and the Program of Industrial and Innovative Development until 2025 suggest that the state has clear action plans in relation to maintaining economic growth in the medium term.

The state program for the development of education and science of the Republic of Kazakhstan for 2020-2025 sets goals for itself:

- Increasing the global competitiveness of Kazakhstani education and science, education and training

of the individual on the basis of universal values.

- increasing the contribution of science to the socio-economic development of the country and tasks:
- Ensure the high status of the teaching profession, modernize pedagogical education.
- Reduce the gap in the quality of education between urban and rural schools, regions, educational institutions, students.
- Provide a safe and comfortable learning environment.
- Introduce an updated system for assessing the quality of students, teachers and educational organizations based on best practices.
- Ensure the continuity of education, professional training in accordance with the needs of the economy and regional characteristics.
- Ensure the intellectual, spiritual, moral and physical development of students.
- Equip educational organizations with digital infrastructure and modern material and technical base.
- Introduce a vertical system of management and financing of education.
- Strengthen the intellectual potential of science.
- Modernize and digitize scientific infrastructure.
- Increase the effectiveness of scientific developments and ensure integration into the world scientific space.

Main directions:

- development of human resources in the education and science system;
- modernization of the content of education at all levels;
- infrastructure development and digitalization of education and science;
- transformation of the education management and financing system;
- modernization of research activities and target indicators:
- Coverage of preschool education and training for children from 1 to 6 years old - 85.3%, from 3 to 6 years old - 100%.
- the results of 15-year-old Kazakh students in the international study PISA - mathematics - 480 points, reading - 450 points, science and natural science - 490 points.
- child welfare index in the Republic of Kazakhstan - 0.73 points.
- the share of employed graduates in the first year after graduation from educational institutions of technical and vocational education under the state educational order - 75%.
- the share of employed graduates in the first year after graduation from a higher educational institution (hereinafter referred to as the university) on a state educational order is 75%.
- an increase in Kazakhstani publications in rated editions of the total number of publications in 2018 (4873 units) according to information resources on the Web of Science platform (Clarivate Analytics) and Scopus (Elsevier) by 88%.
- the quality of research organizations (Global Competitiveness Index of the World Economic Forum - 63rd place.

Over the next five years, 11.5 trillion tenge will be allocated to the industry, including 1.3 trillion of private investments. This will allow at the expense of private investors to additionally build schools for 150 thousand places. Prime Minister of Kazakhstan Askar Mamin said that “in order to increase the effectiveness of science for the country's economy, research activities will be modernized, and spending on science will be increased. Financing of education will reach the level of 7% of GDP”.

53,785 educational grants have been allocated for the 2019-2020 academic year. The competition was attended by 64 452 competitors. The highest demand for educational programs in engineering and IT areas. About 47% of the total number of grants has been allocated specifically for these specialties. At the same time, 8276 grants were allocated for pedagogical sciences, 4088 - for natural sciences, mathematics and statistics, 2200 - services, 1615 - arts and humanities, 2435 - agriculture and veterinary science and 2183 grants - social sciences, business, and economics.

At present, the draft Concept for the development of higher education in the Republic of Kazakhstan is being discussed and a special place in it is the ranking of universities. Although the criteria for assignment to one or another rank are not yet clearly clear, it is clear that the higher the rank, the more advantages (funding and academic and managerial freedom) the university will receive in comparison with others.

The Ministry of Education and Science of the Republic of Kazakhstan will most likely divide the universities into categories. According to the statements of the Ministry of Education and Science of the Republic of Kazakhstan, “The Ministry of Education and Science should continue the policy of identifying unscrupulous universities. At the same time, bona fide universities also suffer from the strict policy of state control. In this regard, the proposal on ranking universities by league was supported, which was previously announced at a meeting of the National Council of Public Trust”.

In the project, the ranking of universities is as follows:

- “The first category: Universities competitive at the international level. The main criterion for them will be a high level of scientific research. These are universities where science sets the tone for educational programs and influences the country's economy. Such universities will have 100% academic freedom. Exemption from state control will allow them not to be distracted by inspections. Full presumption of trust”.
- “The second category: universities those are competitive at the national level. They will have the same level of academic freedom as universities in the first category. They will also be exempted from inspections”.
- “The third category. Not all regional universities can compete at the republican level; however, to students who remain in the regions, they provide a good level of education and are guided by “their” student. Regional or industry-specific HEIs (third category) will have a large amount of academic freedom. These universities will be checked only on the basis of the risk assessment system”.
- “Fourth category: all other universities. They will be subject to constant state control in full, many requirements and norms will apply to them due to the low level of quality and trust in these universities”.

The Ministry of Education and Science in November 2020 presented the Concept for the Development of Higher Education, which proposed ranking criteria.

The position of AUPET requires clarification - we do not fall into the first two groups (international ratings and accreditation, 1st - high positions in world science). The third group, as the vice minister explained, is universities that train specialists for one region (and in our country for the whole of Kazakhstan), and the fourth group - for one industry (not only in our country, although energy is the main one).

The second group is the medium-term strategic reference point for AUPET. If we consider the

criteria for assignment to rank 2, then:

- international academic ratings - AUPET has national ratings;
- international accreditation - formally AUPET has, but in a Kazakhstan agency;
- the influence of science on the development of the economy and society - in the field of energy, as well as RET, AUPET has a fairly strong position, which cannot be said about IT and space engineering;
- the share of undergraduates and doctoral students in the total contingent - as of the end of October 2020 amounted to 7.1%;
- there is real interaction with large companies and holdings, also mainly in the energy sector;
- income from R&D from the total income of the university at least 7% - according to the revised estimate of income and expenses for the state order and extra-budgetary funds for 2020, the share of income from R&D will be 8.8%;
- the number of attracted investment projects is not less than 3 - it is not entirely clear what is meant, AUPET as an investor does not participate in joint projects.

To be included in the 2nd group, it is necessary to provide for the following tasks:

- entry into the international QS rating, subsequently into THE or specialized (technical, IT, etc.);
- international accreditation in ASIIN (initially 2-3 EP for all levels of study, then expanding the list of accredited EP with subsequent institutional accreditation);
- an increase in the share of masters and doctoral students in the general contingent (approximately up to about 20% in 3 years);
- maintaining positions in the energy sector and building up R&D in IT and space engineering with a high level of commercialization;
- creation of centers of competence and academic excellence in energy and RET;
- implementation of investment projects within the framework of commercialization (at least 2-3 in the first 2 years in a strategic perspective).

It is already known (February 2021) that 15 regional universities will receive funding for the development of infrastructure and laboratory facilities.

The Concept of Lifelong Learning (Continuing Education) is also being prepared for approval. It indicates the state's support for the development of lifelong education in Kazakhstan, which makes it possible to develop the provision of reimbursable educational services to a wider range of consumers.

Academic policy

AUPET guarantees the provision of equal opportunities to all students and does not allow discrimination against students with special needs, on racial, national, ethnic, religious, sex grounds, as well as on the basis of social status, marital status, physical capabilities and other criteria.

Academic policy is aimed at improving the credit technology of education in accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG-2015).

For the international recognition of educational programs of educational organizations of the Republic of Kazakhstan, ensuring the academic mobility of students and teachers, implementing the principle of continuity of all levels of education, as well as improving the quality of education, AUPET uses a single credit training technology, which is a student-oriented system that ensures the

accumulation and transfer of previously acquired academic credits across all levels of education and their programs, and based on the principle of transparency in learning, teaching and assessment.

The EP development process is entrusted to academic committees. The goal of academic committees is to design, develop and improve EP based on a competency-based approach in accordance with professional standards, employers' requirements and students' expectations. Study programs are developed based on the national qualifications framework, industry framework and professional standards. AUPET, based on the recommendations of the Center for the Bologna Process and Academic Mobility, has developed a Guide to developing EP based on professional standards.

The organization of the educational process within one academic year is carried out on the basis of the schedule of the educational process and the academic calendar, which is approved by the decision of the Academic Council and posted on the university website.

The academic calendar reflects the periods of training sessions, intermediate and final certification, professional practices and other types of educational work during the academic year, days of rest (vacations and holidays).

Each academic period ends with a period of intermediate certification of students.

The planning of the teaching load of the teaching staff is carried out in academic hours. At the same time, the pedagogical load in classroom lessons is calculated based on the norm that 1 academic hour is equal to 50 minutes (during the period of organizing the educational process in a distance or mixed format, due to the preservation of social distancing during a pandemic, 1 hour is equal to 40 minutes). The distribution and accounting of the teaching load is carried out by the heads of departments, taking into account the real assessment of competence and qualification requirements. The presence of complaints about the quality of teaching or low marks based on the results of a survey of students is taken into account. The teaching load for various types of educational work is calculated on the basis of the time norms approved by the AUPET Academic Council.

Academic streams and groups are formed on the principle of a sufficient number of students enrolled in a given discipline and for a given teacher, and achieving a sufficient level of their profitability.

In order to improve the quality of the implementation of the educational program and ensure the objectivity of the assessment of educational achievements of students, the learning and final control processes are separated. Interim and final certification of students is organized by the Office of the Registrar.

The Registrar's Office constantly monitors the results of the intermediate attestation of students and analyzes them in accordance with the assessment table, which reflects the actual percentage distribution of absolute marks above the passing level in groups of students.

The award of academic credits to a student in academic disciplines (modules) and other types of educational work, as well as upon completion of the EP study as a whole, is carried out with a positive assessment of the learning outcomes achieved by him.

Strategic prospects of AUPET

AUPET is aimed at the development of a single innovative, information-analytical, socially-oriented environment, contributing to a high level of concentration of education, scientific and experimental activities, and business, to create a closer integration of education, science, innovative production and society as a whole through transformation into a research university.

At the national level, fundamental tasks have been set to ensure the modern level of development of university education and science, further modernization of multilevel education and upbringing. The content and spirit of these national priorities are in line with the measures taken by the Ministry of Education and Science of the Republic of Kazakhstan to transform the country's leading universities into research universities within the framework of the Bologna Process, based on the experience and type of similar programs and scientific and educational institutions of foreign countries.

Sustainable development of civilization cannot be achieved without relying on education, which is becoming global in the 21st century. In his speech on January 15, 2021 at the opening of the first session of the Mazhilis of the VII convocation, the Head of State reiterated that education occupies a special place among the main national priorities of the Republic of Kazakhstan, and youth is the main strategic, social and electoral resource of the state. The youth policy of the state in modern conditions should be focused on achieving two interrelated goals: the successful socialization of the younger generation and the creation of a system of social work with them deployed to society. Strengthening the social component is becoming a major challenge. Special attention is paid to socially vulnerable categories of citizens, inclusive education.

The strategy for the development of education and science of a new type requires the development of new scientific and ideological approaches that correspond not only to modern realities, but also to the development prospects in the third millennium. The key tasks of the modern education system, training and retraining of personnel are formulated in the “Strategy” Kazakhstan - 2050: a new political course of an established state”, the Patriotic Act” Mangilik El “and the national project” Rukhani zhangyru’.

The strategic guideline for the development of higher education is the formation of highly qualified specialists with high moral principles and a responsible attitude to the world, an innovative type of thinking, and a developed ideological culture. The Strategy for Kazakhstan's entry into the number of 30 developed countries of the world outlines long-term priorities for future work in the field of higher education and science:

- creation of an effective system of training and assistance in the employment of graduates, increasing the mobility of labor resources, ensuring sustainable development of Kazakhstan on the principles of a knowledge-based economy;
- providing leading universities with academic and managerial autonomy;
- development of the education system with the assignment of international certificates;
- maximum satisfaction of the current and future needs of the national economy in specialists;
- development of research activities of universities: the creation and development of applied and research units.

In the Message of the President of the Republic of Kazakhstan to the people of Kazakhstan, fundamentally new tasks are set to ensure the modern level of development of university education and science, further modernization of multilevel education and upbringing.

Currently, the content and spirit of these national priorities is in line with the measures taken by the Ministry of Education and Science of the Republic of Kazakhstan to transform the country's leading universities into research universities within the framework of the Bologna Process, based on the experience and type of similar programs and scientific and educational institutions of foreign countries.

The COVID-19 pandemic and the subsequent quarantine restrictions challenged the old paradigm of classical education and opened up real opportunities for growth in universities, including

the digitalization of educational and management processes and innovative educational technologies that allow virtual learning, support the continuity of education, and provide modern education without restrictions.

The Ministry of Education and Science of the Republic of Kazakhstan is currently doing a lot to improve the quality of education in Kazakhstani universities. The Law of the Republic of Kazakhstan dated July 4, 2018 No. 171-VI “On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on the Expansion of Academic and Management Independence of Higher Education Institutions” was adopted.

The main issue on the current agenda is the implementation of the principles of academic freedom of domestic universities, which will give impetus to the development of the education and science system in accordance with the best domestic and world practices. Taking into account international assessments and practices, commitments made and results achieved universities in Kazakhstan need to take drastic measures in the coming years to improve the quality of education and science. The work of the Ministry is focused on solving a number of key problems for the development of the education system, for increasing its competitiveness and approaching the best practices of developed countries.

The state order for educational services will be formed taking into account the demand for university graduates in the labor market. For this, professional industry standards with requirements for specialties, necessary competencies, and their certification will be approved.

Within the framework of the given academic freedom, the issuance by universities of their own diplomas from 2021 increases competition in the educational services market and requires an improvement in the quality of EP.

The dynamics of demand for AUPET educational programs for bachelor's degree for the 2018-2021 academic years shows stable growth in “Automation and Control” and “Instrumentation”, growth was noted in “Life Safety and Environmental Protection”, “Space Engineering”, in electric power educational programs and information security. The master's educational programs “Automation and Control”, “Electric Power Engineering”, “Life Safety and Environmental Protection” are in demand. Doctorate – “Automation and Control”, “Space Engineering and Technology”, “Power Engineering”. There is a growing demand for new educational programs, in particular for “Integration and Management of Smart Technologies for Energy Saving and Energy Efficiency in the Power Industry”.

Table 6 Enrollment for educational programs in the 2018-2021 academic years.

	2018-2019	2019-2020	2020-2021
Bachelor degree	1 386	2 018	2 234
AM	240	271	395
LEP	18	39	39
CEF	110	84	84
HPSAF	-	-	11
CS	31	1	4
IS	88	144	125
IM Smart TEEP	-	27	77
EEES	-	-	20
SP	-	9	38
ISR	-	42	-

SET	54	90	80
EPE	-	14	30
Instrumentation	98	132	218
REET	180	175	175
ISS	55	185	165
MITR	-	-	22
SE	-	-	1
HPSSA	-	-	4
HPE	144	68	71
HPS	-	1	-
EA and EM	-	-	30
SI	-	-	3
ESA	21	33	17
PI	347	703	575
EPS	-	-	50
Master degree	165	205	179
AM	22	11	39
LSEP	3	4	9
CEF	9	19	7
IS	11	22	5
SET		14	8
Instrumentation	11	11	12
REET	41	45	25
CEF		11	-
HPE	23	18	20
EPE	45	50	54
Doctoral degree	32	18	27
AM	-	-	6
SET	-	3	7
Instrumentation	-	1	1
REET	15	5	5
HPE	13	4	3
EPE	4	5	5
Total	1 583	2 241	2 440

The main share of funding is the state order for educational services - less than 20% of students undergo full-time education, especially in undergraduate studies - 10% (excluding students using distance learning technologies, hereinafter - DLT).

Table 7 The contingent of students by funding sources in 2020

	Grant financing	Paid education	Total
Bachelor degree	5 280	610	5 890
Bachelor degree with DLT	0	319	319
Master degree	352	47	399
Doctoral degree	77	0	77
College	195	279	474
TOTAL	5 904	1 255	7 159

The Research University is a scientific and educational complex with a developed innovative infrastructure (educational base, laboratories, research institutes, design bureaus, a business incubator and a technopark, research and design organizations), which carries out a full cycle of innovative activities that allows you to make a profit and is able to implement training of specialists with skills of innovative entrepreneurship.

The research university model is built on the interaction of three components: education, research and innovation (commercialization). This model combined three functions of the university - the development of fundamental science and fundamental education, as well as the “flow” of information transfer to society or “knowledge transfer”.

A fourth component appears in the modern university model - the social mission and AUPET realizes the need to involve young people in social and scientific life, instill in them the skills of responsible work, constant self-development and self-improvement (soft skills).

As part of the scientific activities of AUPET, it is envisaged to expand the powers of AUPET to carry out research work, including obtaining licenses for expert work and increasing the categories of available licenses, improving the system for supporting scientific research, accrediting scientific laboratories, holding Republican competitions of scientific research work of the Ministry of Education and Science of the Republic of Kazakhstan and International scientific and technical conferences on directions of training in AUPET and others.

For AUPET, the strategic perspectives in research and design activities are:

- an increase in the number of research teachers in priority areas of renewable energy sources, clean coal technologies, digital power generation, automation and control, telecommunications, programming, robotic systems, solid waste processing, environmental expertise, tariff regulation;
- an increase in the number of topics of relevant scientific research in priority areas demanded by production;
- improving the quality and number of submitted scientific applications for grant funding, participation in competitions for contract research;
- improving the quality of the content of the dissertation topics of undergraduates and doctoral students, increasing their involvement in scientific projects;
- an increase in the number of participating teachers-researchers in the advisory bodies of third-party organizations (expert councils, scientific and technical councils, dissertation councils, etc.);
- improving the quality of international cooperation in research and training of doctoral

students;

- participation of students in international scientific competitions.

The strategic imperative for R&D activities will be to move from quantity to quality:

- new indicative indicators are proposed showing a qualitative transformation into a research university;
- articles in the journals of the "Web of Science" and "Scopus" databases must have a high percentile and quartile;
- it is necessary to increase the number of doctoral students coming out to defend their dissertations;
- it is required to increase the number of participation of undergraduates, doctoral students and students in scientific projects;
- it is necessary to increase the number of research projects in collaboration with foreign universities and organizations;
- the contingent of master's and doctoral studies must be increased and maintained on a paid basis. Due to the new requirements of the Ministry of Education and Science of the Republic of Kazakhstan on compulsory 3-year work after training in the magistracy, there is a risk that there will be a smaller number of those wishing to study on a grant.

Scientific activity is proposed to be divided into three types: fundamental, consulting and commercialization of the results of scientific and (or) scientific and technical activities.

It is necessary to raise the role of marketing activities in attracting and retaining consumers of educational services (including professional development) and R&D based on marketing analysis.

The strategic perspectives for **digitalization** are:

- building IT infrastructure on the principle of student-centered approach;
- improving the quality of educational services provided;
- ensuring the quality and transparency of educational services through the introduction of digital technologies;
- improving the quality of decision-making based on data analysis;
- development of the emotional intelligence of students.

Within the framework of this direction, it is planned to solve the following tasks:

- development of a single platform and database for all educational services;
- automation of all educational and business processes of the university;
- integration of all existing systems (software products) into a single platform;
- introduction of new technologies, tools and forms for the educational process;
- development of software for measuring and improving the emotional intelligence of students;
- development and implementation of intelligent systems for collecting and analyzing data;
- development and implementation of a comprehensive solution for a new format university library;
- development of a new portal for all processes of the scientific and technical journal "Bulletin of AUPET".

The needs for the development of modern Kazakhstani society put forward new requirements for

the training of specialists for higher educational institutions. This is, first of all, the upbringing of Kazakhstani of a new formation - competitive, proactive, enterprising, able to independently make decisions and bear responsibility for them, ready for positive transformations of the social environment and able not only to live in a civil society and a legal state, but also to participate in their creation. To a large extent, this is intended to contribute to the implementation of youth policy - an integral system of measures aimed at creating the necessary conditions for civic development and self-realization of young people.

To increase the institutional efficiency and image of the university in the context of educational, scientific and social activities, the following tasks are relevant:

- expanding the range of educational programs of higher and postgraduate education that meet new technologies, scientific areas, the requirements of consumers - customers of personnel;
- ensuring the unity of educational, scientific, creative activities, for students to acquire deep knowledge, professional skills and realize their creative potential;
- education of citizenship and patriotism, love for their Motherland - the Republic of Kazakhstan, respect for state symbols and the state language, respect for folk traditions, intolerance to any anti-constitutional and antisocial manifestations;
- education of an individual with an active civic position, the formation of needs to participate in the socio-political, economic and cultural life of the republic, a conscious attitude of the individual to his rights and responsibilities;
- familiarization with the achievements of national and world culture; study of the history, customs and traditions of the Kazakh and other peoples of the republic; mastering the state, Russian, foreign languages;
- development of the creative, spiritual and physical capabilities of the individual, the formation of solid foundations of morality and a healthy lifestyle, enrichment;
- ensuring the preservation and strengthening of the psychological health of students and university employees, ensuring the prevention of mental health disorders, promoting the development of the personality of students in the process of their education and upbringing;
- ensuring equal opportunities for students with special health abilities to receive high-quality education that meets international standards;
- expanding educational services by providing opportunities for students to simultaneously receive additional higher and professional education, including with the assignment of international certificates;
- strengthening the personnel potential and material base of educational and scientific departments, improving the methodological and informational support of the educational process for the transition to new educational technologies;
- diversification of scientific research and innovation through participation in competitions for scientific grants, contractual research, the creation of laboratories, etc.
- improvement of the remuneration system, promotion of young specialists up the career ladder;
- deepening the integration of education, science and industry.

The concept of further development of distance education using technologies (DLT)

During the coronavirus pandemic, AUPET completely switched to online training using DLT.

The administration of the educational process was mainly carried out using the automated information system “Platonus”.

Also, in online learning at the University, a virtual learning environment was widely used using programs such as: Moodle, Google Classroom, Zoom, Google Hangouts Meet, Cisco Webex Meetings, Skype and Microsoft Teams.

AUPET currently operates several systems that ensure the educational process. There is paid software for conducting the educational process “Platonus”, software “Thesis” for electronic document management, an access control system, 1C accounting and a number of other software products for conducting various processes. Due to the presence of many software products, there is a duplication of processes and information due to the lack of integration between systems, which in turn leads to the complication of obtaining information for decision-making and process management.

As a result, at this stage there is an urgent need to develop a complete IT system for the university, which includes the following stages:

1. Creation of a single platform to ensure the educational process;
2. Integration of software products into a single platform;
3. Implementation of IT technologies and software development for the implementation of distance learning;
4. Implementation of IT technologies and software development to improve the quality of decision-making;
5. Automation of educational and business processes.

The development plan of the University takes into account the strategic importance of DLT, which is directly related to the goal of increasing the level of digitalization of the university and the task of introducing its own automated information system and automating educational and business processes of AUPET.

Informatization and automation of the educational process is implemented on the basis of Portal AUES through the creation of modules such as:

1. Organization of the Educational Process (typical curriculum, methodological curriculum, catalog of elective disciplines, individual curriculum, working curriculum);
2. Control over the educational achievements of students;
3. Development and integration of the proctoring system;
4. Contingent management;
5. Reports and summary data, etc.

An important factor is the development of infrastructure and the campus system, which includes:

1. Development of a hostel system - Electronic campus;
2. Creation of a university library of a new format;
3. Launch of Smart studio for the formation of video content of lectures of teaching staff in EP disciplines, as well as author's courses for teaching staff AUPET for the development of MOOK on the open platform Open edX.

The priority directions in which the DLT AUPET will continue to develop will go through:

1. Implementation of the EP of the second higher education;
2. Partial transition to DLT of some disciplines of full-time EP, regardless of the positive or negative situation associated with the coronavirus pandemic (from 20 to 50% depending on the EP);

3. Development and implementation of new educational technologies (Blended learning, Rain classroom, Research oriented study, etc.);
4. Implementation of Minor programs for all EPs for the development of Soft skills;
5. Organization and conduct of short-term courses for AUPET students according to popular programs (Python, advanced Excel, Autocad and others);
6. Complete transfer of the summer semester disciplines through the DLT;
7. Implementation of the author's courses for the teaching staff of AUPET for the development of MOOK on the open platform Open edX;
8. Methodological and organizational and technical support for video recording of courses to their teaching staff, as well as to authors of third-party organizations;
9. Active involvement of AUPET in the creation of the Alliance of Kazakhstani universities for MOOCs (IT-Astana, IITU, AUPET and others).

The **internationalization** of higher education is characterized by the level of academic mobility of students and teachers, the internationalization of curricula and educational programs, the creation of regional and international university networks.

The focus of modern public policy in education is concentrated in six areas: equality and quality, preparing students for the future, improving educational institutions, assessment system, management and financing.

The State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020-2025 aims to increase the global competitiveness of Kazakhstani education and science, educate and train an individual based on universal values, increase the contribution of science to the socio-economic development of the country.

Kazakhstan continues to work on creating a regional educational hub and attracting foreign teachers and foreign students to the best universities, there is a further development of double-degree programs, various forms of external and internal academic mobility of students and teaching staff of universities, the opening of campuses of leading foreign universities on the basis of Kazakhstani universities.

In addition, the practice of holding forums, exhibitions and days of Kazakhstani education abroad (in countries with the greatest potential for attracting applicants) continues, including in new formats of online presence.

An increase in the number of educational programs in English, grants for the training of English-speaking specialists, advanced training of the teaching staff for teaching in English, textbooks and educational-methodical complexes in English are being developed.

In Kazakhstan, over the past 3 years, the number of foreign students has increased by 8.9 thousand people (60%) and is now 21,727 students. The Ministry of Education and Science of the Republic of Kazakhstan is tasked with increasing the share of foreign students from the total number to 10% by 2025.

The concept of internationalization in the field of higher education in international practice traditionally includes two aspects: “internal” internationalization (internationalization at home) and “external” internationalization or education abroad, intercountry education, cross-border education (education abroad, across borders, cross-border education). The undoubted advantages of

internationalization include the emergence of international quality standards and an increase in the innovativeness of higher education, an increase in its accessibility, the universalization of knowledge, the expansion and strengthening of international cooperation, the activation of academic mobility of the teaching staff and students.

The internationalization of education has a positive effect on all stakeholders of the educational process. From the student's point of view, international education provides an opportunity to study abroad, provides better quality and greater availability of educational services, and broadens the general outlook. At the institutional level, international education affects the improvement of the reputation of the university, improving the quality of educational programs. And finally, from a national point of view, international education influences the elimination of the shortage of qualified personnel, improving the overall quality of higher education.

In order to increase the attractiveness of higher and postgraduate education and the positioning of Kazakhstani universities in the international educational space (QS WUR, Times Higher Education, etc.), an internationalization strategy is being implemented, including the creation of favorable conditions for learning (infrastructure, social package, grants, scholarships, etc.), the system of organizing the stay of a foreign student during the period of study, information mechanisms, simplification of obtaining a student visa, employment after graduation.

Cooperation within the University Alliance of Science and Technology

On April 28, 2021 in the city of Nur-Sultan, the Alliance of Universities “University Alliance of Science and Technology” (hereinafter - UAST) was created, which included five universities: the University of International Business (UIB), the International University of Information Technologies (IIT), British Technical University (KBTU), Astana IT University (AITU) and Almaty University of Power Engineering and Telecommunications named after Gumarbek Daukeyev (AUPET).

The UAST participants agreed to consolidate efforts in the formation and implementation of interuniversity interdisciplinary educational, research and innovative projects aimed at jointly solving urgent problems of economic and social development, as well as to fruitfully cooperate for the benefit of developing the system of higher and postgraduate education in Kazakhstan.

The purpose of the Alliance is to create an integrated scientific and educational environment for the training of competitive personnel by consolidating human, material, technical and other resources.

The agreement provides for the implementation of interuniversity interdisciplinary educational, research and innovation projects aimed at jointly solving urgent problems of economic and social development of the Republic of Kazakhstan.

Areas of cooperation within the UAST are as follows:

- joint use of the potential of the teaching staff, administrative and scientific personnel of the UAST participants;
- material and technical resources for collective use (library, educational and scientific laboratories, training grounds, practice bases, digital platforms and others)
- promoting internal mobility of students;
- integration of educational programs of participants by introducing unified approaches to their development, formation of content and recognition of learning outcomes;

- implementation of joint research and innovation projects and joint use of the potential of participants in international cooperation.

Building the planned structure of the expenditure part of the estimate (budget)

It is planned to bring by 2023 the structure of the expenditure part of the estimate (budget) according to the methodology of the Ministry of Education and Science of the Republic of Kazakhstan to the following format (excluding research activities):

1. Annual payroll - 65%;
2. Educational expenses - 23%;
3. Expenses for the current maintenance of a higher education organization - 12%.

It is planned to increase educational costs due to possible directions:

1. According to the modernization plan: reconstruction of premises for laboratories, production of virtual stands and updating of existing ones in a modern format; development of digital technologies and tools for DET;

2. Development of an electronic digital library, an increase in educational and methodological literature;

3. Expansion of professional practice and development of the Career Center;

4. Attracting foreign teaching staff for online training;

5. Monitoring the expenses of doctoral students: internships, patents and publications of scientific articles.

It is planned to control the following expenses for the current maintenance of the organization within the planned budget: capital and current repairs; expenses for the maintenance and maintenance of buildings, including utilities and communications; household goods; advertising.

MISSION AND VISION

AUPET, continuing the traditions of the higher school of the Republic of Kazakhstan in the field of vocational education, based on the best international experience, focusing on continuous improvement of the quality of training of specialists and continuous improvement of all major management processes, focusing on its own values (priorities), national priorities and meeting changing market needs labor, defined their mission and vision. They determine the priorities of the organization, on their basis, the directions of development are planned and the activities of its structural units are organized in order to achieve a vision in a strategic perspective.

Mission.

Formation of the best intellectual resources of the national knowledge economy and the most advanced technologies for the industrial and innovative development of the country, adapted to the conditions of world integration and globalization.

Vision.

By 2025, AUPET will be transformed into a leading research university in Central Asia in the field of energy, telecommunications, information and aerospace technologies.

Thus, AUPET intends to become a center of competence in the above areas by 2025.

Values.

The main values of AUPET are high quality training and zero tolerance for corruption. Everything is subordinated to the release of highly professional, in-demand specialists and their employment with a high starting salary. All work at AUPET is aimed at achieving the main goal - improving the quality of training and competitiveness of graduates and strengthening leadership positions in the domestic market of educational services in the technical direction.

In modern conditions, the main and promising content of social education and upbringing is the implementation of a correctly built system of values, strengthening the ideological and social component, the formation of a harmonious and comprehensively developed personality, positioning the educational services of AUPET as a high-quality school for training professional personnel in Kazakhstan, patriots of their country who have an active civil position, high moral principles.

The mission and vision make it possible to form strategic goals, objectives and action programs (measures to implement strategic objectives and achieve target indicators), taking into account strategic analysis and risk assessment - external and internal factors that determine the development of the university in a strategic perspective.

STRATEGIC ANALYSIS AND RISKS

Strategic analysis was carried out using SWOT and PEST methods to determine the current position of AUPET in the context of external - world, national, sectoral factors that affect the choice of development goals and objectives, risks, opportunities and threats, depending on internal factors, which are considered from the perspective of the strong and weaknesses of the activity, and determine the prospects for the development of the university.

SWOT-analysis.

STRENGTHS	WEAKNESSES
<p>AUPET is a specialized university in the field of energy, information, communication and space technologies, occupying a leading position in the national ratings of the Republic of Kazakhstan.</p> <p>AUPET is the basic university of the republican educational and methodological association in the specialties of energy, telecommunications and space technology.</p> <p>The presence of a continuous education system in the field of energy, telecommunications, information technology (college - bachelor's - master's - doctoral studies, refresher courses).</p> <p>High level of employment of graduates.</p> <p>Provision of modern equipment for educational and research laboratories.</p> <p>Highly qualified and financially motivated, depending on academic and scientific achievements, community service, teaching staff.</p> <p>Established relations with industrial enterprises, allowing to attract practitioners in the educational process as a teaching staff and to introduce the results of research and development into production processes.</p> <p>Availability of educational programs developed jointly with employers, including with elements of additional and dual education, as well as use the established relations with employers for</p>	<p>Insufficiently high level of digitalization of educational and management processes.</p> <p>Aging teaching staff and insufficient staff turnover.</p> <p>Insufficient level of English proficiency among teaching staff, which does not allow widespread and effective international cooperation and hinders the development of educational programs in English.</p> <p>Insufficient provision of the educational process with Kazakh-speaking teaching staff and educational literature in the state language.</p> <p>Low enrollment of foreign students against the background of poor career guidance among applicants from neighboring countries.</p> <p>The website does not fully meet modern functional requirements.</p> <p>Insufficient staffing of administrative divisions with personnel in the areas of sales, public relations, work with personnel, protection of intellectual property.</p> <p>Insufficient efficiency of internal processes and interaction between departments due to imperfection of the internal regulatory framework.</p> <p>Lack of institutional and specialized accreditations in international agencies.</p> <p>Low positions in international rankings.</p> <p>There is no system for motivating administrative</p>

<p>practical training of students.</p> <p>Availability of certified testing (ecology) and verification (measurement of electrical quantities) laboratories.</p> <p>High positions in the number of lecture notes, methodological instructions, teaching aids of our own production.</p> <p>Developed policy of social support for students (discounts on education, rewards for victories in Olympiads, competitions and scientific developments, payment for participation in them, meals for the poor, and payments from the Board of Trustees, a grant and scholarship of Gumarbek Daukeyev).</p> <p>Availability of its own scientific publication (Bulletin of AUPET), included in the list of scientific publications recommended by the Committee for Control in the Sphere of Education and Science of the Ministry of Education and Science for the publication of the main results of scientific activity.</p> <p>Opportunities for technical creativity, realization of the intellectual potential of students.</p> <p>The presence of student self-government at all levels, as well as a strong youth organization - the trade union committee of students.</p> <p>Implementation of the principles of the philosophy of inclusive education and the availability of conditions for the education of persons with special educational needs.</p>	<p>staff.</p> <p>Lack of a full-fledged security service responsible for observing security measures on the territory of the University and dormitories, access control.</p> <p>Lack of a centralized training program among teaching staff and administrative and management staff.</p> <p>Insufficient involvement of the bulk of the teaching staff in work with young people (including volunteer and charitable).</p>
OPPORTUNITY	THREATS
<p>Creation of new and innovative EP.</p> <p>Expanding the use of DET, including when obtaining a second higher education and for advanced training by college graduates.</p> <p>The introduction of dual education (training the practical part in production with the assignment</p>	<p>Rapid changes in the labor market may entail the need to adjust the EP.</p> <p>Obsolescence of IT infrastructure, laboratory and computer parks and server equipment.</p> <p>The growth of the contingent will cause a shortage of classroom and laboratory facilities, as well as</p>

<p>of a working qualification) as a way to attract students, increase employment and strengthen ties with employers.</p> <p>Implementation of double degree programs with foreign universities and universities of the Republic of Kazakhstan.</p> <p>Introduction of additional education (issuance of diplomas with additional qualifications / specialty, issuance of qualification certificates) as a way to attract students and increase their employment.</p> <p>Graduate certification by recognized organizations.</p> <p>Recognition of the results of non-formal and informal education and the involvement of large groups of the population in the educational process.</p> <p>Growth in demand for high-tech specialties.</p> <p>Opening of groups for training specialists in English.</p> <p>Implementation of Foundation (preparatory language courses) for applicants with poor knowledge of the languages of instruction.</p> <p>Participation of students in international projects, contests and competitions.</p> <p>Development of software products for internal needs on our own.</p> <p>AUPET co-financing of innovative patents with the aim of their further commercialization.</p> <p>Involvement of 4th year students in scientific activities with the aim of further admission to the magistracy, teaching and doctoral studies, as well as the opening of startups.</p> <p>Further expansion of the rights and spheres of responsibility of the student asset and the trade</p>	<p>teaching staff.</p> <p>Frequent changes in the regulatory framework in the field of education and science.</p> <p>Deterioration in the quality of the contingent due to the low level of training of schoolchildren and college graduates and an increase in enrollment due to the growth of state educational grants.</p> <p>Decrease in the share of postgraduate education in the total contingent.</p> <p>Increased competition among technical universities in the educational services market due to the entry of other universities with similar educational programs into the market.</p> <p>The outflow of qualified teachers and scientists both to other industries (commercial) with a higher income, and to other universities.</p> <p>The outflow of strong students to other, including foreign universities.</p> <p>Insufficient compliance with modern requirements of the level of digitalization of educational and management processes may lead to a deterioration in their quality.</p> <p>Obsolescence of the library fund.</p> <p>Involvement of students in youth subcultures of an extreme nature and destructive organizations.</p>
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union committee of students.	
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Strategic risks

It is necessary to understand that the implementation of the Development Plan is fraught with risks, both positive and negative. Assessing such risks is important from the standpoint of understanding what carries the risk and how to respond to it.

The development of an internal risk management system makes it possible to influence the outcome of future events. Identification and classification of possible events according to their likelihood and degree of influence allow you to have a strategy for responding to risk.

This system allows you to both reduce the negative impact of adverse events and take advantage of favorable changes and opportunities.

The flexibility of the control system and the level of its digitalization are important for a quick response to emerging threats. Clarity of decision making and responsibility for their implementation increase the efficiency of implementation of development plans.

The register of strategic risks is a list of opportunities and threats, assessed by their likelihood and the degree of their impact on the successful implementation of development plans. The following key strategic risks for AUPET have been identified.

Table 8. Key strategic risks

№	Name	Minimization measures
1	Pandemic, economic crisis, inflation, reduced government spending on education and science, low paying capacity of consumers of educational services.	Digitalization of educational and management processes. Providing benefits and flexible payment schedules for tuition. Attraction of specialists from enterprises of the real sector of the economy and public organizations and foundations to finance training. Control over the timely payment of tuition.
2	Low level of integration of education, science and industry, implementation of research results and their commercialization.	Development of practice-oriented scientific topics for term and diploma works, master's and doctoral dissertations in priority areas of development of fundamental and applied science. Creation on the basis of public-private partnerships of new specialized laboratories with modern equipment to strengthen research and educational potential. Promotion of teaching staff that have patents and copyright certificates. Informing the teaching staff and participation of the teaching staff in competitions for grant funding.
3	Insufficient involvement of young teachers and university students in research work.	Encouraging young teachers to carry out research projects and developments.
4	Insufficient number of highly	Encouraging teaching staff to take advanced training

	qualified teaching staff and practitioners; aging teaching staff and practitioners.	courses. Attracting practitioners, Bolashak graduates, and social partners. Involvement of young teachers in conducting a refresher course. Introduction of the institute of mentoring.
5	Insufficient motivation for professional growth of teaching staff.	Initiation of research projects at republican and international levels. Improving the teaching staff incentive program to increase publication activity. Participation in international scientific conferences, symposia.
6	Outflow of personnel from the number of teaching staff.	Stimulating academic mobility, both external and internal. Implementation of an effective system of professional development for teaching staff. Development of the teaching staff motivation system - bonuses, social support; activity of the trade union committee. Decrease in teaching load for EP managers or additional payment. Analysis of the situation and prompt introduction of proposals for increasing the level of wages. Sociological survey of teaching staff in order to determine satisfaction with the organization of professional activity at the university.
7	Lack of jobs and experience of graduates in employment.	Increasing the state order for training personnel in priority specialties of the region, expanding the academic freedom of the university, improving EP, strengthening and expanding ties with employers for the employment of graduates.
8	Weak level of preparedness of applicants in natural sciences and foreign languages.	Organization of a preparatory department for admission to the university. Conducting specialized courses, training seminars for applicants.

In addition, the key risks for digitalization are highlighted:

1. Risks of using insufficiently studied technologies, when the introduction of some opportunities for the learners displaces other more valuable opportunities for education and development;

2. Risks associated with the loss (due to the use of electronic versions of educational programs) the skills of writing down the main ideas of the proposed material, and, as a consequence, the deterioration of the ability to memorize and rethink it;

3. Changes in the requirements for the content of training, further changes in teaching aids;

4. Risks of crowding out live communication as communication, which in many cases has a significantly greater relevance for both learners and educators than electronic learning technologies;

5. Risks of a shortage of personnel both from the number of employees, also from the number of teaching staff.

EDUCATIONAL ACTIVITIES

Goal 1 Training of specialists who meet the needs of the economy and the expectations of employers

Task 1.1 AUPET functioning in accordance with the main parameters of the Bologna process

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.1.1	Bringing educational programs in accordance with the requirements of the European and National Qualifications Framework.	Constantly	Constantly	Constantly	AUPET budget
1.1.2	Ensuring the quality of educational programs through national accreditation	Not required	10 OII	Not required	AUPET budget
1.1.3	Ensuring the quality of educational programs through international accreditation	Signing a contract	6 Educational programs (EP)	6 EP	AUPET budget
1.1.4	Development of academic mobility of students, teaching staff and employees.	+	+	+	Not required
1.1.5	Attracting foreign students studying for educational programs, including those implemented in English.	60 people	80 people	100 people	Not required
1.1.6	Increase in the number of participants in international programs, membership in international organizations in the field of education and science.	+	+	+	AUPET budget
1.1.7	Opening of new double-degree educational programs (total).	10	12	16	Not required
1.1.8	Involvement of students in scientific research at the research laboratories of the University.	+	+	+	Not required
1.1.9	Integration of education and science through the approval of topics for graduate and master's dissertation in accordance with the topics of	+	+	+	Not required

	fundamental and applied projects of research institutes, scientific laboratories, an innovation center and a park, and more.				
1.1.10	Development of EP with international partner universities	2	6	6	Not required
1.1.11	Exploring the possibilities of introducing post-secondary education (higher college, applied bachelor's degree)		+		Not required

Task 1.2 Training of personnel with higher and postgraduate education for economic sectors

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.2.1	Implementation of educational programs developed and reviewed by employers.	100%	100%	100%	AUPET budget
1.2.3	Involvement of practitioners in the educational process, in consulting and co-management of final qualification works in bachelors and master's degrees.	20 people	30 people	40 people	Not required
1.2.4	Opening of bases of graduating departments in production.	3	4	5	Not required
1.2.5	Interdisciplinary modular approach to the organization of the educational process in the implementation of basic and additional educational programs.	+	+	+	Not required
1.2.7	Conducting job fairs for the employment of graduates	+	+	+	AUPET budget

Task 1.3 Improving the quality of educational services

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.3.1	Достижение призовых мест в республиканских и рейтингах вузов.	Top 20 IAAR Top 10 IQAA	Top 20 IAAR Top 10 IQAA OKO	Top 20 IAAR Top 10 IQAA	Not required
1.3.2	Достижение призовых мест в международных рейтингах вузов.	Top 10 (Kazakhstan) UI Green metrics Top 20 IAAR EUR	Top 1200 QS Top 10 (Kazakhstan) UI Green metrics Top 20 IAAR 20 EUR	Top 1000 QS Top 10 (Kazakhstan) UI Green metrics Top 20 IAAR 20 EUR	Not required
1.3.3	Monitoring and analysis of employers' satisfaction with the quality of personnel training.	Questionnaire	Questionnaire	Questionnaire	Not required
1.3.4	Involvement of large companies and professional associations in the assessment of graduates' qualifications (certification).	2 MINOR	4 MINOR	6 MINOR	Not required
1.3.6	Conducting image events to improve the reputation of the University in the educational services market.	+	+	+	Not required
1.3.7	Systemic diversification and digitalization of the educational structure of the University.	+	+	+	Not required

Goal 2 improving the professional level of scientific and pedagogical personnel

Task 2.1 Implementation of effective mechanisms for the selection and stimulation of professional personnel

№	Activities	Expected results/deadlines	Financing source
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		2021	2022	2023	
2.1.1	Regular rating assessment of the teaching staff based on the results of personal achievements.	+	+	+	Not required
2.1.2	Regular improvement of the efficiency of the teaching staff rating system, taking into account an innovative approach to educational activities, systematic participation in research work, publications in leading domestic and foreign publications, obtaining academic degrees and titles.	+	+	+	Not required
2.1.3	Implementation of an electronic rating system for the effectiveness of teaching staff.		+	+	Not required
2.1.4	Conducting a questionnaire “Teacher through the eyes of a student”	+	+	+	Not required
2.1.5	Conducting a questionnaire “Teacher's social well-being”	+	+	+	Not required

Task 2.2 Professional development of the teaching staff

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.2.1	Expansion of the list of courses of the Institute for Advanced Studies and Double-Degree Education	+	+	+	AUPET budget
2.2.2	Attracting teaching staff who have completed internships at leading foreign universities, Bolashak, Nazarbayev University (fact)	10 people	15 people	20 people	AUPET budget
2.2.3	Attracting holders of scholarships, grants, awards, awards, honorary titles in the field of science and education to the staff of the teaching staff (fact).	10 people	15 people	20 people	AUPET budget

2.2.4	Expansion of cooperation with state and public organizations to conduct advanced training of University teaching staff.	+	+	+	AUPET budget
2.2.5	Expansion of cooperation with business structures and industrial organizations in the framework of the creation of advanced training courses and training programs, winter / summer schools.	+	+	+	Not required
2.2.6	Conducting refresher courses held on the basis of AUPET with universities and partner organizations.	+	+	+	AUPET budget
2.2.7	Organization of language training for professional development of teaching staff.	+	+	+	AUPET budget

Task 2.3 Attraction of foreign specialists

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.3.1	Development of new educational programs for joint implementation with the participation of foreign teachers and practitioners.	+	+	+	AUPET budget
2.3.2	Involvement of foreign scientists, highly qualified foreign teachers and practitioners in the implementation of educational programs.	4 people	8 people	10 people	AUPET budget
2.3.3	Organization of guest lectures and events.	+	+	+	AUPET budget
2.3.4	Organization of scientific seminars with the involvement of foreign experts.	+	+	+	AUPET budget
2.3.5	Organization and conduct of online lectures with the involvement of foreign experts.	+	+	+	AUPET budget

SCIENTIFIC, INNOVATIVE AND PROJECT ACTIVITIES

Goal 1 Development of postgraduate education programs

Task 1.1 Development of educational programs in the master degree

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.1.1	Updating of educational programs “Informatics”, “Information Systems”, “Computers and Software”, “Information Security Systems”, “Radio Engineering, Electronics and Telecommunications”, “Modern and Innovative Renewable Energy Technologies”, “Power Systems”, “Power Engineering”, “Heat power engineering”, “Automation and control”, “Instrument engineering”, “Space technology and technologies”, “Life safety and environmental protection”.	Until August 30	Until August 30	Until August 30	AUPET budget (payment to external trainers with the issuance of certificates)
1.1.2	Implementation of a modular training schedule, implementation of a flexible training system.	Until August 30	Until August 30	Until August 30	Not required
1.1.3	Development of profile MBA programs		+	+	Not required
1.1.4	Organization of scientific internships and involvement in scientific projects	+	+	+	Not required
1.1.5	Organization of internships and practical training.	+	+	+	Not required
1.1.6	Organization of internships and industrial practice	+	+	+	Not required
1.1.7	Popularization and promotion (advertising).	+	+	+	AUPET budget

Task 1.2 Development of educational programs in doctoral studies

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.2.1	Updating of the EP "Radio Engineering, Electronics and Telecommunications", "Electric Power Engineering", "Instrument Engineering", "Heat Power Engineering", "Automation and Control", "Space Engineering and Technologies".	Until August 30	Until August 30	Until August 30	Not required
1.2.2	Encouraging payment to local and foreign executives	Until August 30	Until August 30	Until August 30	AUPET budget (for the preparation of doctoral students)
1.2.3	Organization of scientific internships and involvement in scientific projects	+	+	+	Not required
1.2.4	Organization of internships and practical training.	+	+	+	Not required
1.2.5	Popularization and promotion (advertising).	+	+	+	AUPET budget

Task 1.3 Increase in the proportion of defended doctoral students to the total number of graduates

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.3.1	Development of requirements for intermediate and final academic certification	Until April 30	Until April 30	Until April 30	Not required
1.3.2	Controlling the implementation of the research work of a doctoral student on intermediate and final academic attestations	During a year	During a year	During a year	Not required
1.3.3	Conducting thematic seminars or webinars for the discussion and solution of organizational and technical problems of doctoral students related to	6 times a year	6 times a year	6 times a year	Not required

	writing dissertations and articles				
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Goal 2 Increase the number of publications.

Task 2.1 increasing the number of publications in international peer-reviewed scientific journals included in the 1st, 2nd, 3rd quartile according to JCR data in the Web of Science Core Collection per full-time teaching staff.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.1.1	Inclusion of mandatory requirements for teachers of category A.	+	+	+	Within the framework of scientific projects. As part of the training of doctoral students and undergraduates, or at their own expense. In exceptional cases, at the expense of the AUPET budget.

Task 2.2 increasing the number of publications in the journals "Scopus" Cite Score 35 and higher per full-time teaching staff.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.1.1	Inclusion of mandatory requirements for teachers of category A.	+	+	+	Within the framework of scientific projects. As part of the training of doctoral students and undergraduates, or at their own expense. In exceptional cases, at the expense of the AUPET budget.

Task 2.3 increasing the number of publications and patents per full-time teaching staff

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.3.1	Inclusion of mandatory requirements for teachers of category B.	+	+	+	Within the framework of scientific projects. As part of the training of doctoral students and

					undergraduates, or at their own expense. In exceptional cases, at the expense of the AUPET budget.
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Goal 3 Increase the amount of funding for research on scientific grants and the results of commercialization.

Task 3.1 Increase in the amount of research funding for scientific grants and the results of commercialization per one full-time teaching staff in the areas of “Fundamental Science” and “Consulting Science”.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
3.1.1	Increase the number of academic discounts / hours / points for research teachers in priority areas of grant funding: renewable energy sources, hydrogen energy, clean coal technologies, digital electricity, automation and control, telecommunications and programming (ICT), robotic systems, solid waste processing, environmental impact assessment, tariff regulation.	+	+	+	Not required
3.1.2	Increase the submission of applications for grant funding by research teachers.	+	+	+	Not required
3.1.3	Get a license of the first category for project.	+			AUPET budget
3.1.4	Open an accredited laboratory for measuring the quality of electricity, obtain international certification.	+			At the expense of the grant (KPS-1)
3.1.5	Open an accredited laboratory for the verification of electricity metering devices.		+		AUPET budget

Task 3.2 Increase in the amount of research funding for scientific grants and the results of commercialization per one full-time teaching staff in the direction of “Commercialization”

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
3.2.4	Search for work and participation in potential competitions to attract funding.	+	+	+	
3.2.8	Commercialization of start-up projects.	3	5	7	Not required
3.2.9	Organization of improving the competencies and skills of AUPET students and students of other universities using the existing laboratories (HUAWEI Academy, CISCO, etc.).	+	+	+	Not required

Goal 4 Development of research work

Task 4.1 Joint implementation and (or) on their order of scientific research with foreign universities or organizations

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
4.1.1	Search, identification and communication with universities, partner organizations for joint research.	+	+	+	Not required
4.1.2	Preparation (submission of applications) by research teachers of joint projects (collaborations) and participation in grant projects.	3	4	5	Not required
4.1.3	Involvement of scientists from foreign organizations in current projects.	4	5	6	Within the framework of the project
4.1.4	Search and participation in competitions for financing international organizations.	+	+	+	Not required

Task 4.2 Participation of students in competitions for start-up projects, scientific competitions, Olympiads.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
4.2.1	Determine at least 2 mentors in each institute, provide for a system of additional payments following the example of advisory services.	August	August	August	AUPET budget
4.2.2	Regularly review (increase the budget, sponsors from institutes, internships) the system of rewarding students for prizes in hackathons, research projects, competitions for start-up ideas, scientific projects, ENACTUS, etc.	August	August	August	AUPET budget
4.2.3	With industrial partners, develop relevant and promising ideas or directions for hackathons, research projects, competitions of start-up ideas, scientific projects, ENACTUS, etc.	During a year	During a year	During a year	Not required
4.2.4	Participate in competitions in hackathons, research projects, competitions of start-up ideas, scientific projects, ENACTUS, etc.	During a year	During a year	During a year	Not required
4.2.5	Open a "Co-working center" to attract talented youth and registered individual entrepreneurs	December	+	+	AUPET budget

Task 4.3 Participation of research teachers in the advisory bodies of third-party organizations of a state, interstate or national scale.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	

4.3.1	Inclusion of mandatory requirements for teachers of category A.	+	+	+	AUPET budget (travel expenses are paid in exceptional cases)
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Задача 4.4. Участие студентов, магистрантов, докторантов в научных проектах.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
4.4.1	Monitoring and control of the inclusion of undergraduates, doctoral students, students in scientific projects of at least 30% of the total staff.	+	+	+	Not required
4.4.2	Inclusion of undergraduates, doctoral students, students in scientific groups of STC, TRL, ERL.	+	+	+	Not required

WORK WITH STUDENTS AND SOCIAL ACTIVITIES

Goal 1 Ideological and patriotic, spiritual and moral education and motivation for a healthy lifestyle

Task 1.1 Creation of conditions for the civil formation of students (value-oriented and ideological education)

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.1.1	Carrying out activities aimed at studying, promoting and implementing the Constitution of the Republic of Kazakhstan, the Strategy “Kazakhstan – 2050”, the Patriotic Act “Mangilik El”, the Program of modernization of public consciousness "Rukhani Zhangyru", State symbols and the	+	+	+	AUPET budget

	fulfillment of tasks formulated in the Messages of the President of the Republic of Kazakhstan				
1.1.2	Conducting competitions of student research papers dedicated to the Independence Day of the Republic of Kazakhstan, the Day of the First President of the Republic of Kazakhstan, the Day of State Symbols of the Republic of Kazakhstan	+	+	+	AUPET budget
1.1.3.	Conducting events of a patriotic nature aimed at strengthening and developing citizenship and an active life position.	+	+	+	AUPET budget
1.1.4	Carrying out activities aimed at improving the moral and cultural level of students.	+	+	+	AUPET budget
1.1.5	Carrying out activities to strengthen interethnic and interfaith tolerance and harmony, prevention of religious extremism and terrorism	+	+	+	Not required
1.1.6	Carrying out activities to improve the legal and financial literacy of students and university employees	+	+	+	Not required
1.1.7	Improvement of the corruption prevention system (work of the anti-corruption center "Parasat", anonymous questionnaires, a helpline, meetings of the university leadership with student activists on the organization of student life, the work of the "Clean session" commission, etc.)	+	+	+	Not required
1.1.8	Assistance in the activities of the trade union organization of university students, Youth Center "Entel", clubs "Parasat" and "Rukhaniyat"	+	+	+	AUPET budget

Task 1.2 Promotion of a healthy lifestyle among students

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.2.1	Improving the working and rest conditions of students, employees and teaching staff.	+	+	+	AUPET budget
1.2.2	Maintaining and preserving the health of students, employees and teaching staff.	+	+	+	AUPET budget
1.2.3	Providing quality food for students and university staff.	+	+	+	Not required
1.2.4	Promotion of a healthy lifestyle and prevention of socially dangerous infections (COVID-19, drugs, AIDS, tuberculosis, etc.).	+	+	+	AUPET budget
1.2.5	Attracting students to physical education (sections, sports competitions of various levels, up to international)	+	+	+	AUPET budget
1.2.6	Support of student clubs and interest groups in conducting student cultural events (Freshman Decade, Initiation into students, discos, Brain ring, KVN, work of debate leagues, contests of study groups; beauty; amateur performances; akyns, etc.).	+	+	+	AUPET budget
1.2.7	Ensuring the work of the Entel Youth Center, including the release of an electronic publication.	+	+	+	AUPET budget

Task 1.3 Creation of favorable social conditions

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.3.1	Provision: - guaranteed social package for categories of students defined by the state; - financial assistance to orphans left without parental care, from low-income families, disabled people who have had tuberculosis; - provision of benefits and discounts to students on tuition fees; - organization of social actions to support socially vulnerable students; - improving the learning and living conditions of students.	+	+	+	AUPET budget, state budget
1.3.2	Constant monitoring and updating of the database of students in need of material and financial support.	+	+	+	Not required
1.3.3	Improving the work and expanding the areas of activity of the University Alumni Association and the Board of Trustees.	+	+	+	AUPET budget, sponsors' funds
1.3.4	Improvement of medical services for students at the university, the organization of social and psychological assistance, social and medical support, assistance to students with disabilities.	+	+	+	AUPET budget

Goal 2 Development of the alumni community

Task 1.1 Creation of conditions for the involvement of graduates in the activities of the AUPET.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.4.1	<p>Development of the Work Plan:</p> <ul style="list-style-type: none"> -Assistance in the development of international cooperation of the University in academic, research and innovation activities in holding various conferences; -Providing financial assistance to the University for the development of its material and technical base, supporting various initiatives aimed at the patriotic education of students; -Organization of financial and any other support for the University by forming trust funds from voluntary contributions and donations from members of the Association; -Conclusion of joint mutually beneficial agreements with organizations, institutions under the guidance of graduates of the University; -Conducting anniversary meetings of graduates on established dates; -Joint holding of scientific and practical seminars, conferences, symposia on the basis of the University on topical problems of power engineering and telecommunications; 	+			Not required
1.4.2	Creation of AUPET - ALUMNI and its branches in the regions.		Coverage 87%		AUPET budget

1.4.3	Launch of the Endowment Fund project.		Creation and opening of an investment account	Formation of the fund (about 50 million tenge). Payment of scholarships, financial assistance, strengthening of scientific, technical, material base of the university	AUPET budget
1.4.4	Participation in the mentoring program.		Coverage 80%		Not required
1.4.5	Creation of the Hall (Museum) of Fame.	Placement of the "History of AUPET" (left side of the wall in the form of illuminated lightboxes and PVC in the foyer of building B)	Installation of screens and projection wall. Software development by AUPET students	Creation of the third block of the Hall of Fame.	AUPET budget

INTERNATIONALIZATION AND INTERNATIONAL COOPERATION

Goal 1 External internationalization

Task 1.1 Development of international academic mobility.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.1.1	Increasing the number of agreements on academic mobility, internships for students and university staff, including with foreign universities of the European Union within the framework of the Erasmus Plus programs (Jean Monnet, Marie Curie, and CBHE), Mevlana and others.	2 applications for the competition	2 applications for the competition	2 applications for the competition	Not required
1.1.2	Increasing academic mobility and internships for employees, including with foreign universities within the framework of international programs (from the funds of the Ministry of Education and Science of the Republic of Kazakhstan, Erasmus Plus - Jean Monnet, Marie Curie, CBHE, our own, etc.).	3 employees	5 employees	6 employees	MES RK, Erasmus Plus - Jean Monnet, Marie Curie, CBHE, AUPET budget
1.1.3	Conducting regular seminars among students and staff on opportunities for academic mobility.	At least 1 seminar per semester	At least 1 seminar per semester	At least 1 seminar per semester	Not required
1.1.4	Conclusion of agreements on academic mobility with universities in Central Asia, the CIS and other developing countries to increase incoming mobility.	At least 3 contracts	At least 4 contracts	At least 5 contracts	Not required
1.1.5	Development of a procedure for the selection of	Regulations on	-	-	Not required

	disciplines for study at a foreign university during the period of mobility under exchange programs with the EU, Asia and the CIS, which are optimally consistent with the curriculum studied at the university.	academic mobility			
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Task 1.2 Participation and development of international educational programs and scientific projects

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.2.1	Formation of joint educational programs consistent with all the main elements of the educational process (curriculum, teaching and assessment methods, requirements for the content of courses and teachers, etc.).	2 programs	2 programs	2 programs	Not required
1.2.2	Participation of the University in the preparation of applications for international programs, projects, contracts together with foreign educational institutions and research organizations, including Horizon, Erasmus Plus - CBHE, Jean Monet, Marie Curie, the German Academic Exchange Service (DAAD), the French Alliance, etc.	Up to 2 applications	Up to 2 applications	Up to 2 applications	Not required
1.2.3	Attracting students, undergraduates and PhD students to carry out scientific research on the tasks of state programs, contracts with enterprises and organizations of the Republic of Kazakhstan and foreign contracts.	+	+	One and a half times increase in the number of young scientists involved in research projects	Not required

1.2.4	Involvement of teaching staff and students in educational programs of postgraduate education in advanced training programs, retraining and internships in foreign educational and scientific institutions on the basis of interuniversity agreements on cooperation with foreign partners, interstate agreements.	Annual participation of the academic staff (up to 3 people) and students 5% of the contingent of additional professional education	Annual participation of the academic staff (up to 3 people) and students 5% of the contingent of additional professional education	Annual participation of the academic staff (up to 3 people) and students 5% of the contingent of additional professional education	AUPET budget
1.2.5	Implementation of a set of measures for the creation of educational programs for double diplomas.	Implementation of double degree programs with universities of the Russian Federation, Belarus and universities of the far abroad (up to 2 EP).	Implementation of double degree programs with universities of the Russian Federation, Belarus and universities of the far abroad (up to 3 EP).	Implementation of double degree programs with universities of the Russian Federation, Belarus and universities of the far abroad (up to 3 EP).	AUPET budget
1.2.6	Development of an incentive system for the preparation (signing) of projects for international funding sources.		Inclusion in the rating system for assessing the achievements of the teaching staff.		AUPET budget
1.2.7	Development of an incentive system for the training of English-speaking specialists, for advanced training of the teaching staff for teaching in English.		Inclusion in the rating system for assessing the achievements of the teaching staff.		AUPET budget
1.2.8	Development of textbooks and educational-methodical complexes in English.	Inclusion in the rating system for assessing the achievements of the teaching staff.	Revision of the rating system for assessing the achievements of the teaching staff.	Revision of the rating system for assessing the achievements of the teaching staff.	AUPET budget

1.2.9	Participation in international and interstate competitions of scientific projects (Horizon, European Bank for Reconstruction and Development, Interstate Fund for Humanitarian Cooperation of Member States, etc.)	Participation in international projects (at least 2-3).	Participation in international projects (at least 2-3).	Participation in international projects (at least 2-3).	Not required
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Task 1.3 Participation in international conferences and events

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.3.1	Creation of conditions for participation of employees in international conferences and other events.	Increase in the number of employees participating in international events.	Increase in the number of employees participating in international events.	Increase in the number of employees participating in international events.	AUPET budget
1.3.2	Participation of employees with reports in international conferences, symposia, seminars and other events.	Up to 20 reports and 5 events	Up to 20 reports and 5 events	Up to 20 reports and 5 events	AUPET budget
1.3.3	Creation of conditions for the participation of university students in international Olympiads, championships, festivals and other international events.	An increase in the number of students taking part in international Olympiads and competitions (at least 10 annually).	An increase in the number of students taking part in international Olympiads and competitions (at least 10 annually).	An increase in the number of students taking part in international Olympiads and competitions (at least 10 annually).	AUPET budget
1.3.4	Development of the international program of entrepreneurial student projects ENACTUS.	Preparing a team of students to participate in international student events and	Preparing a team of students to participate in international student events and	Preparing a team of students to participate in international student events and	AUPET budget

		competitions.	competitions.	competitions.	
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Goal 2 Internal internationalization

Task 2.1 Attracting foreign students and foreign staff.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.1.1	Increase in the number of students, including from the countries of Central Asia. Conclusion of agency agreements to attract foreign students.	An increase in the number of foreign students at the university up to 2% of the total number of students. Signing 3-4 agency agreements.	An increase in the number of foreign students at the university up to 2% of the total number of students. Signing 3-4 agency agreements.	An increase in the number of foreign students at the university up to 2% of the total number of students. Signing 3-4 agency agreements.	Not required
2.1.2	Development of a system of flexible pricing policy for foreign students and measures to promote educational services.	Competitive prices, promotions, implementation of promotion measures in the countries of near and far abroad.	Competitive prices, promotions, implementation of promotion measures in the countries of near and far abroad.	Competitive prices, promotions, implementation of promotion measures in the countries of near and far abroad.	AUPET budget
2.1.3	Creation of marketing products, advertisements in English and other (for example, Chinese) languages.	Handouts, brochures, posters in electronic and paper format for the international market. Providing detailed	Handouts, brochures, posters in electronic and paper format for the international market. Providing detailed	Handouts, brochures, posters in electronic and paper format for the international market. Providing detailed	AUPET budget

		information about the university to interested partners.	information about the university to interested partners.	information about the university to interested partners.	
2.1.4	Creation of a virtual tour in English, video-audio advertising, advertising in social networks.	Virtual tour, promotional videos in English and other languages. Youtube video, LinkedIN.	Virtual tour, promotional videos in English and other languages. Youtube video, LinkedIN.	Virtual tour, promotional videos in English and other languages. Youtube video, LinkedIN.	AUPET budget
2.1.5	Timely update of “Study in AUPET” on Facebook, social networks “International AUPET” on Instagram.	Facebook page “Study in AUPET”, “International AUPET” on Instagram - broad awareness of the international level.	Facebook page “Study in AUPET”, “International AUPET” on Instagram - broad awareness of the international level.	Facebook page “Study in AUPET”, “International AUPET” on Instagram - broad awareness of the international level.	Not required
2.1.6	Participation in foreign educational exhibitions.	2-3 exhibitions annually in countries that are priority for the university, strengthening the image in the educational services market.	2-3 exhibitions annually in countries that are priority for the university, strengthening the image in the educational services market.	2-3 exhibitions annually in countries that are priority for the university, strengthening the image in the educational services market.	AUPET budget
2.1.7	Improvement of the English-language version of educational and program documentation and the creation of electronic content in disciplines taught in English	100% readiness of the English version of educational and program documentation, introduction of electronic content into the learning process in	100% readiness of the English version of educational and program documentation, introduction of electronic content into the learning process in	100% readiness of the English version of educational and program documentation, introduction of electronic content into the learning process in	Not required

		the main disciplines taught in English.	the main disciplines taught in English.	the main disciplines taught in English.	
2.1.8	Participation in admissions committees in foreign universities (Uzbekistan, Tajikistan, etc.).	Participation in 2-3 countries (including online).	Participation in 2-3 countries (including online).	Participation in 2-3 countries (including online).	AUPET budget
2.1.9	Online consultations on admission to the AUPET, including on the websites of the Central Asian countries - information on the websites (Uzbekistan, Kyrgyzstan, Tajikistan)	+	+	+	Not required
2.1.10	Creation and organization of the “Foundation” program - preparatory language courses for the study of Kazakh and Russian languages	Creation of educational language programs in order to support foreign students.	Creation of educational language programs in order to support foreign students.	Creation of educational language programs in order to support foreign students.	AUPET budget
2.1.11	Ensuring the participation of the university in competitions of the Ministry of Education and Science of the Republic of Kazakhstan to attract top managers and teaching staff from abroad.	+	+	+	
2.1.12	Creation of conditions for inviting lecturers and specialists to give lectures in a foreign language (modular training, regulations on the remuneration system, living conditions).	Regulations on the invitation of foreign lecturers, as well as on the remuneration system for foreign lecturers.			AUPET budget, MES budget, international programs

Задача 2.2. Развитие образовательных программ на английском языке с использованием современных технологий обучения

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.2.1	Development of an action plan aimed at expanding training in a foreign language.	Plan for the expansion of educational programs.			Not required
2.2.2	Development of an action plan aimed at organizing the recruitment of applicants into groups with training in a foreign language.	An action plan for recruiting students into groups with a foreign language of instruction.			AUPET budget
2.2.3	Creation of educational programs in English at the undergraduate and graduate levels.	5 programs in English.	5 programs in English.	5 programs in English.	AUPET budget
2.2.4	Creation of the practice of conducting online lectures for AUPET students and foreign partner universities (interchange)	Exchange of guest lectures by the teaching staff of AUPET and partner universities of the University to students of AUPET	Exchange of guest lectures by the teaching staff of AUPET and partner universities of the University to students of AUPET	Exchange of guest lectures by the teaching staff of AUPET and partner universities of the University to students of AUPET	Not required
2.2.5	Creation and launch of a joint educational program in the direction “Industry 4.0 - Systems Engineering” (with in-depth study of the German language) at the bachelor's level in cooperation with the University of Applied Sciences Anhalt (Germany) with the support of DAAD	Creation of EP, inclusion in the register of EP MES RK, DM and PC - vocational guidance, (recruiting a group of 20-25 people), start of	Further development of the program with the support of the German educational agency DAAD	Further development of the program with the support of the German educational agency DAAD	AUPET budget

		the training program 2021-2022 academic year			
2.2.6	Development of educational and methodological documentation for training bachelors, undergraduates and doctoral students in English.	Documentation in English.	Documentation in English.	Documentation in English.	Not required
2.2.7	Creation of an electronic database of working curricula and bachelor's degree disciplines in English;	Electronic materials in English.	Electronic materials in English.	Electronic materials in English.	Not required
2.2.8	Updated information on the AUPET website in English, including training opportunities in English.	Information about educational programs in English on the site.	Information about educational programs in English on the site.	Information about educational programs in English on the site.	Not required
2.2.9	Selection and nomination of candidates, doctoral students and undergraduates of AUPET for training in priority areas in leading foreign research centers.	Up to 3 candidates.	Up to 3 candidates.	Up to 3 candidates.	AUPET budget
2.2.10	Using the opportunities of international courses and programs (MOOC) in AUPET programs.	Materials, links to courses in English on the AUPET portal.	Materials, links to courses in English on the AUPET portal.	Materials, links to courses in English on the AUPET portal.	Not required

Task 2.3 Improving infrastructure and services for international students.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.3.1	Creation of the possibility of online electronic admission of foreign students through the AUPET website using a remote interview.		The system of online admission of foreign students.		Not required

2.3.2	Improving service for foreign students and creating a department to work with them at the Department of International Cooperation and Academic Mobility.	High quality service for foreign students, a clear distribution of powers, including information through social networks and the website.	High quality service for foreign students, a clear distribution of powers, including information through social networks and the website.	High quality service for foreign students, a clear distribution of powers, including information through social networks and the website.	Not required
2.3.3	Providing hostels for living and improving the quality of services for international students.	Modernization of AUPET dormitories, creation of comfortable rooms for foreign students and teaching staff	Modernization of AUPET dormitories, creation of comfortable rooms for foreign students and teaching staff	Modernization of AUPET dormitories, creation of comfortable rooms for foreign students and teaching staff	AUPET budget
2.3.4	Development of a mentor system for international students, with the involvement of volunteers from senior courses.	High level of service, a list of trained volunteers.	High level of service, a list of trained volunteers.	High level of service, a list of trained volunteers.	Not required
2.3.5	Development of a feedback system, regular surveys of foreign students.	High quality education for foreign students, identifying tasks to improve service.	Improving the quality of education for foreign students, identifying tasks to improve service.	Improving the quality of education for foreign students, identifying tasks to improve service.	Not required
2.3.7	Involvement of foreign students in student government bodies		Creation of a department for foreign students under student government.		Not required

Task 2.4 Organization of international events

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.4.1		1 summer school	1 summer school	1 summer school	AUPET budget
2.4.2	Conducting the International Olympiad, including the computer design of integrated circuits, with the participation of students, undergraduates and doctoral students.	Increase in the number of participants (Olympiad per year)	Increase in the number of participants (Olympiad per year)	Increase in the number of participants (Olympiad per year)	AUPET budget
2.4.3	Organization of international scientific conferences and seminars.	1-2 conferences	2-3 conferences	3-4 conferences	AUPET budget
2.4.4	Organization of regular scientific seminars with the participation of foreign scientists, including in the form of videoconferences.	1 seminar per month	1 seminar per month	1 seminar per month	AUPET budget

Task 2.5 Professional development and knowledge of English of the teaching staff and employees

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.5.2	Development of a plan for the professional development of academic staff and staff in the field of internationalization, regular informing of staff about the opportunities for further training.	Training plan for teaching staff and employees.	Training plan for teaching staff and employees.	Training plan for teaching staff and employees.	AUPET budget
2.5.3	Organization of training courses, seminars.	IELTS / TOEFL courses 2 seminars in six months	IELTS / TOEFL courses 2 seminars in six months	IELTS / TOEFL courses 2 seminars in six months	AUPET budget
2.5.4	Professional development of teachers and	Organization of	Organization of	Organization of	AUPET budget

	university specialists in English.	training at AUPET English courses (up to 5 teachers per year). Organization of internships for university staff in English-speaking countries (up to 10 internships per year).	training at AUPET English courses (up to 5 teachers per year). Organization of internships for university staff in English-speaking countries (up to 10 internships per year).	training at AUPET English courses (up to 5 teachers per year). Organization of internships for university staff in English-speaking countries (up to 10 internships per year).	
2.5.5	Development of an incentive system for university staff that knows and uses foreign languages in work with students.	Motivating wage system.	+	+	AUPET budget

Goal 3 Development of international cooperation

Task 3.1 Interuniversity cooperation

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
3.1.1	Popularization of AUPET abroad in three languages using the active work of the university portal, the library repository, as well as an active presence on social networks and on YouTube.	Updating information (constantly), creating new sections on the portal in three languages.	Updating information (constantly), creating new sections on the portal in three languages.	Updating information (constantly), creating new sections on the portal in three languages.	AUPET budget
3.1.2	Improving the management structure in the areas of international cooperation.	Determination at institutes, departments and structural units of persons responsible for the development of	Determination at institutes, departments and structural units of persons responsible for the development of	Determination at institutes, departments and structural units of persons responsible for the development of	Not required

		international cooperation and work within the framework of international programs and projects.	international cooperation and work within the framework of international programs and projects.	international cooperation and work within the framework of international programs and projects.	
3.1.3	Conclusion of agreements with leading universities in the world.	Maintaining on an ongoing basis a news feed about international cooperation of AUPET through the Internet, social networks and other media	Maintaining on an ongoing basis a news feed about international cooperation of AUPET through the Internet, social networks and other media	Maintaining on an ongoing basis a news feed about international cooperation of AUPET through the Internet, social networks and other media	AUPET budget

Task 3.2 Development of partnerships with foreign research centers, enterprises

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
3.2.1	Participation in foreign exhibitions and fairs and international scientific and educational events in the field of science.	1-2 times	1-2 times	1-2 times	AUPET budget
3.2.3	An increase in the number of joint publications with scientists from foreign universities.	Collaborative publications (minimum 10)	Collaborative publications (minimum 10)	Collaborative publications (minimum 10)	Not required

Task 3.3 Joining world international associations, networks, conferences, consortia.

№	Activities	Expected results/deadlines	Financing source
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		2021	2022	2023	
3.3.1	Joining international associations, developing cooperation in the Association of Asian Universities.	Participation in major industry associations, participation in AAU events	Participation in major industry associations, participation in AAU events	Participation in major industry associations, participation in AAU events	AUPET budget
3.3.2	Joining regional and global international organizations	Participation in major industry associations to establish productive partnerships with international organizations.	Participation in major industry associations to establish productive partnerships with international organizations.	Participation in major industry associations to establish productive partnerships with international organizations.	AUPET budget
3.3.3	Participation in international projects.	Minimum 1-2	Minimum 1-2	Minimum 1-2	AUPET budget

DIGITALIZATION AND MANAGEMENT SYSTEMS

Goal 1 Increase the level of digitalization of the university.

Task 1.1 Implementation of our own automated information system and automation of educational and internal processes.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.1.1	Module development - Organization of the Educational Process (typical curriculum, modular curriculum, catalog of elective disciplines, individual curriculum, working curriculum).	+			Not required
1.1.2	Module development - Monitoring the educational achievements of students.	+			Not required
1.1.3	Development and integration of the proctoring system.	Pilot project	+	+	AUPET budget

1.1.4	Module development - Contingent management.	+			Not required
1.1.5	Module Development - Reports and Summary Data.	+	+		Not required
1.1.6	Development of a system for the integration of "1C-Accounting", workflow, anti-plagiarism with the AUES Education portal.	+			AUPET budget
1.1.7	Development of a system and a set of tools to improve the emotional intelligence of students.		Pilot project	+	AUPET budget

Task 1.2 Informatization and automation of business processes based on the AUES Education portal.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.2.1	Revision and improvement of the system "Competitive Contract Commission" (KCC)	+			Not required
1.2.2	Revision and improvement of the admission of applicants' documents	+			Not required
1.2.3	Online admission system for international students		+		
1.2.4	System development and integration for the journal "Vestnik AUPET"	+			Not required
1.2.5	Development of a module for working with student clubs and organizations		+		AUPET budget
1.2.6	Dormitory System Development - Electronic Campus	Pilot project	+		Not required

Task 1.3 Development of infrastructure and campus system.

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.3.1	Creation of a university library of a new format	Pilot project	+	+	AUPET budget

1.3.2	Launching a studio for video content development	+			AUPET budget
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Task 1.4 Development of distance learning technologies

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.4.1	Development and implementation of new educational technologies (Blended learning, Rain classroom, Research oriented study, etc.).		+		Not required

Goal 2 Quality of training and performance assessment

Task 2.1 Functioning of the system of continuous quality assurance and risk management

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
2.1.1	Functioning of a quality management system based on ISO 9001: 2015 "Quality Management Standards" and Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).	ISO 9001: 2015 "Quality Management Standards" certification for 2021-2024	Inspection audit Internal audit	Inspection audit Internal audit	Not required
2.2.2	Functioning of the risk management system based on ISO 31000: 2015 "Risk Management".	Approval of the Regulation on Risk Management. Risk register monitoring. ISO 31000: 2015 Risk Management training.	Monitoring by the Risk Register. Adjustment of the Risk Register. ISO 31000: 2015 Risk Management certification.	Monitoring by the Risk Register. Adjustment of the Risk Register. Inspection audit Internal audit	Not required

Task 2.2 Implementation of an assessment of the performance of managers based on KPIs

№	Activities	Expected results/deadlines			Financing source
		2021	2022	2023	
1.5.1	Implementation of key performance indicators (KPI) to assess the performance of managers.	Approval of KPIs of members of the Administration.	Evaluation of the effectiveness of the members of the Administration. Approval of KPIs for heads of structural divisions.	Evaluation of the effectiveness of the members of the Administration. Approval of KPIs for heads of structural divisions.	Not required

TARGET INDICATORS

№	Indicator name	unit of measurement	2020 (fact)	2021 (plan)	2022 (plan)	2023 (plan)
1.	COMPETITIVENESS AND QUALITY OF ACTIVITY					
1.1.	Ratings					
1.1.1.	General ranking of universities of the IAAR	Position	8	top-10	top-10	top-10
1.1.2.	National rating of technical universities IQAA	position	6	top-10	top-10	top-10
1.1.3.	Share by directions in the top three leaders of the IAAR out of the announced	%	22	20	24	25
1.1.4.	The share of educational programs in the top three leaders of the Independent Agency for Quality Assurance in Education (IQAA) of the declared	%	97	90	90	90
1.1.5.	The share of educational programs in the top three leaders of the national chamber of entrepreneurs “Atameken” out of the announced	%	33	33	35	35
1.1.6.	Webometrics rating for Kazakhstan	Position	54	top-50	top-40	top-30
1.2.	Employment	%	84	85	85	85
1.3.	Modernization of laboratory and scientific facilities	units	9	9	10	10
2.	FINANCIAL SUSTAINABILITY AND INFRASTRUCTURE DEVELOPMENT					
2.1.	Contingent of students					
2.1.1.	General contingent	person	6 755	7 000	7 500	8 000
2.1.2.	The share of postgraduate education (master's and doctoral studies) in the total contingent	%	7,1	8	10	12
2.1.3.	Share of students on a paid basis	%	16	15	16	17
2.2.	Income from educational activities					
2.2.1.	Educational services on state grants	Mln.tenge	3 080	4 127	4 278	4 564
2.2.2.	Educational services under contracts for the provision of services for a fee	Mln.tenge	574	735	861	918
2.3.	Investment in infrastructure development					
2.3.1.	Laboratory, library and scientific base	Mln.tenge	61	176	200	220
2.3.2.	Computer and server equipment, software	Mln.tenge	288	585	600	680
2.3.3.	Academic buildings, territory and hostels	Mln.tenge	361	327	400	470
3.	QUALITY OF STUDENTS AND TEACHING STAFF TRAINING					
3.1.	Quality of students training					

3.1.1.	Programs prepared for international accreditation	units	-	6	6	6
3.1.2.	Innovative educational programs	units	24	3	3	3
3.1.3.	Minor	units	1	4	8	12
3.1.4.	Prizewinners of international and republican subject Olympiads	person	12	10	12	15
3.1.5.	Prizewinners of international and republican scientific competitions and competitions	person	9	12	12	12
3.2.	Quality of teaching staff training					
3.2.1.	Share of teaching staff with advanced degrees in the total state, excluding part-time workers	%	51,2	50	50	50
3.2.2.	The share of teaching staff attracted from enterprises in the total staff	%	6,6	5	15	15
3.2.3.	Average age of teaching staff	age	50	52	50	48
3.2.4.	The number of teaching staff over the past 5 years who have completed training and/or internships under the Bolashak program, at foreign universities, at Nazarbayev University, under international programs	person	5	7	9	10
3.2.5.	The number of teaching staff who received academic titles, awarded government and departmental awards and titles, who have certificates of honor and distinctions	person	9	9	10	12
4.	SCIENTIFIC AND INNOVATIVE ACTIVITIES					
4.1.	Financing of research work					
4.1.1.	The amount of research funding (budget)	Mln.tenge	316,76	180	120	125
4.1.2.	The amount of research funding (extrabudgetary)	Mln.tenge	210,71	205	120	125
4.2.	Publishing activity					
4.2.1.	Number of scientific publications included in Scopus	units	112	90	96	100
4.2.2.	Number of scientific publications included in the Web of Science	units	47	42	44	52
4.2.3.	The number of scientific publications in editions recommended by the COMMITTEE FOR QUALITY ASSURANCE OF EDUCATION AND SCIENCE of the Republic of Kazakhstan	units	93	88	96	104
4.3.	Commercialization and innovation					
4.3.1.	Number of commercialized developments, startups	units	4	8	8	10
4.3.2.	Number of valid patents	units	25	18	20	22
5.	SOCIAL AND EDUCATIONAL WORK					
5.1.	Satisfaction and involvement of students and teaching staff					
5.1.1.	Satisfaction of students with learning conditions	Survey	55	60	65	75

5.1.2.	Social well-being of teaching staff	Survey	75	85	90	90
5.2.	Involvement of students in public life					
5.2.1.	Proportion of students involved in student activities, social and community life	%	81	73	76	80
5.2.2.	Membership of students in public organizations	%	30	32	34	36
5.2.3.	Share of those involved in volunteering	%	37	50	60	65
5.3.	Attracting students and guidance counseling					
5.3.1.	Number of school visits, open days and other events	units	172	170	180	180
5.3.2.	Number of job fairs, employer visits and other events	units	52	55	55	57
5.4.	Social activity and interaction with the media					
5.4.1.	Publications in print media and interviews in the media	units	17	35	45	50
5.4.2.	Social media posts (Instagram, Facebook, YouTube)	units	975	1 800	1 500	1 700
5.4.3.	Number of subscribers on social networks (Instagram, Facebook, YouTube)	person	21 769	22 000	25 000	27 000
6.	INTERNATIONALIZATION OF ACTIVITIES					
6.1.	Double Degree Programs, Academic Exchange and Foreign Internships	units	8	9	10	11
6.2.	Share of foreign teaching staff and scientists in the total staff	%	10	7	10	10
6.3.	Participation in international projects	units	11	10	11	12