

**MINISTRY OF SCIENCE AND HIGHER EDUCATION REPUBLIC OF
KAZAKHSTAN NON-COMMERCIAL JOINT-STOCK COMPANY
"GUMARBEK DAUKEYEV ALMATY UNIVERSITY OF ENERGY AND
COMMUNICATIONS"**

Institute of Information Technology



«I approve" Director of IAIT

I.A.Fedorenko

« 21 » 2023

**ПЛАН РАЗВИТИЯ ОБРАЗОВАТЕЛЬНОЙ ПРОГРАММЫ
7M06102 – «Информационные системы»
на 2023-2028 гг.**

**EDUCATIONAL PROGRAM DEVELOPEMENT PLAN 7M06102 –
"Information Systems" for 2023-2028**

**The level of the basic educational program
(Master's degree level 7)**

INFORMATION ABOUT THE MODULAR EDUCATIONAL PROGRAM

The EP was developed on the basis of: The National Qualifications Framework, Approved by the protocol dated March 16, 2016 of the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations; the Sectoral Qualifications Framework "Information and Communication Technologies", Approved by the protocol of the meeting of the Sectoral Commission in the field of Information, Informatization, Communications and Telecommunications dated December 20, 2016 No. 1; The State mandatory standard of higher education, Approved by the Decree of the Government of the Republic of Kazakhstan dated 08/23/2012. No. 1080 (as amended by the Resolution of the Government of the Republic of Kazakhstan. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604. Registered with the Ministry of Justice of the Republic of Kazakhstan on November 1, 2018 No. 17669.); Professional standards or draft standards.

The modular educational program "7M06102 – Information Systems" was developed at the Department of IT Engineering on the basis of the Law of the Republic of Kazakhstan "On Education" dated 27.07.2007 and regulatory documents:

- State license (perpetual) for conducting educational activities No. KZ80LAA00018161 dated 05.05.2020 (primary license No. AB0137445 dated 08/04/2010);

- State Mandatory Standard of Postgraduate Education (Order No. 2 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated 07/20/2022);

- Standard rules of the organization of higher and postgraduate education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated 06/09/2021 No. 282); - Rules for the organization of the educational process on credit technology of education (Order of the Ministry of Education and Science of the Republic of Kazakhstan dated 04/20/2011 No. 152, as amended on October 12, 2018 No. 563);

- The Charter of the NAO "Gumarbek Daukeyev AUES"; - The National Qualifications Framework (Approved by the Protocol of March 16, 2016 by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations), which regulates the requirements for graduates with an academic master's degree in the EP "7M06102 – Information Systems.

The purpose of the educational program "7M06102 – Information Systems" is to train highly qualified researchers, competitive specialists in the field of information systems and technical sciences for the accelerated innovative development of the economy of the Republic of Kazakhstan.

The mission of EP 7M06102 – Information Systems is to train undergraduates with in-depth theoretical knowledge and practical competencies in the field of information systems, capable of carrying out research and teaching activities, generating and implementing innovative solutions, as well as making a significant contribution to the development of science, education and information technology in the country.

The duration of master's degree is 2 years. Graduates of the EP are awarded a master's degree in the field of information and communication technologies in the educational program "7M06102 - Information Systems".

The effectiveness of the Educational Program Development Plan is assessed by the University during a SWOT analysis. The results of the SWOT analysis serve as a basis for improving the educational program. The SWOT analysis of the Educational Program Development Plan is presented in Table 3.

EDUCATIONAL PROGRAM MANAGEMENT MECHANISMS

At the level of long-term planning, general priorities and strategic goals for the development of the educational program are identified, as well as indicators and indicators. Long-term planning documents include: vision, mission, strategy, quality policy, and the university's development plan. Short-term plans for the development of educational programs are based on these documents.

Short-term planning at the university level is represented by the objectives of the Gumarbek Daukeyev AUES in the field of quality, work plans of collegial bodies, and annual work plans in areas that address the problems of program implementation. At the level of structural divisions, planning for the development of educational programs is reflected in the objectives of institutes and graduate departments in the field of quality, comprehensive plans of institutes, and department work plans. The plans of institutes and departments must contain deadlines for the implementation of activities, responsible persons and a column for marking the completion. One of the requirements for short-term plans is their compliance with the mission, strategic goals and objectives of the university, and the availability of a section on performance improvement. It is this set of plans that is the main mechanism for developing educational programs and ensuring their quality. The plans take into account the educational, methodological, practice-oriented, logistical issues of the development of educational programs. At the individual level, planning is represented by individual GTS plans.

THE MAIN OBJECTIVES OF THE EDUCATIONAL PROGRAM DEVELOPMENT PLAN

- managing the quality implementation of the educational program and improving the learning process management mechanisms; - training of competitive personnel; - improvement of conditions for high-quality staffing of the EP; - strengthening the role of research and innovation activities in the development of EP; - development of the resource potential for the implementation of the EP.

1. EDUCATIONAL PROGRAM DEVELOPMENT PLAN

The development plan of EP 7M06102 – Information Systems for 2023-2028, with an indication of activities, deadlines, responsible persons and implementation mechanisms, is shown in Table 1.

1. MEASURES TO REDUCE THE IMPACT OF RISKS ON THE EP

Table 2 provides a list of measures to reduce the risks that arise during the implementation of the educational program.

Table 1 – Development plan of EP "7M06102 – Information systems"

Areas of activity	Events	Responsible persons	Implementation mechanism	Deadlines
1	2	3	4	5
<p>1. Managing the quality implementation of the educational program and improving the learning process management mechanisms</p>	<p>1. Provision of EP with regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan: State Educational Standard, Municipal Unitary Enterprise, RUE with internal regulatory documents (Regulations, Instructions (forms))</p>	<p>University management, Head of the ITE Department, head of the EP.</p>	<p>Formation of requests for the purchase of regulatory documents in the Ministry of Education and Science of the Republic of Kazakhstan, ROOMS. Work with the Department of Analysis and Strategic Development, the QMS department.</p>	<p>2023-2028</p>
	<p>2. Improvement of the EP structure. Updating the Modular Educational Program.</p>	<p>Head of the ITE Department, Head of the EP</p>	<p>The content of the educational program is updated annually by 15-20% based on the generalization of modern international training experience in this field, the requirements of employers and the demands of the labor market. Analyzing the needs of employers, graduate satisfaction, and monitoring the achievement of EP results.</p>	<p>2023-2028,</p>
	<p>3. Development and improvement of the modular principle of EP formation.</p>	<p>Head of the ITE Department, Head of the EP</p>	<p>The formation of modules taking into account the logical and meaningful interrelation of disciplines. Ensuring a unified methodological approach to teaching. Formation of a contingent for independent work, taking into account the integrated content of the educational material.</p>	<p>2023-2028</p>

	4. Systematic improvement of educational and methodological support for the educational	Head of the ITE Department, teaching staff	Annual updating of educational and methodological support, taking into account the needs of employers, graduate satisfaction, and advanced training of teaching staff.	2023-2028
	5. CoEPeration with manufacturing companies and government services in order to attract specialists in the field of information systems, organization of production practices and employment of graduates.	Head of the ITE Department, Head of the EP, Teaching Staff, Department of Practice and Employment	Conducting master classes, round tables, scientific seminars with the participation of leading companies. Participation in the organization of production practices. Analysis of the demand for young professionals in the industries.	2023-2028
2. Training of competitive personnel	1. DevelEPment and improvement of QED based on prEPosals from interested parties	Head of the ITE Department, Head of the EP	Interaction with employers. Annual updating of the disciplines of the Modular Educational Plan based on the prEPosals of employers, taking into account the results of research and advanced training of teaching staff.	2023-2028
	2. DevelEPment and implementation of a multilingual training program for EP specialists	University management, Head of the ITE Department, head of the EP, teaching staff	Preparation of programs, advanced training of teaching staff and the level of knowledge of foreign languages (up to 40% by 2028).	2023-2028
	3. DevelEPment and implementation of innovative teaching methods	Head of the ITE Department, IAIT management,	Advanced training of teaching staff. Discussion of issues of improving teaching methods at methodological seminars of the department and the Institute. Using interactive learning methods.	2023-2028

		Head of the EP		
	4. Formation of a high-quality contingent of students	Зав.каф.ИТЕ, ППС, Департамент информацион ных технологий, Отдел рекрутинга абитуриентов	План профориентационной работы, постоянное обновление страницы кафедры на сайте, проведение ППС консультаций в приемной комиссии.	2023-2028
	5. 5. Implementation of academic mobility of students and teachers	Head of the ITE Department, IAIT Management, Teaching Staff, Department of International CoEPeration	Training of students and internships of teaching staff in foreign universities. Expanding the list of partner universities. The introduction of double-degree education.	2023-2028
3. Improving the conditions for high-quality staffing of the EP	1. Increasing the level of academic staff to 75% through PhD studies, internships and the involvement of foreign teachers with academic degrees	Head of the ITE Department, University Administration , Department of Science and Commercializa tion	Professional development of teaching staff, motivation of young teachers for admission to doctoral studies, involvement in teaching and scientific activities of the most competent graduates of the PhD program of the Russian Academy of Sciences. The plan is to invite foreign scientists to give courses and organize joint research projects.	2023-2028

4. Strengthening the role of research and innovation activities in the development of EP.	1. Activation of scientific research at the department. Participation in grant and contractual research and projects. Expanding relations with foreign partners in order to implement joint scientific research and publish educational and methodological literature	Head of the ITE Department, teaching staff	Involvement of teaching staff, students in initiative, funded research. An increase in the number of works with an innovative focus with the filing of an application for an innovative patent and its application, the introduction of results into the educational process, publications in high-profile journals and foreign rating journals	2023-2028
	2. Achievement of commercialization of the results of scientific research of the teaching staff of the department	Head of the ITE Department, Department of Science and Commercialization, Teaching Staff	An increase in the number of scientific projects and programs implemented jointly with national companies and private enterprises.	2023-2028
	3. Stimulating and motivating students to actively participate in scientific activities	Head of the ITE Department, teaching staff	Участие студентов в республиканских и международных соревнованиях. Привлечение обучающихся к выполнению кафедральных научных исследований. Увеличение количества обучающихся в финансируемых НИР.	2023-2028
	4. The growth of publications of teaching staff and doctoral students in journals with a non-zero impact factor	Head of the ITE Department, teaching staff	Подготовка научных публикаций в журналах с импакт -фактором, которые входят в международные наукометрические базы данных Tomson Reuters, ScEpus.)	2023-2028

5. Development of the resource potential for the implementation of the EP	1. Purchase of new laboratory equipment	Head of the ITE Department, teaching staff	Annual procurement plans	2023-2028
	2. Purchase of office equipment, scientific equipment, technical training tools, visual aids, etc.	Head of the ITE Department, Head of the OP	Annual procurement plans	2023-2028
	3. Development of information and educational resources of the department (website, portal, electronic CDs, etc.)	Head of the ITE Department, Teaching Staff, Department of Information Technology,	Activities for the development of information and educational resources of the University	2023-2028
	4. Development of various forms of financial and moral incentives for teaching staff	Head of the ITE Department	Head of the ITE Department	2023-2028
	5. Opening of thematic laboratories from leading companies, manufacturers of innovative equipment	Head of the ITE Department, Head of the EP	Conclusion of contracts, provision of audiences.	2023-2028

Table 2 – Risk reduction action plan

№ п/п	Table 2 – Risk reduction action plan	Measures to eliminate them
1	Insufficient provision of new educational and methodological literature on professional disciplines in the official language.	Plan the annual release of scientific and educational literature by the teaching staff of the departments according to the working curriculum. To intensify the work of teaching staff on the development and implementation of educational literature in the state language in the educational process.
2	Decrease in the number of students enrolled in the EP, outflow to other universities	Organization of joint scientific seminars for undergraduates and students, Active work in social networks.
3	Rapid obsolescence of the existing material and technical base	Timely planned purchase of modern equipment. Conclusion of contracts with enterprises with the possibility of sharing the laboratory base of enterprises in the educational process.
4	Obsolescence of traditional teaching methods	To improve and introduce innovative learning technologies into the educational process. Update the applied technical training tools.
5	Increase in the average age of teaching staff and scientific staff	Training of highly qualified scientific personnel through master's and doctoral studies (PhD) at the level of modern requirements. The invitation of young personnel with an academic degree and/or a master's degree. Creating favorable conditions for the career growth of young professionals.
6	Weak activity of teaching staff in publishing scientific papers in journals with a high citation index	To make a plan for the publications of teaching staff in KKSON journals and foreign publications with a non-zero impact factor. To take an active part of teaching staff in competitions announced by Ministries of the Republic of Kazakhstan and international organizations for grants funded by research
7	Termination of cooperation agreements with industrial partners	To make a plan for the publications of teaching staff in KKSON journals and foreign publications with a non-zero impact factor. To take an active part of teaching staff in competitions announced by Ministries of the Republic of Kazakhstan and international organizations for grants funded by research
10	High competition in terms of OP with other universities	Participation in national, regional, and state international ratings, for example, Atameken. Analysis of similar educational programs implemented in other universities.

Table 1 - SWOT analysis according to the Development Plan of OP "7M06102 – Information Systems"

Strengths	Weaknesses
<ul style="list-style-type: none"> • The educational program has been developed jointly with employers. • Provision of modern equipment for educational laboratories. • The presence of cathedral competence centers with global vendors. • Qualified teaching staff. • Involvement of practitioners with extensive work experience at large enterprises of various industries in the educational process as teaching staff. • Stable recruitment. • Joint Master's degree program with the National Research Nuclear University MEPHI (Russia). • The need on the part of enterprises for specialists in this educational program and, consequently, the high level of employment of graduates. • Established relationships with industrial enterprises, allowing the implementation of research and development results in production processes. • A developed policy of social support for students (discounts on tuition, incentives for winning Olympiads, competitions and scientific developments, payments from the Board of Trustees, a grant and scholarship from Gumarbek Daukeev). 	<ul style="list-style-type: none"> • Lagging behind the leaders of the Atameken rating in terms of "Statistical data and achievements of graduates". • Not all regions have partners for all types of student internships. • Insufficient level of publications in international peer-reviewed publications. • Aging of teaching staff and practitioners, low turnover rate. • Insufficient English language proficiency of teaching staff, which does not allow for broad and effective international cooperation. • Insufficient provision of educational literature in the state and English languages to the educational process. • Low level of popularization, stimulation and involvement of young teachers and students in the implementation of scientific projects and developments. • Low publication activity of teaching staff and students. • Low academic mobility of students.
Opportunities	Threats
<ul style="list-style-type: none"> • Having connections with global vendors makes it possible to create powerful training centers. • Certification of graduates by recognized organizations • Professional development of teaching staff on preferential terms in global companies. • The diversity of learning paths. • The attractiveness of the OP for students and leading teaching staff of other universities. • Attracting young practitioners. • Implementation of dual degree programs with foreign universities and universities of the Republic of Kazakhstan. • The growing demand for high-tech specialties will make it possible to regularly update learning trajectories. • Involvement of 4th year students in scientific activities with the aim of further admission to the master's program, teaching, as well as opening startups. 	<ul style="list-style-type: none"> • Decrease in retirement due to untimely protection by doctoral students and the care of advanced-age teaching staff. • Rapid changes in the labor market, requiring the need to adjust the OP. • Obsolescence of laboratory equipment, software and computer park. • The growth of the contingent will cause a shortage of classroom and laboratory staff, as well as teaching staff. • Problems with places of practice in the regions against the background of an increase in the number of students. • Frequent changes in the regulatory framework in the field of education and science. • Deterioration of the quality of the contingent due to the low level of training of schoolchildren and college graduates. • The outflow of qualified teachers and scientists to other industries (commercial) with higher

	incomes, as well as to other universities. • The outflow of strong students to other universities, including foreign ones.
--	--

Head of the ITE Department



L.M. Tukenova.

Head of the EP



Tusupova B.B.