



«АККРЕДИТТЕУ ЖӘНЕ РЕЙТИНГТИҢ  
ТӘУЕЛСІЗ АГЕНТТІГІ» КЕМ

НУ «НЕЗАВИСИМОЕ АГЕНТСТВО  
АККРЕДИТАЦИИ И РЕЙТИНГА»

INDEPENDENT AGENCY FOR  
ACCREDITATION AND RATING

*Addressed to the  
Accreditation Council of IAAR*

## **REPORT**

**on external expert commission work on the assessment of compliance with the  
requirements of the standards for specialised accreditation of educational programmes**

**6B06101 – “Information Systems”**

**7M06101 – “Information Systems”**

**8D06101 – “Information Systems (by industry)”**

**6B06102 – “Computing and Software”**

**7M06102 – “Computing and Software”**

**«D.SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY»  
Non-profit Joint Stock Company**

**In the period from 6 to 8 October 2020**

**Ust-Kamenogorsk**

**October 8, 2020**

**INDEPENDENT AGENCY FOR ACCREDITATION AND RATING**  
**External Expert Commission**

*Addressed to the  
Accreditation Council of IAAR*



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**(I) LIST OF DEFINITIONS AND ACRONYMS**

- AC** – Academic Calendar
- BD** – Basic Disciplines
- EAAP** – External Assessment of Academic Achievement
- EKTU** – "D. Serikbayev East Kazakhstan Technical University", Non-Profit Joint Stock Company
- SAC** - State Attestation Commission
- SCES** – State Compulsory Educational Standard
- DLT** – Distance Learning Technology
- UNT** – Unified National Testing
- EHEA** – European Higher Education Area
- ECTS** – European Credit Transfer System
- ILC** – Information and Library Complex
- ICT** – Information and Communication Technologies
- IC** – Individual Curriculum
- ED** – Elective Discipline
- CT** – Complex Testing
- CTO** – Credit Technology of Education
- CED** – Catalog of Elective Disciplines
- MES RK** – Ministry of Education and Science of the Republic of Kazakhstan
- MEP** – Modular Education Program
- IAAR** – Non-Profit organization “Independent Agency for Accreditation and Rating”
- SRW** – Scientific and Research Work
- SSRW** – Students Scientific and Research Work
- RC** – Required Component
- GS** – General Subjects
- EP** – Educational Program
- PD** – Profile Disciplines
- F** - Faculty
- RIEL** – Republican Interuniversity Electronic Library
- RK** – The Republic of Kazakhstan
- WC** – Working Curriculum
- QMS** – Quality Management System
- SVE** – Secondary Vocational Education
- SAW** – Student Autonomous Work
- SAWT** – Student Autonomous Work with a Teacher
- MC** – Model Curriculum
- EMCD** – Educational and Methodical Complex of Discipline
- ED** – Educational Department
- EMCU** – Educational and Methodical Council of the University

## **(II) INTRODUCTION**

In accordance with order No. 75-20-OD dated September 14, 2020 of the Independent Agency for Accreditation and Rating, from October 6 to October 8, 2020, an external expert commission (EEC) carried out an online assessment of the compliance of education programs of D. Serikbayev East Kazakhstan Technical University to the standards of specialized accreditation of the IAAR (dated February 24, 2017 No. 10-17, fifth edition). EP 6B06101 – “Information Systems”, 7M06101 – “Information Systems”, 8D06101 – “Information Systems (by industry)”, 6B06102 – “Computing and Software”, 7M06102 – “Computing and Software” were assessed by EEC.

The EEC report contains an assessment of the presented education programs to the IAAR criteria, recommendations of the EEC on further improvement of education programs and the parameters of the profile of education programs.

### **EEC members:**

*Chair of the Commission* - Urmashev Baydaulet Amantayevich, Ph.D., Associate Professor, Dean of "Information Technologies" Faculty of Al-Farabi Kazakh National University (Almaty, Republic of Kazakhstan).

*Foreign expert* - Tayirov Mitalip Muratovich, Doctor of physical and mathematical sciences, professor of Batken State University (Kyzyl-Kiya, Kyrgyz Republic).

*Foreign expert* - Guzeva Tatiana Aleksandrovna, Ph.D., Associate Professor, Head of the Department of Educational Standards and Programs of Bauman Moscow State Technical University (Moscow, Russian Federation).

*National expert* - Yermanov Maksat Bekbusynovich, Senior lecturer at K. Zhubanov Aktobe Regional State University (Aktobe, Republic of Kazakhstan).

*National expert* - Zhumazhanov Serik Karataevich, Candidate of Technical Sciences, Lecturer of the Department of Operation of Electrical Equipment, S. Seifullin Kazakh Agrotechnical University (Nur-Sultan, Republic of Kazakhstan).

*National expert* - Rufina Rinata Mukhamedzhanova, Director of the Department of Academic Affairs, Almaty University of Energy and Communications (Almaty, Republic of Kazakhstan).

*National expert* - Musiralieva Shynar Zhenisbekovna, Candidate of Physical and Mathematical Sciences, Head of the Department of Information Systems, Al-Farabi Kazakh National University. (Almaty, Republic of Kazakhstan).

*National expert* - Tursumbekova Horlan Sakenovna, Ph.D., Associate professor of the S. L. B. Goncharov Kazakh Automobile and Road Institute (Almaty, Republic of Kazakhstan);

*Employer* - Pyatkov Nikolay Vladimirovich, Chief Engineer of “Stroytekhproekt” LLP (Ust-Kamenogorsk, Republic of Kazakhstan).

*Student* - Egizbayeva Asylzat Erkinzyzy, the 4th year student of EP 6V060101 - "Information Systems" of S. Amanzholov East Kazakhstan University (Ust-Kamenogorsk, Republic of Kazakhstan).

*Student* – Bayantai Meruert Serikkyzy, the 4th year student of EP 5V090300 of S. Seifullin Kazakh Agrotechnical University (Nur-Sultan, Republic of Kazakhstan).

*Student* – Bazarbek Amre, Member of the Alliance of Students of Kazakhstan, the 4th year student of EP 5B070200 - "Automation and Control" of L.N. Gumilyov Eurasian National University (Nur-Sultan, Republic of Kazakhstan).

*IAAR coordinator* – Niyazova Guliyash Balkenovna, Project manager for institutional and specialized accreditation of universities.

### **(III) REPRESENTATION OF THE EDUCATIONAL ORGANISATION**

Non-Profit Joint-Stock Company "D. Serikbayev East Kazakhstan Technical University" (EKTU) is a higher educational institution that implements professional educational programs of higher and postgraduate education. EKTU has the necessary regulatory documents for conducting educational activities (license No KZ50LAA18507 07/29/2020, the Charter of EKTU, a package of internal regulatory materials, professional educational programs). The educational institution was founded in 1958 in accordance with the Decree of the Council of Ministers of the USSR dated August 5, No. 866 and the Resolution of the Council of Ministers of the Kazakh SSR dated August 30, No. 765 and received the name "Ust-Kamenogorsk Road Construction Institute" (UK RCI). On May 7, 1996, by the Decree of the Government of the Republic of Kazakhstan No. 573, UK RCI was reorganized into "East Kazakhstan Technical University". At the request of the university, by the Decree of the Government of the Republic of Kazakhstan dated November 3, 1997 No. 1485, it was named after the first rector Daulet Serikbayev. In 1999, a military department was opened at the university on the basis of the Decree of the Government of the Republic of Kazakhstan No. 1319 dated 09/07/99. On January 31, 2001 by the Decree of the Government of the Republic of Kazakhstan No. 163 "D. Serikbayev East Kazakhstan Technical University" was renamed into the Republican State Enterprise "D. Serikbayev East Kazakhstan State Technical University". In 2012, by the Decree of the Government of the Republic of Kazakhstan No. 544 dated April 28, 2012, the Republican State Enterprise "D. Serikbayev East Kazakhstan State Technical University" was reorganized into the RSE on the REM "D.Serikbayev East Kazakhstan State Technical University". Currently, EKTU is one of the largest universities in Kazakhstan, the leading center of science, education and culture in East Kazakhstan region. The university includes 6 schools, 2 faculties, 6 departments.

The university provides training on 117 educational programs at three levels: bachelors, masters and PhD. The contingent of students is about 6000 people. The priority direction of the university's activity is training of highly qualified specialists in the sphere of metallurgy, mechanical engineering, architecture and civil engineering, information and communication.

In 2020 D.Serikbayev EKTU takes 6915 position among universities in the world (among 121 universities in Kazakhstan it takes 14th place) according to Webometrics. According to the Independent Agency for Accreditation and Rating, D.Serikbayev EKTU takes the 4th place among technical universities. According to the results of the rating of the Groups of educational programs, the top three include 6 groups of undergraduate educational programs, 5 groups of graduate educational programs, 4 groups of doctoral educational programs. EKTU operates in conditions of sufficient autonomy, as evidenced by: entry into the Bologna process, the activities of the Board of Directors, the activities of the Academic Council, the Administration, the Educational and Methodological Council, the Scientific and Technical Council, the Council of Young Scientists, the Disciplinary Council, the Faculty Councils that ensure the management of the main educational, scientific and educational processes.

The organizational structure of EKTU is traditional and operates in accordance with the regulatory framework of the national education system. Traditional management principles contribute to a clear distribution of functional responsibilities, adherence to official subordination, and participation in collegial decision-making.

The Institute for Development and Advanced Studies carries out advanced training and retraining of personnel with higher education, production workers in more than 90 programs, and trains students with the qualification "Interpreter in the field of professional communication".

The university has a credit education system. Particular attention is paid to the content of the curricula of specialties and discipline programs. The catalog of disciplines is compiled taking into account the innovation policy of the university and the region. It includes such disciplines that take into account the development of market relations in the republic, such as innovative

activity, the basics of scientific research, patenting, the basics of entrepreneurship, the basics of standardization, modern technologies in the industry and others. On the basis of modern information technologies, an expert system is being developed to determine the trajectory of training and the choice of disciplines. Developing innovative education, the university conducts purposeful work to integrate education, science and industry. University schools have branches at large enterprises of the city and region, such as: JSC "Ulba Metallurgical Plant", LLP "KazZinc", JSC "Vostokmashzavod", DGP "VNIITsvetMet", JSC "Bipek-Auto", etc., as well as in the "Altai" Technopark", where the most modern technologies and equipment are concentrated. Close ties with these and other enterprises in the region make it possible to conduct all types of student practices in accordance with the concept of continuous practical training of students, working curricula and practice programs developed at the university. A significant part of the students during the period of practical training receives the necessary working professions, .3 skills of practical work. Graduating departments within the framework of educational programs or through additional types of training conduct courses in blue-collar occupations in a wide range of specialties.

In order to ensure the academic continuity of the stages of pre-university, university and postgraduate training of specialists, EKTU implements a multi-stage model of lifelong education through the opening of bachelor's, master's, doctoral and advanced training courses. Promptly responding to the needs of the regional market, VSTU introduces distance learning technologies, training in reduced educational programs based on technical professional and higher education. As a result, the working-age population gets the opportunity to retrain, get an additional specialty in an accelerated period and successfully find a job in a flexible and dynamically developing market. Educational programs 6B06101 - "Information Systems"; 7M06101 – " Information Systems»; 8D06101 – " Information Systems (by industry)", 7M06102 – "Computer Technology and Software "and 6B06102 -"Computer Technology and Software " are implemented by the School of Information Technology and Intelligent Systems according to the "Development Strategy" of the EP "Computer Technology and Software for 2019-2022", which sets out the goal to provide high - quality education to students, offering relevant and inspiring educational trajectories in accordance with modern development trends in IT industry and labor market needs.

Dean – Demina Irina Aleksandrovna, Candidate of Physics and Mathematics

Currently, the School consists of 3 departments, the heads of which are the heads of the EP.

Heads of EP: 6B06101 "Information systems"; 7M06101 "Information systems", 7M06102 "Computer equipment and software" – Zhomartkyzy Gulnaz; 6B06102 "Computer equipment and software "– Popova Galina Vladimirovna; 8D06101 "Information systems (by industry)" - Smailova Saule Sansyzbaevna.

The contingent of students on EP 6V06102 "Computing and software":

Year of study	Total	State Grant	On a paid basis
1	24	10	14
2	28	18	10
3	29	25	4
4	32	25	7
Total	113	78	35

The contingent of students on EP 7M06102 "Computing and software":

Year of study	Total	State Grant	On a paid basis
1	8	7	1
2	5	5	-
Total	13	12	1

The contingent of students on EP 6B06101 "Information Systems":

Year of study	Total	State Grant	On a paid basis
1	22	10	12
2	33	29	4
3	38	31	7
4	21	12	9
Total	114	82	32

The contingent of students on EP 7M06101 "Information Systems":

Year of study	Total	State Grant	On a paid basis
1	13	12	1
2	5	5	-
Total	18	17	1

The implementation of these educational programs is provided by the teaching staff who have basic education corresponding to the profile of the discipline taught, and are systematically engaged in scientific and / or scientific and methodological activities. Teachers of special disciplines have Candidate's degree, Doctor of Science and / or experience in the relevant professional field. Total number of teaching staff engaged in training students on EP 6B06101 - "Information systems"; 7M06101 – "Information Systems"; 8D06101 - "Information systems (by industry)", 06102 "Computing and Software" consists of 52 people, including 20 teachers with academic degree, 32 teachers with master's degree.

Employment of students is the main indicator of the effectiveness of the university. The University has a Career Center. The student can also get professional help in making career decisions and finding a job by communicating with teachers and attending events such as "Career Day", "Specialists Fair", "Night at the University", as well as meetings and conversations with representatives of employers. Employment of graduates of 2018 as of 22.04.2019 – 92.4%. Many graduates currently hold senior positions, information can be found at the link: [https://www.ektu.kz/departments/sc\\_ite/sub\\_departments/inf\\_tech/ourgraduates.aspx](https://www.ektu.kz/departments/sc_ite/sub_departments/inf_tech/ourgraduates.aspx).

Department for Internationalization and International Cooperation coordinates academic mobility programs at the university level. The University is systematically active in expanding the external mobility of teachers and researchers in international exchange programs. Every year, more than 25 teaching staff of the School participate in programs for academic and scientific exchange with foreign partner universities. The implementation of the program of external mobility of students under the EP "Computing and Software" continues; students Sorokin A., Bulgynov O., Baytenov Zh., Kamilov N., and Batyrkhanov B. trained abroad in the period from 2017 to 2019 years. On the university website by the link <https://www.ektu.kz/educationalactivities/ratings.aspx> is provided the information on the positions of the university in the world.

The faculty of School annually participate in competitions on selection of research projects for grants to perform scientific research. Currently, the staff of the School involved in the implementation of 5 scientific projects within the program-target and grant funding for



scientific research Committee of science of MES RK for 2018-2020. For example, senior lecturer Z. T. Khasenova, is the executor of the state funded research project on the topic "Development of a new information system and database for optimizing monitoring of atmospheric air pollution with heavy metals". The projects reflect current trends in the development of the economy, science, and technology.

Work on projects is carried out in the Center of Competence and Technology Transfer in the field of virtual and augmented reality.

According to the EP, the university presented acts on the implementation of the results of scientific research and innovative technologies in industry and the educational process.

#### **(IV) DESCRIPTION OF THE PREVIOUS ACCREDITATION PROCEDURE**

Education programs 6B06101 - "Information systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing and software"; 7M06102 - "Computing and software" are accredited by the IAAR in 2015.

#### **(V) DESCRIPTION OF THE EEC VISIT**

The work of the EEC was carried out on the basis of the approved Program of an on-line visit of the expert commission for specialized accreditation of educational programs at D. Serikbayev East Kazakhstan Technical University from 6 to 8 October 2020.

In order to coordinate the work of the EEC on 05.10.2020, an on-line meeting was held, during which powers were distributed among the members of the commission, the schedule of the visit was clarified, and agreement was reached on the choice of examination methods.

To obtain objective information about the quality of educational programs and the entire infrastructure of the university, to clarify the content of self-assessment reports, on-line meetings were held with the Rector, vice-rectors of the university in the areas of activity, heads of structural divisions, heads of educational programs, teachers, students, graduates, employers. 56 people took part in the meetings (Table 1).

Table 1-Information about employees and students who participated in on-line meetings with the EEC of IAAR:

<b>Participants</b>	<b>Number</b>
Rector	1
Vice-rectors	4
Heads of structural divisions	10
Deans	3
Heads of educational programs	3
Faculty	9
Students	10
Graduates	8
Employers	8
<b>Total</b>	<b>56</b>

During the on-line tour, the members of the EEC got acquainted with the state of the material and technical base, visited the Center of Competence and Technology Transfer in the field of virtual and augmented reality.

At the on-line meetings of the EEC of IAAR with the academy's target groups, the mechanisms for implementing the university's policy were clarified and certain data presented in the university's self-assessment report were specified.

EEC members visited the practice bases of accredited programs in an online format: 1C-Rating Enterprise, Kazzinc LLP. During the visit to these enterprises, it was noted that students not only master internship programs here, but also find a job after graduation. During the interview, a meeting with such students was organized. Kazzinc LLP also provides free internship programs with a duration of 1 year for students of EKTU.

Within the framework of the visit of the EEC, a visit to classes was organized. According to the assessed EP, the members of the EEC visited the classes of the following disciplines: "Internet technologies" teacher-Zyryanov D. N., "Design and administration of databases", teacher-Rohas Kriulko N. P. (EP-6B06102 Computing and Software), "Methods and algorithms of parallel programming", teacher - Waiss Yu.A. (EP - 7M06102 Computing and Software). Classes were held on the ZOOM platform, using presentations.

In accordance with the accreditation procedure, a survey of 19 teachers, 6 students, including junior and senior students was conducted.

In order to confirm the information provided in the Self-assessment Report, external experts requested and analyzed the working documentation of the university. Along with this, the experts studied the Internet positioning of the university through the official website of the university <https://www.ektu.kz/>.

Within the framework of the planned program, recommendations for improving the accredited educational programs of the EKTU, developed by the EEC based on the results of the examination, were presented at an online meeting on 8.10.2020.

## **(VI) COMPLIANCE WITH SPECIALISED ACCREDITATION STANDARDS**

### ***6.1 Standard "Management of Education Programme"***

#### ***Evidence Part***

EKTU has licenses and a certified quality management system since 2006. In accordance with ISO 9001: 2015 standards, the university has a published quality assurance policy [https://www.ektu.kz/files/abouttheuniversity/polit\\_2019ru](https://www.ektu.kz/files/abouttheuniversity/polit_2019ru) pdf. The quality policy was considered at the meeting of the QMS Coordination Council on October 7, 2019 and was approved by the Rector. The quality policy is periodically reviewed based on International standard ISO-9001: 2015, University strategic development programs for 2018-2021, ESG standards and directives, current results of the analysis of consumers' satisfaction of educational services and other stakeholders.

In addition, the university approved its policy (order No. 149-P of 05/04/2017), consisting of 12 structural policies, including academic policy, personnel policy, digital technology policy, etc. The policy is posted on the educational portal. Access to the document is authorized.

The university's quality policy provides for the improvement of the system of innovative education, the introduction of modern information educational technologies, an emphasis on practical orientation in training, a systematic approach to training specialists with competitive competencies, skills and are able to adapt to the conditions of modern society, the involvement of employers in the development and implementation process. It also includes education programs, the development of scientific and innovative activities through integration with the educational process, the solution of scientific and technical problems of industry enterprises in the region, integration into the global educational space through participation in international scientific and educational projects, in academic mobility programs. The university approved the DP "Internal monitoring of the quality of the educational process" (03/06/2018), which regulates the information support of the university management, based on a systematic standardized study of the main and supporting processes, conditions and results of their implementation.

In 2015, the Council of Employers for clusters of educational programs was created at the faculties in order to assist in the development of education programs for specialties, to determine

professional competencies in the qualifications framework of university graduates, focused on the needs of employers. (EKTU Regulation on the Council of Employers, 2015). At the meetings of the Council of Employers, the content of the MEP and EMCD, the curricula of the EP, as well as the topics of term papers and theses are discussed. External experts are heads of enterprises with big experience in their specialty and who have made a significant contribution to the development of the relevant industries in the country. Clusters of educational programs have been formed within the Council of Employers.

In 2018-2019 academic year in the cluster "Information and Communication Technologies" the Council of Employers included: Shimolin Sergey Vladimirovich - Director of the IT Center for PC "Kazzinc-Automation" LLP "Kazzinc"; Drat Sergey Yuliusovich - Technical Director of "KS Enterprise" LLP; Kotsur Valeria Sergeevna - Deputy Director for Development, "Rating" LLP; Demina Irina Aleksandrovna - HR head of JSC "Asia Auto Kazakhstan" (Protocol of the Faculty of UMC No. 1 of 29.08.2018).

The University implements joint / double-diploma education in 7 EPs with foreign universities and provides external and internal academic mobility of students and teaching staff. Commitment to quality assurance is spelled out in the DP "Academic Policy" (04/22/2019), in the "Regulations on joint educational programs of double-diploma education" (approved on 01/04/2016). When implementing joint / double-degree education, the university is guided by the top universities in the world rankings, in particular, in the QS WUR, QS EECA ranking.

In the direction of IT-technology, EKTU is the basic university according to the agreement of the programs of the University of the Shanghai Cooperation Organization (SCO). Currently, agreements have been concluded with leading universities in Russia and the CIS on the implementation of master's programs within the SCO: Novosibirsk State University, St. Petersburg National Research University of Information Technologies, Mechanics and Optics (NRU ITMO). Within the framework of cooperation with Russian universities in 2015-2019, 6 undergraduates of D. Serikbayev EKTU were trained in partner universities.

The procedure for admission and training under an agreed program of double-diploma education between partner universities was transferred to outsourcing. These requirements are spelled out in the document "Agreement on the joint training of qualified personnel for coordinated educational programs for the preparation of masters in the field of" IT-technology "within the University of the Shanghai Cooperation Organization" dated September 23, 2010.

The university developed a plan for the development of the EP for 2014-2019 (September 2014) and 2019-2022 (February 7, 2019). Development plan for the EP, the goals of the EP are formed on the basis of state development programs and annual messages of the President of the Republic of Kazakhstan, taking into account the results analysis carried out by the marketing and foresight center, and the results of the survey of students and employers. In the development, on an equal basis with the teaching staff, employers are involved, as interested in updating the organization's personnel and in improving the qualifications of employees, and students, as consumers, who directly receive educational services. According to the EP "Information Systems", specialists are trained by 74 universities across the Republic, of which 5 are located directly in East Kazakhstan region. Graduates are in demand in the regional labor market, as the region has a large number of large and small industrial enterprises and one of the distributors of 1C LLP "1C Rating" (distributors in Kazakhstan - 3). In connection with the digitalization of economic processes and the penetration of information technologies into all spheres of activity, the demand for IT specialists is constantly growing. In order to determine the development prospects for this EP, the Marketing and Foresight Center monitors the labor market, audit the EP, identifies a list of specialists in demand for the economy of the region and the country.

In accordance with the Development Strategy of the EP "Information Systems" for 2019-2022, the revision and update of modular education programs occurs once at the end of the academic year and is approved for the next academic year. The content of the EP is regularly updated taking into account the level of development of science, culture, economy, technology and social sphere.

In accordance with the "Regulations on the head of the EP", the head of the EP and employees of the Department for Academic Activities conduct annual monitoring and analysis of the EP's effectiveness, and develop corrective actions for its further implementation in order to increase its effectiveness. The criteria and indicators for the development of the EP are presented in the document "Development Strategy of the EP "Information Systems" for 2019-2022.

The results of the analysis on the availability of resources (financial, personnel) of the EP are presented in the form of the "Information card" of the EP on the university portal (<https://www.do.ektu.kz/Protected/HReports/Curriculum/SpecialtyCard.asp>).

Teaching staff, representatives of IT and manufacturing companies participated in the development of the development plan for the EP (bachelor's, master's): LLP "1C Rating", LLP "Kazzinc", JSC "Asia Auto Kazakhstan", LLP "Rating", LLP "Enterprise KS" and FE "Ekzis". Employers, as end consumers of the result of education, form their recommendations and requirements for training specialists, taking into account the prospects for the development of IT and the segment of the IT services market. Students, as consumers of educational services, form their interests and wishes, in which areas they want to get education and develop.

Specialists from other IT companies are reviewing the developed EP development plan in order to improve its content. For example, "KSI Factor" LLP has reviewed the EP development plan for 2014-2019 (Appendix 3).

In 2019, the EP of the doctoral program "Information Systems" was approved by the S. Amanzholov EKSU as the main customer of targeted grants for this training.

The goals of the EP development plan are consistent with the strategy of the School of Information Technology and Intelligent Systems and the University, and they clearly indicate the expected results. For example, the "Information Systems Development Strategy for 2019-2022" defines the goal "To provide high-quality education to students, offering relevant and inspiring educational trajectories in accordance with modern development trends - the IT industry and the needs of the labor market".

The University has developed the Regulation "Risk Management" (approved on 02.07.2018). The purpose of the risk management process is to conduct risk analysis, plan actions to address risks, implement these actions in the processes of the quality management system and make decisions on improvement. The University is exposed to risks from external and internal sources. The risks are spelled out in the Strategic Development Program for 2018-2021. For example, on the basis of SWOT-analysis was identified the risk of "Outflow of potential students to universities of the capital and neighboring regions of Russia", resulting in strengthened career guidance (Conducting "open Day"; the project "School-UNIVERSITY" in which the faculty holds EP optional classes in ICT, etc.).

### ***Analytical part***

EKTU has a published quality assurance policy in which the interaction between teaching, learning, business community and the university plays a key role. This is evidenced by the fact that the strategic plan with the mission and vision is posted on the University website (<https://www.ektu.kz>). The university approved the DP "Internal monitoring of the quality of the educational process" (03/06/2018), which regulates the information support of university management, based on a systematic standardized study of the state of the main and supporting processes, conditions and results of their implementation. The goals of the EP development plan are consistent with the strategy of the School of Information Technology and Intelligent Systems and the University; they clearly indicate the expected results. To maintain the effectiveness of education programs, activities are carried out to further improve the content of the EP.

The EEC confirms that the university leadership has demonstrated its openness and accessibility for students, teaching staff, and employers: the hours of admission on personal matters are determined, meetings with the Rector are held on a systematic basis.

A survey of the teaching staff, conducted during the visit of the EEC IAAR, showed that

- satisfaction of the needs of teaching staff by the content of EP: very good - 43.2%, good - 51.4%, relatively bad - 2.7%, very bad - 2.7%;
- the involvement of teaching staff in the process of making managerial and strategic decisions: very good - 18.9%, good - 43.2%, relatively bad - 29.7%, bad - 2.7%, very bad - 5.4%. However, EKTU does not have a training program for educational management programs for EP managers.

The University has a Council of Employers for clusters of educational programs in order to assist in the development of educational programs for specialties, to determine professional competencies in the qualification framework of university graduates, focused on the needs of employers.

External experts are heads of enterprises with extensive experience in their specialty and who have made a significant contribution to the development of the relevant industries in the country. Clusters of educational programs have been formed within the Council of Employers.

Advanced training is a condition for the effective performance of an employee's professional tasks; in EKTU, it is associated with improving professional competencies or obtaining a new competence necessary to improve the professional level within the existing qualifications. The EP's management must also undergo training in educational management programs; the EEC commission was presented with documents on advanced training by the EP leaders, but with the exception of management programs. It is necessary to consider the possibility of training heads of EP in educational management programs.

#### ***Strengths/Best Practices***

1. The University adheres to the quality assurance policy (Order No. 149-P of 04.05.2017), which consists of 12 structural policies, including academic policy, personnel policy, digital technology policy, etc.
2. The University has developed the Regulation "Risk Management" (approved on 02.07.2018). The purpose of the risk management process is to conduct risk analysis, plan actions to address risks, implement these actions in the processes of the quality management system and make decisions on improvement. Thus, the university strives for sustainable quality assurance, taking into account previous progress and risks.

#### ***EEC Recommendations***

1. Constantly improve the content and structure of the EP, including the variability of elective disciplines and the implementation of practical training taking into account the needs of the market.
2. Organize a program of advanced training in educational management programs for the management of the EP.

***Conclusions of the EEC on the criteria of the standard "Management of Educational Programme": education programmes 6B06101 - "Information systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing and software"; 7M06102 - "Computing and Software" have 2 strong, 14 satisfactory positions and 1 position requiring improvement.***

### ***6.2 Standard "Information Management and Reporting"***

#### ***Evidence part***

The university has a system for collecting, analyzing and managing information based on the use of modern information and communication technologies and software tools that allows you to effectively manage information and generate reports.

The website - [www.ektu.kz](http://www.ektu.kz) (in three languages) and the educational portal of the university are a unified system of information support for students and teaching staff.

The educational portal of EKTU is a system for organizing and managing the educational process, which allows you to take advantage of modern innovative technologies in science and education, taking into account the economic, regulatory and other features associated with training at a technical university.

SPORTAL is an integrated software and hardware platform for university management, which includes:

1) web application "Educational and educational portal" ([www.do.ektu.kz](http://www.do.ektu.kz)), belonging to the type of B2E portals (business to employee) and providing a unified information and communication space of the university, access to which is carried out both from the corporate network, and from the Internet;

2) SPortal information and software complex, which provides information support and automation of the main functions for the operational management of the educational process (used to administer and edit information stored in the database);

3) database server (database) is a computer that hosts the SPORTAL database under the control of Microsoft SQL Server DBMS, interacting with the web application "Educational Internet portal of the university" located on the web server;

4) a web server is a computer that runs Microsoft Internet Information Services, designed to operate and host Internet sites.

Information management processes are carried out in accordance with the DP "EKTU Educational portal" (DP EKTU 602-VI-2018). The development and maintenance of the educational portal - SPORTAL is carried out by DIT.

The transparency of the assessment of students is carried out using an electronic journal of progress and attendance, which teachers have access to under their login and password.

The systematic use of processed, adequate information to improve the internal quality assurance system and its continuous improvement is detailed in the Quality Manual (<https://www.do.ektu.kz/laws/smk/rukXIV-2019.pdf>).

On the part of the Center for External Assessment and Quality Management, on the basis of the DP "Internal Audit", internal audits are carried out on all processes implemented in the structural divisions of the university.

Within the EP, a system of regular reporting is carried out, reflecting all levels of the structure, including an assessment of the effectiveness and efficiency of the departments.

To improve the internal quality assurance system, the university conducts audits of educational programs. The university has developed and documented procedures for monitoring, evaluating and updating the EP: "Internal audits" (DP EKTU 801-IX-2018), "Internal monitoring of the quality of the educational process" (DP EKTU 811-III -2018). In VKTU them. D. Serikbayev, The following types of monitoring as internal monitoring of education quality, internal administrative control, and special research are held at D.Serikbayev EKTU.

Systematic internal monitoring of education quality is carried out within the framework of functional duties by university staff, as well as by specially created commissions organized by areas of activity (educational, scientific, production); within the framework of internal audits, inspections of labor and production discipline by the administration and the personnel department. The results of the analysis of inspections and audits are presented in the form of acts, certificates, memos and are considered at meetings of the collegial bodies of EKTU (Academic Council, Administration, Coordination Council for QMS, UMSU, etc.).

Within the framework of internal monitoring of the quality of the educational program, the results of data analysis obtained from the following types of questionnaires are used (a questionnaire for evaluating an educational program, a feedback questionnaire on a discipline, an analysis of the quality of conducting training sessions, polls "Teacher through the eyes of students", "Teacher through the eyes of colleagues", "University through the eyes of graduates", Employers survey, "Freshmen survey"), etc. Analysis of certain types of surveys and

questionnaires allows assessing the formation of graduates' competencies based on the results of mastering the educational program. Surveys are conducted in accordance with DP EKTU 805 "Collecting and analyzing information on customer satisfaction". In addition, in the student's personal account, questionnaires on the assessment of the EP are available.

Constant monitoring and periodic assessment of accredited EP is also carried out taking into account the proposals of students participating in the selection and formation of a list of elective disciplines, the development of graduate work topics, as well as opinions and suggestions of students and employers based on the results of professional practice, proposals of the chairmen of the SAC. The demand for graduates in the labor market and the recognition by employers of the quality of specialist training are taken into account.

The education program "Information Systems" occupies a leading position in the Republican rating of the NCE "Atameken". In 2018 it took the 3rd place (out of 66 universities), in 2019 5th place (out of 56 universities).

The university has developed a number of internal documents defining the procedure and ensuring information protection, they contain persons responsible for the accuracy and timeliness of information analysis and data provision. These are the following documents: "Regulations on the corporate computer network of D. Serikbayev EKTU" (approved on May 16, 2018)," Document flow regulations "(approved on December 10, 2018), DP" Protection of electronic information resources "(approved on May 16, 2018), "Educational portal"( approved on 03/14/2018), "Information site" (approved on 03/07/2018), "Regulations on commercial secrets of the RSE on the REM "D. Serikbayev EKTU" (approved on June 29, 2018).

### ***Analytical part***

According to the analysis of compliance with the criteria of the standard "Information Management and Reporting" for accredited EP, the commission notes the following.

The University ensures the effective functioning of the system for collecting, analyzing and managing information based on the use of modern information and communication technologies and software.

The university strictly regulates the procedure for ensuring the protection of information, indicating the responsible persons from the DIT. The information analyzed by the EP management takes into account the availability of educational resources and support systems for students. The university operates social networks, etc., and has access to Wi-Fi.

The university provides monitoring and assessment of the degree of satisfaction of the needs of teaching staff and students within the EP and provides feedback in the form of eliminating the identified deficiencies.

A survey of students showed:

- the usefulness of the website of educational organizations in general and faculties in particular - completely satisfied - 66.7%, partially - 30.3%, find it difficult to answer - 3%;
- informing the requirements in order to successfully complete this specialty - fully satisfied - 78.8%, partially - 18.2% find it difficult to answer - 3%;
- informing students about courses, educational programs, and academic degrees - fully satisfied - 75.8%, partially - 24.2%.

### ***Strengths/Best Practices***

1. The university has developed a number of internal documents defining the procedure and ensuring information security, they contain persons responsible for the accuracy and timeliness of information analysis and data provision.

2. The EKTU educational portal is a system of organization and management of the educational process, which allows students to take advantage of modern innovative technologies in science and education, taking into account the economic, regulatory and other features associated with training at a technical university.

### ***EEC Recommendations***

1. The EP management should strengthen the reporting system, including the assessment of the effectiveness and efficiency of the subdivisions, scientific research and their interaction, by involving all categories of stakeholders in this work.

***EEC conclusions on the criteria of the standard "Information Management and Reporting": education programs 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing and software"; 7M06102 - "Computing and Software" have 2 strong, 15 satisfactory positions.***

### ***6.3. Standard "Development and Approval of the Educational Programmes"***

#### ***Evidence Part***

The University approved the Regulation "Designing an education program" (dated 04.22.2019), which regulates the procedure for developing EP and its approval. Revision and updating of education programs occurs once at the end of the academic year and is approved for the next academic year.

"Regulations on the head of the education program" (approved on August 29, 2019) regulates the functional responsibilities of the EP coordinators.

The educational program (EP) is developed for the entire period of study by the Academic Committee, which includes university employees, employers and students. It is discussed at a meeting of the UMC department (Minutes No. 8 dated 04.16.2019), agreed with the chairperson of the Academic Council (04.29.2019), is considered at a meeting of the UMSU and approved by the Rector of EKTU (05/17/2019). The EP contains a complete list of academic disciplines, grouped by modules from the cycles of basic (BD) and profiling disciplines (PD), both for compulsory and elective components, indicating the labor intensity of each academic discipline in credits and academic hours. Specialists of the leading enterprises of production and IT industry such as "Kazzinc" LLP, "Asia Auto Kazakhstan" JSC, "Rating" LLP, "Enterprise KS" LLP take part in drawing up and adjusting the content of the EP. Representatives of one company participate in the development and others in the review and examination of the EP. The wishes and recommendations of the heads of IT services of the leading enterprises of the republic and the city are documented.

The goals of the EP are clearly defined in accordance with the strategic goals of the university and the priority areas of development of the IT industry. The achievement of the goal is determined by compliance with the qualification of the NRC, compliance of the acquired competencies of the graduate with the labor functions approved in the professional standards.

The results of training in the program correspond to the selected level of the educational program (bachelor's, master's, doctoral). Compliance with the requirements for learning outcomes at different levels is set by the Dublin Descriptors and the National Qualifications Framework.

The management of EP 6B06101-Information systems provides the developed models of EP graduate describing learning outcomes and personal qualities. They are indicated when designing an educational program in the form of a specialist's competence map, which includes the key competencies and learning outcomes. A group of the following competencies represents the competence map of a specialist in a bachelor's degree program: general competencies (GC), basic competencies (BC) and professional competencies (PC). When designing the competence map, the integrative result of mastering the educational program demanded by the employer is considered. A graduate model for EP 5B070300 is available by the link: [https://www.ektu.kz/files/fite/is/model/model\\_issue\\_5b070300 . pdf](https://www.ektu.kz/files/fite/is/model/model_issue_5b070300.pdf), for EP 6M070300



([https://www.ektu.kz/files/fite/is/model/model\\_issue\\_6m070300 . pdf](https://www.ektu.kz/files/fite/is/model/model_issue_6m070300.pdf)). Employers and students who pass the questionnaire are involved in the development of competence maps (graduate models). After the development of the educational program, an expert opinion is conducted by top-level specialists in the field of IT, the results of which are taken into account when discussing at a meeting of the department (school) for making changes and amendments.

Positive expert opinions on the Bachelor's degree were received from enterprises: "Rating" LLP, "KIS Factor" LLP, and "Kazzinc" LLP. Experts note that the content of the EP meets the international requirements for training highly qualified specialists.

The Bachelor's degree program "Information Systems" occupies a leading position in the National rating of NCE "Atameken". In 2018, it took the 3rd place (out of 66 universities), in 2019 it took the 5th place (out of 56 universities). In the National rating of universities of Kazakhstan for 2018 doctor's EP "Information systems (by industry)" took the 2nd place, master's EP "Information systems" – the 8th place.

The qualification obtained by graduates upon completion of the EP "Information Systems" is clearly defined in the passport of the EP, explained to students and corresponds to a certain level of the NSC. The qualification characteristic of the graduate includes the field, object, types, and functions of professional activity. The university in the conditions of reorganization of departments and creation of centers of competence and technology provides an opportunity to prepare students for professional certification. The University has a concept of constant practical training of students. One of the main tasks of computing (educational) practice in the first year is the acquisition by students of a working profession with the qualification "PC Operator". Having mastered the disciplines related to programming in 1C, students have sufficient knowledge to successfully pass the test for obtaining a professional certificate "1C Professional". After receiving this certificate, it is possible to pass the exam for the professional certificate "1C Specialist".

There is a joint educational program within the framework of the University of the Shanghai Cooperation Organization (SCO) for the Master's degree. Partner universities are: Novosibirsk State University (NSU), St. Petersburg National Research University of Information Technologies, Mechanics and Optics (NRU ITMO). A project of a two-degree program for the implementation of joint training of masters on the basis of EP 7M06102 "Computing and Software" with the National Research Nuclear University "MIPhI" of the Russian Federation is being developed.

### ***Analytical Part***

The university strictly regulates and documents the procedures for the development of EP and their approval at the institutional level.

There is a good connection and influence of disciplines and professional practices on the formation of learning outcomes.

External examinations of EP have been carried out in sufficient volume.

EKTU demonstrates the introduction of courses from employers, and the report notes that in the context of the reorganization of departments and the creation of centers of competence and technologies, it provides an opportunity to prepare students for professional certification, at the same time in online meetings and interviews with faculty and students was noted the lack of certification of EP due to various circumstances. It is recommended to provide the possibility of professional certification of students.

For accredited EP, there are joint double-degree master's programs with foreign universities.

The EP management showed that the developed graduate model characterizes a specialist capable of performing professional functions and specific duties, able to successfully interact with people and striving for self-improvement. The graduate competence model becomes the

basis for the design of the educational process in the form of a model for training a specialist - a bachelor. The survey of students showed the following results:

- the level of implementation of these rules and strategies of the EP: fully satisfied-66.7%, partially satisfied-30.3%, difficult to answer-3% –
- informing students about courses, educational programs and academic degrees: fully satisfied-75.8%, partially satisfied-24.2%;
- the overall quality of the curriculum – completely satisfied – 63,6%, partly accounted for 36.4 per cent.

#### ***Strengths/Best Practices***

1. The university strictly regulates and documents the procedures for the development of EP and its approval at the institutional level.
2. There is a good connection and influence of disciplines and professional practices on the formation of learning outcomes.
3. The academic community and employers who are professional specialists in a particular subject area are involved in conducting an external independent examination of the EP.

#### ***EEC Recommendations***

1. To organize work in the field of training students for professional certification in EP.
2. Provide bachelor's degree analysis of the effectiveness of contracts and agreements with foreign educational organizations.

***Conclusions of the EEC on the criteria of the standard "Development and approval of educational programmes": EP 6B06101 - "Information systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing and software"; 7M06102 - "Computing and Software" have 2 strong, 9 satisfactory positions and 1 position requiring improvement.***

### ***6.4. Standard of "On-Going monitoring and Periodic Review of Educational Programmes"***

#### ***Evidence Base***

The university systematically monitors and periodically evaluates educational programs. The Center for Marketing and Foresight of the University is constantly researching the relevance and prestige of the university's specialties in the East Kazakhstan region. The studies cover more than 100 enterprises of the East Kazakhstan region. These enterprises represent all key sectors of the regional economy - mining and metallurgical complexes, mechanical engineering, energy, construction, transport and others. They are the enterprises that employ university graduates. For example, the research conducted in 2018 showed the most demanded specialties for the region: Information systems; Computing technology and software; Automation and control; Construction; Power engineering; Mathematical and computer modeling; Metallurgy; Radio Engineering, Electronics and Telecommunications; Instrumentation; Transport, transport equipment and technology; Mechanical engineering.

Changes in educational programs are made at the stages of adjusting the content of goals, the structure of the program, designing curricula and correcting the working programs of academic disciplines. At the meetings of the department, the contents of the EP are periodically analyzed (protocol No. 9, May 25, 2017; protocol No. 6, February 12, 2019). According to the EP, monitoring of the student's progress is carried out, the tools of which are presented on the educational portal.

The Diploma Supplement (Transcript) records the last grades for each academic discipline according to the point-rating letter system of knowledge assessments, indicating its volume in credits and academic hours. The transcript is issued at the request of the student for any period of his training.

Every year, once at the end of the academic year, educational programs are reviewed and updated and approved for the next academic year. The EP is regularly updated taking into account the level of development of science, culture, economy, technics, technology and social sphere.

New disciplines appear in the EP that meet the needs of the market, links with the development of the IT industry. Some disciplines have been added such as "Designing mobile applications", "IT infrastructure", "Fundamentals of ensuring fault tolerance of software components", "Data mining".

Due to the need for specialists with the skills to work and analyze with big data in 2018 the EP "Big data systems" was developed for the magistracy by the specialty "Information Systems". The content of these programs was agreed with the specialists of Kazzinc LLP, KS Enterprise LLP and 1C-Rating LLP and with professors of the Lublin Polytechnic University and Obuda University (Hungary).

Monitoring of the student's progress is carried out on the educational portal in the section "Performance" in the item "Journal of the current student's progress".

The School carries out a systematic analysis, monitoring of the current EP, its compliance with this contingent of students, based on the results of the analysis, changes are made to the structure and content of the EP.

All student assessment processes, including appeal, are described in the documented procedures DP EKTU 701-I-2019 Academic Policy, DP EKTU 807-VI-2019 Cross-border control of students' knowledge, DP EKTU 808-VI-2019 Final control and assessment of students' knowledge. Exams are held in accordance with the regulations and instructions P EKTU 2019 Regulations on the procedure for organizing and conducting examinations in writing, and EKTU 808.01-V-2019 Procedure for conducting exams.

At the university, in order to practically implement the concept of independent and objective control of students' knowledge during the examination session, the procedure of computer testing was used. In recent years, its share amounted to 45% of the total number of exams. As a candidate for joining the League of Academic Integrity, the university has revised the ratio of exam forms for the summer session 2018-2019 academic year. years: written and oral - 60%, in the test form - 40%. The list of disciplines with an indication of the exam form was approved by the rector of the university. During the summer examination session of the 2018-2019 academic year, written examinations were organized using the "blind check" method (including with the involvement of the teaching staff of other universities). From the 2019-2020 academic year, this ratio was 90:10.

According to the Regulation "On the Head of the EP" (approved on August 29, 2019), he is responsible for revising and updating the EP, for the annual update of the EP development strategy.

Questions about professional practice and employment of graduates are resolved with the obligatory participation of employers. Annually D. Serikbayev EKTU held a "Fair of specialists" for graduate students and other students. On the "Career Day" round tables are held with representatives of production, teaching staff, and students. The purpose of these activities is the further employment of students completing their studies in educational programs of bachelor's and master's degrees. The event was attended by representatives of leading manufacturing and IT companies.

The effectiveness of the changes implemented by the EP is assessed according to the results of academic performance and the quality of training of students. When planning an EP for each specific discipline, a reference to the fundamental strategic documents of the Republic of Kazakhstan is provided. In the course of analyzing changes in the labor market, the opinions of

students and teaching staff and the social demand of the society the educational program and working curricula are revised and adjusted in all disciplines as well as programs of practice, intermediate control, and certification for compliance of the content of disciplines of the elective component with the curriculum. They are revised for the professional orientation of elective disciplines of basic and profiling cycles, for the relationship reflection of the studied disciplines of basic and profiling cycles with disciplines of other cycles, for duplication exclusion in the content of disciplines, for the compliance of the types of independent work with the requirements for graduates contained in the EP, for the compliance of intermediate control programs, final certification and diagnostic tools for knowledge assessment with the requirements for graduates. If inconsistencies of corrective actions are identified, changes are assumed to be made in the educational documentation: the working curriculum of the specialty; working curricula of disciplines; lecture courses, practical training plans, practice programs; teaching materials for students and teaching staff; the content and procedure for conducting intermediate and final attestations.

The interests of employers are represented by: 1C Rating LLP, as one of the three distributors of 1C in Kazakhstan, KSI Factor LLP, as a member of IT associations, Kazzinc LLP and Asia Auto Kazakhstan JSC, as one of the city-forming manufacturing enterprises, and other interests of the students were represented by A. Kamelova, as a participant and prize-winner of subject Olympiads, Zh.Baytenov, as a student of academic mobility at the Lublin Polytechnic University (Poland), etc.

The management of the EP annually revises and updates educational programs with the involvement of employers from production (LLP Ust-Kamenogorsk Condenser Plant, LLP Kazzinc, LLP Sinetic, LLP Enterprise KS, JSC Kaspi Bank, LLP 1 -C Rating ", LLP" Rating ", LLP" KSI FACTOR "), as well as in the development of curricula, the departments take into account the results of the survey of employers conducted by the Center for External Assessment and Quality Management, the questionnaire "Satisfaction of the EP" of students, as well as the results of the survey "Evaluation of the educational program" of graduates. Students are directly involved in the development of the EP.

Within the framework of EP 6B06101 - "Information Systems" on the basis of sectoral and national qualification frameworks, the state compulsory standard of higher and postgraduate education approved professional standards in the 2016-2017 academic year. The disciplines were recommended in the following areas: "Models and methods of management", "Design mobile applications "(LLP" Kazzinc Avtomatika ", LLP" Enterprise KS ").

In the 2017-2018 academic year disciplines were recommended in the following directions: mobile technologies and services, the development of corporate information Systems of the ERP class, "IT infrastructure" (LLP "Enterprise KS", LLP "1-C Rating")

In the 2018-2019 academic year there were assumed such disciplines as design and administration of databases, software development (LLP "1-S Rating", LLP "Rating", JSC "Asia Auto Kazakhstan").

In the 2017 -2018 academic year according to the EP 7M06101 - "Information Systems" of the magistracy disciplines are recommended in the direction of the development and implementation of the big data systems, cloud technologies, computational linguistics and artificial intelligence, the development of the infrastructure of an enterprise and organization (Kazzinc-Avtomatika JSC, LLP "Enterprise KS", LLP "Ust-Kamenogorsk Condenser Plant").

In the 2018-2019 academic year disciplines were recommended in the following areas: data visualization, applied aspects of machine learning, tools for processing big data (Asia Auto Kazakhstan JSC, Inkom Kazakhstan LLP, Almaty; Branch of Vertiv Guch Systemlery Limited Shirketi in RK, Almaty).

After the completion of all procedures for making adjustments / changes to the EP, all interested participants are informed about the upcoming adjustments / changes. Informing all interested persons about any actions in relation to the EP occurs using the University website

(www.ektu.kz), electronic means of communication (e-mail, media) and distribution of printed information.

### ***Analytics***

Monitoring and periodic evaluation of educational programs in Non-profit joint-stock company «D.Serikbayev East Kazakhstan technical university» MES RK are carried out on a systematic basis in order to ensure the achievement of the goal and meet the needs of students and society. This is evidenced by the fact that the MEP is regularly updated not only structurally, but also substantively, while the requirements of the labor market, employers, students, teaching staff and chairmen of the State Attestation Commission are taken into account when developing elective courses, developing the content of the professional practice program and choosing the topic of graduation theses. The analysis of the effectiveness of the accredited EP is carried out during the entire period of its implementation.

Curricula are considered at academic committees in areas of training, which include: teaching staff, employers, students / undergraduates who develop EP in accordance with the interests of stakeholders. The approval of curricula is carried out at meetings of the Academic Council of the University.

According to the requirements of employers and strategic partners the university is adjusting the educational program to ensure its competitiveness and relevance in the educational services market. To study the needs and opinions on the quality of training of graduates, a survey of representatives of all interested parties (students and employers) is carried out. All information about the EP is posted on the university website <https://www.ektu.kz/educationalprograms.aspx>. However, during the verification period of the External Expert Commission (EEC) the site partially presented the old-style EP. During the EEC survey the students noted that the course program was clearly presented: full agreement - 48.5%, agree - 48.5%, partially agree - 1%, and the course content is well structured: full agreement - 51.5%, agree - 36.4%, partially agree - 9.1%.

### ***Strengths / Best Practice:***

1. Monitoring and periodic evaluation of educational programs in Non-profit joint-stock company «D.Serikbayev East Kazakhstan technical university» MES RK are carried out on a systematic basis.
2. The management staff of university reviews the content and structure of the educational programs with the participation of teaching staff, students and employers and improves the forms of cooperation with employers.
3. The university strictly regulates and describes the processes of student assessment, including appeal.

### ***EEC recommendations:***

1. Ensure the completeness and timeliness of the information field of the site in accordance with the requirements of openness and accessibility of information for persons interested in the design and development of educational programs.

***The EEC results on the criteria of the standard "On-Going monitoring and periodic review of educational programmes" are 10 satisfactory positions for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information Systems (by industry)"; 6B06102 - "Computing Technology and Software"; 7M06102 - "Computing Technology and Software".***

## ***6.5. Standard "Student-Centered learning, Teaching and Performance Evaluation"***

### ***Evidence Base***

The University provides equal opportunities for students in the formation of an individual educational trajectory. The individual educational trajectory of a student is determined by registering students for elective disciplines.

The result of the registration of students is the formation of an individual curriculum (IEP), which reflects the academic disciplines (indicating the number of both credits) of a mandatory component and an optional component (elective disciplines). Registration of students for the study of elective disciplines is organized by deans and advisors; registration of students is controlled by the registrar's office.

D. Serikbayev EKTU has a system of electronic registration of students for elective courses as well as an electronic registration system for the selection of students and the formation of IEP <https://www.do.ektu.kz/protected/electivediscipline/Default.aspx?lang=ru>  
The university conducts training in Kazakh, Russian, and English which makes it possible to receive education in the native language of the student.

In order to implement student-centered learning and teaching, the management of the Information Systems EP provides timely information to students about the educational program (bachelor's degree [https://www.ektu.kz/departments/sc\\_ite/eduproglis/undergraduate.aspx](https://www.ektu.kz/departments/sc_ite/eduproglis/undergraduate.aspx), master's degree [https://www.ektu.kz/departments/sc\\_ite/eduproglis/magistracy.aspx](https://www.ektu.kz/departments/sc_ite/eduproglis/magistracy.aspx), doctoral studies [https://www.ektu.kz/departments/sc\\_ite/eduproglis/doctorate.aspx](https://www.ektu.kz/departments/sc_ite/eduproglis/doctorate.aspx)), the criteria and procedures used to assess learning outcomes DP EKTU 807-VI-2019 "Mid-term control of students' knowledge", about exams 808-VI-2019 "Final control and assessment of students' knowledge", DP EKTU 809-II-2019 "Final certification of students".

EP involves the following methods and forms of training:

1) Online courses on the Moodle platform, help to organize the educational process based on the blended learning. The educational concept "Blended learning" combines traditional learning with distance and online methods. In the blended learning format, each student can work with the materials independently, in a convenient mode build a flexible schedule, increase interactive interaction between the participants in the educational process.

2) Organization of the learning process using distance learning technologies. For the specialties "Information Systems" and "Computing Technology and Software" (bachelor's degree) distance educational learning technologies are used. The organization of the educational process using distance educational technologies is carried out for the development of educational programs by students in accordance with the academic calendar.

3) The implementation of the results of diploma projects and works into production. The School implements an innovative model of continuous practical training of students. Project-based learning technologies are actively being introduced. According to the technologies course projects in the disciplines "Information systems of enterprises", "Design of databases", "Design of information systems" and graduation projects are carried out on the basis of data collected during the period of industrial practice. At least 50% of graduation projects (works) have an innovative focus, some of which are introduced into production.

For a better understanding of theoretical material by listeners, all lectures are accompanied by a transcript which can be used even by a listener with a weak level of English proficiency

To stimulate the independence and autonomy of students in the educational process such teaching methods are used as creating projects, preparing public speeches, artificially creating uncertainty or problem situations, preparing professionally directed videos and presentations.

To carry out the appeal procedure during the intermediate control of students' knowledge for the period of the winter and summer examination sessions an appeal commission is created, consisting of chairman, deputy chairman, and secretary. If it is necessary, the chairman of the appeal commission engages the teaching staff of the sub-departments that have not been included in the commission to consider appeals. This procedure is described in detail in the document "Final control and assessment of students' knowledge of EKTU".

The university has an established system for responding to complaints and recommendations from students and parents. Texts of appeals received in the Rector's blog

(<https://www.ektu.kz/blogs/rector/questionsList.aspx>) regarding the quality of training specialists are transferred to the Academic Activities Department, the dean's office of the School of Information Technologies and Intelligent Systems for further decisions. The University ensures the objectivity of the assessment of knowledge and the degree of formation of professional competencies of students.

Within the framework of student-centered learning and teaching, clear criteria and objective sequential procedures for assessing progress are used that comply with the established rules and aimed at achieving the planned learning outcomes and EP goals. The weekly mandatory completion of the gradebooks and attendance books by teachers ensures transparency of the assessment mechanisms. The student can see the level of achievement of the planned learning outcome through the electronic gradebook. In the student's personal account the portfolio of teachers conducting his classes, university news, and announcements are available to the student. Also, a student can ask a question to the teacher, seek advice and receive feedback from him. The student, at the authorized entrance, has access to his learning results in the electronic gradebook. For the heads of the university, departments, and sub-departments information on a student progress is available. The documented procedure "Final control and assessment of students' knowledge of EKTU" (808-VI-2019) defines the approved forms of final certification.

#### ***Analytics***

Students express satisfaction with the level of quality of teaching and assessment of learning outcomes. The Commission notes that the University strives to develop objective means for assessing the knowledge of students and provides equal opportunities for students in the formation of an individual educational trajectory.

A survey of students showed the following satisfaction results:

- fairness of examinations and attestation: completely satisfied - 63.6%, partially satisfied - 12.1%, find it difficult to answer - 6.1%;

- timely assessment of students: completely satisfied - 84.8%, partially satisfied - 12.1%, find it difficult to answer - 3%;

The university has an established system for responding to complaints and recommendations from students and parents

The management of the university provides a variety of opportunities to satisfy student-centered learning through the use of various forms and methods of teaching, learning and assessment of learning outcomes, with the exception of their own research in the field of teaching methods of educational disciplines of EP.

A survey of students showed that, in general, all students are provided with equal opportunities: "Full agreement" - 75.8%, "Agree" - 18.2%, "Partially agree" - 6.1%.

#### ***Strong point / best practice:***

1. The EP management demonstrated the existence of a procedure for responding to student complaints.

#### ***EEC recommendations:***

1. It is recommended periodically, at least once every 5 years, to improve the qualifications of assessors since these persons must be familiar with modern methods of assessing learning outcomes.

***The EEC results on the criteria of the standard "Student-centered learning, teaching and performance evaluation" are 9 satisfactory positions and 1 position requiring improvement for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing Technology and Software"; 7M06102 - "Computing Technology and Software".***

## 6.6. Standard “Students”

### *Evidence Base*

At the university the procedures governing the life cycle of students (from admission to completion) are regulated by the following documents:

Regulation “Rules of admission to study at D. Serikbayev EKTU by one of the educational programs of higher education in 2019” (14.02.2019).

Regulation “Rules of admission to study at magistracy and doctoral course of D. Serikbayev EKTU (04/22/2019)

DP “Preparation of Bachelors”

DP “Preparation of Masters at D. Serikbayev EKTU”

DP “Preparation of PhD doctors at D. Serikbayev EKTU”.

The university conducts a systematic career guidance work. There is a career guidance department that organizes and conducts events. In all events electronic registration and an excursion are carried out, handouts are provided. The schools of the university, educational programs, and admission opportunities are described in details.

The Olympiad "Leader" Zhastalap - KZ" is annually held by the University for the students of the secondary general and vocational education institution. The winners of the Olimpiad become holders of a grant from the rector of D. Serikbayev EKTU.

Work is being successfully carried out to provide applicants with information about the university, faculties, and specialties. For this purpose, advertising materials are issued: information booklets about specialties, admission rules; posters; special editions of the newspaper "For Knowledge"; advertising and information stands, detailed information on the permanent website of the university ([http:// www.ektu.kz](http://www.ektu.kz)).

On November 6, 2017 School of Information Technology and Intelligent System and the Education Department of the East Kazakhstan region "School-University-Enterprise" launched a joint project. The contests on the theme "My future profession" were held in Ayaguz, Taskesken, Urjar, and Makanchi. As part of the implementation of the program to improve the competitiveness of regional universities «Білікті маман» and to popularize engineering education the department organized engineering classes on the basis of Physics and Mathematics secondary school No. 25 and Oralkhan Bokey Lyceum No. 44. One of the most effective forms of interaction with potential applicants is the implementation of research projects for senior students of school and their further participation in the International scientific and technical conferences of students, undergraduates, and young scientists "Creativity of the Young for Innovative Development of Kazakhstan".

In 2017 on the basis of the Department of Information Technologies a regional foresight seminar «Болашақ мамандары» was held. The seminar was aimed at developing engineering competencies in the following areas: "Programming", "Electronics and Mechatronics", "3D Modeling and Prototyping". The basis of the foresight is the joint work of the seminar participants - “Map of the Future”. On the “Map of the Future” the foresight participants with the help of a moderator present a step-by-step development plan, gradually creating a map of future IT competencies.

Meetings with the deans of schools, heads of EP, advisers are held for the adaptation of 1st year students. Excursions are organized around the university: laboratories, registrar's office, library, dean's offices. For newly enrolled students, an orientation week is held to familiarize themselves with the educational and methodological documentation. First-year students are given guidebooks (posted on the portal [https://www.do.ektu.kz/doektu/media/42805/guide%202018-19\\_ru.pdf](https://www.do.ektu.kz/doektu/media/42805/guide%202018-19_ru.pdf)). Students are also offered catalogs of elective disciplines for educational programs (<https://www.do.ektu.kz/doektu/Default.aspx?lang=ru>). Annual survey of freshmen allows to identify the problems of adaptation of freshmen at the university (<https://www.ektu.kz/abouttheuniversity/qms/poll.aspx>).



The university also provides training at the Faculty "Foundation". The "Foundation" program is an intensive academic, scientific and linguistic preparation of students for undergraduate programs. The goal is to prepare students of the foreign Kazakh diaspora and foreign citizens for admission to the university, to help them undergo adaptation and develop academic learning skills. Based on the results of training under the Pre-University Training Program the School of D. Serikbayev EKTU accepts students for further education by undergraduate programs. The main tasks of the faculty are adaptation to academic activity at EKTU and the development of personal skills, as well as the organization and conduct of educational work with foreign students, familiarizing them with the lifestyle, traditions, customs and culture, the internal regulations of the educational institution, laws and regulations of the Republic of Kazakhstan .

The graduation and employment of students are the main indicators of the effectiveness of the university. There is a Career Center at the university, the main task of which is to monitor the process of employment of graduates and their further movement in the labor market, including the duration of work, career growth, the correspondence of the acquired knowledge to the actual demand, etc. According to the statistics dated from 04/22/2019 the employment of graduates of 2018 (bachelors, masters, PhD graduates) consisted of 92.4%. Monitoring of the graduates employment is carried out through the State Center for Educational Programs. In general, every year the university demonstrates a high level of employment of its graduates, which indicates the quality of training. Departments which are responsible for the employment of graduates by the EP annually fill in the data in the employment subsystem of the University Educational Portal in order to monitor the professional activities of graduates.

The self-assessment report stated that the university operates a public association "Association of graduates of the Ust-Kamenogorsk Road Construction Institute (UK RCI), East Kazakhstan Technical University (EKTU), and the Republican State Treasury Enterprise "D. Serikbayev East Kazakhstan Technical University" (D. Serikbayev EKTU) - «АЛТЫН БЕСІК». However, according to the results of online meetings of graduates with teaching staff, it was noted that they are not familiar with the activities of this association and are not involved in their activities in any way.

The regulation on the procedure for registration and account of foreign students, undergraduates, PhD students has been developed in accordance with the current Constitution of the Republic of Kazakhstan, the Code of the Republic of Kazakhstan on Administrative Offenses dated July 5, 2014 No. 235-V ЗРК, the Law of the Republic of Kazakhstan "On the Legal Status of Foreigners Citizens in the Republic of Kazakhstan" dated June 19, 1995 N 2337, and in accordance with the University Charter, internal organizational and administrative documents of the University, which defines the specifics of the registration and account procedure for foreign students, undergraduates, PhD students at D. Serikbaev EKTU [https://www.do.ektu.kz/laws/EKSTU/P\\_RUIG\\_ekstu.pdf](https://www.do.ektu.kz/laws/EKSTU/P_RUIG_ekstu.pdf)

"Academic policy" (approved on April 22, 2019) prescribes the procedure for recognizing learning outcomes received by students through non-formal education, as well as recognizing learning outcomes mastered in the course of external / internal academic mobility.

"Procedure for transferring ECTS-type credits at D. Serikbayev EKTU" operated until 2019. It was aimed at creating conditions that ensure the implementation of academic mobility of students and the recognition of educational programs (all levels and forms of higher and postgraduate education) in the European educational space in accordance with regulations and acts

Within the framework of the academic mobility and in accordance with the concluded agreements on mutual cooperation the following training took place: Amankulov A. (16-ISK-1), Almaty, University of International Business; Yurlov D. (17-MIS-1,5ПД) and others (described above). All students were successfully trained and received certificates, diplomas with transcripts. Based on these documents and in accordance with the procedure for transferring credits and university regulations, the school transfers credits.

Currently, there are 20 agreements on mutual cooperation of EKTU with universities of Kazakhstan, including on academic mobility programs: K.I.Satpayev Kazakh National Technical University, S. Toraigyrov Pavlodar State University, T. Ryskulova Kazakh Economic University (Narxoz University), L.N. Gumilyov Eurasian National University, Seifullina Kazakh Agrotechnical University, University of International Business (UIB), International Educational Corporation (KazGASA), Karaganda State Technical University, etc.

### ***Analytics***

The university demonstrated the policy of forming a contingent of students in the context of the educational programs of the School of Information Technologies and Intelligent Systems. Currently, 217 students study at bachelor's degree course and 31 postgraduates attend the magistracy course. The current model of the formation of the student contingent at the university corresponds to the legislation of the Republic of Kazakhstan. It is based on the principles of transparency, unity, and consistency. To increase the number of applications for admission from applicants, the university is working to provide applicants with information about the university, faculties and specialties. For this purpose advertising materials are issued: information booklets about specialties, admission rules, posters. The university regulates the procedures that ensure the life cycle of students (from admission to completion).

The graduation and employment of students is the main indicator of the effectiveness of the university. The University has a Career Center. The student can also get professional help in making career decisions and finding a job by talking to teachers and attending such events as Career Day, Professional Fair, University Night, as well as meetings and conversations with representatives of employers. According to the statistics dated to 22.04.2019 employment of graduates of the EP "Information Systems"; and "Computing Technology and Software" 2018 amounted to 92.4%. Many graduates are currently holding managerial positions, information can be seen at the link:

[https://www.ektu.kz/departments/sc\\_ite/sub\\_departments/inf\\_tech/ourgraduates.aspx](https://www.ektu.kz/departments/sc_ite/sub_departments/inf_tech/ourgraduates.aspx).

The self-assessment report stated that the university operates a public association "Association of graduates of the Ust-Kamenogorsk Road Construction Institute (UK RCI), East Kazakhstan Technical University (EKTU), and the Republican State Treasury Enterprise "D. Serikbayev East Kazakhstan Technical University" (D. Serikbayev EKTU) - «АЛТЫН БЕСІК». However, according to the results of online meetings of graduates with teaching staff, it was noted that they are not familiar with the activities of this association and are not involved in their activities in any way.

A survey of students conducted during the visit of the EEC showed that the education organization provides sufficient opportunity for sports and other leisure activities: full agreement - 69.7%, agree - 21.2%, partially agree - 12.1%, complete disagreement - 3%.

Students rate the availability of counseling on personal problems as follows: completely satisfied - 66.3%, partially satisfied - 20.9%, partially dissatisfied - 3%, find it difficult to answer - 6.1%, and the availability for academic counseling: completely satisfied - 72.7%, partially satisfied - 27.3%.

### ***Strong point / best practice:***

1. Work on the formation of a contingent of students in the context of educational programs of the School of Information Technologies and Intelligent Systems is effective.

### ***EEC recommendations:***

1. To promote the implementation of academic mobility of students at all levels of education, to increase the quality level and the availability of vocational education.
2. To strengthen the work of the public association " Association of the Graduates" and the awareness of its existence.

*The EEC results on the criteria of the standard "Students" are 11 satisfactory positions and 1 position requiring improvement for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information Systems (by industry)"; 6B06102 - "Computing Technology and Software"; 7M06102 - "Computing technology and Software".*

## **6.7 Standard "Teaching staff"**

### **Evidence Base**

The university pays great attention to personnel policy, a number of documents have been developed: Regulations on the selection and adaptation of personnel (from 26.10.2018), Regulations on the employee incentive system (from 30.12.2016), Regulations on the personnel reserve of the University (approved by order No. 202-P of 05/17/2018), the Rules for the competitive replacement of positions of teaching staff and scientific workers (approved on 02.08.2019). The University signed a Framework Agreement on consolidating the principles of meritocracy in personnel policy ([http://edu.gov.kz/ru/grazhdanam/detail.php?ELEMENT\\_ID=2600](http://edu.gov.kz/ru/grazhdanam/detail.php?ELEMENT_ID=2600)). All personnel procedures are transparent: the documents can be found on the EKTU portal. The head of the structural unit formulates the requirements for the applicant and the conditions of his employment, fills out an application on the university website in the "Educational portal" section, in his personal account, "Staff schedule". After saving, the completed application automatically goes to the "Vacancies" tab on the university website. Potential candidates can see information about the vacancies of the university and, following the link, fill out the proposed application form and post their resume for consideration. The completed application form and resume of the applicant are sent to the email address "Vakansia". Next, the recruiting manager starts recruiting (<https://www.ektu.kz/hr.aspx>)

All information regarding institutional procedures is available for teaching staff and personnel through their personal account and corporate mail.

The qualification requirements for positions of teaching staff are established in the "Rules for the competitive replacement of positions of teaching staff and scientific workers" (approved on 02.08.2019) and published under the link "Rules for competitive replacement of positions for teaching staff".

The rules for the competitive replacement of positions of the teaching staff and research workers of higher educational institutions (<https://www.ektu.kz/MONRK/6.pdf>) regulate the promotion to the position. The reason for the dismissal of the teaching staff and university employees is non-compliance with the intra-university rules: "Regulations on the internal rules of D. Serikbayev EKTU", "Code of corporate and business ethics" from 2019. (<https://www.do.ektu.kz/laws/EKSTU/KodeksKorporativnojIDelovojEtiki.pdf>), "Regulations on the application of disciplinary measures and suspension from work" from 2018 (<https://www.do.ektu.kz/laws/EKSTU/Polozheniye-primenii-mer-distsiplinarnogo-vzyskaniya-i-otstraneniya-ot-raboty.pdf>), and "Anti-corruption standard of D. Serikbayev EKTU" from 2019 ([https://www.do.ektu.kz/laws/EKSTU/Antikorrupsionnyiy\\_standart.pdf](https://www.do.ektu.kz/laws/EKSTU/Antikorrupsionnyiy_standart.pdf)). The meetings of the commission are held on a scheduled basis once every six months or as needed.

In order to improve the system of selection and recruitment of personnel in December 2017 a structural subdivision of the Personnel Selection and Development Department was created. The "Regulation on the selection and adaptation of personnel" (dated 26.10.2018) was developed and implemented which reflects the entire algorithm for the selection, recruitment, and adaptation process of newly hired employees.

To ensure transparency and the possibility of an alternative choice, the announcement of a competition for vacant positions is placed on Internet resources, [www.enbek.kz](http://www.enbek.kz), printed

publications distributed throughout the territory of the Republic of Kazakhstan, the media, personnel and recruiting agencies. For the competitive selection of faculty and research workers the Regulation is applied on the basis of which twice per academic year heads of departments and heads of educational programs submit applications to the personnel recruitment and development department - the need for personnel in areas of educational programs with relevant competencies.

Information about the teaching staff of schools is posted on the university website in the "University" section - Personal websites of teaching staff - List of teaching staff - <https://www.ektu.kz/pps.aspx>. This information contains personal data, information about the subjects read, the scientific interests of the teacher, advanced training, contact information.

The personnel potential of the accredited EP "Information Systems" corresponds to the Program of strategic development of the university and the specifics of the EP. Resource support for EP 6B06101 "Information Systems", 7M06101 "Information Systems", 8D06101 "Information Systems (by industry)" is formed on the basis of licensing requirements and requirements for the conditions for the implementation of bachelor's degree programs determined by the State Educational Standard of Education in the direction of training information and communication technologies, taking into account regulatory documents of the MES RK.

In the 2018-2019 academic year the number of employees with degrees and titles in the Department of Information Technologies was equal to 12, which is 52% of the number of full-time employees and internal part-timers (personally: Rakhmetullina S.Zh., Ph.D.; Denisova N.F. Ph.D.; Blinaeva E.V., Ph.D.; Smailova S.S., PhD; Nikiforov V.L., Ph.D.; Paramzin A.P., Ph.D.; Popova G.V., Ph.D.; Urkumbaeva A.M., Ph.D.; Uvalieva I.M., PhD; Kumargazhanova S.K., Ph.D.; Weiss Y.A., Ph.D.; Zhomartkyzy G.Zh., PhD). Scientific research carried out by the teaching staff is carried out within the framework of the priority directions of the university, so docent, Ph.D. Denisova N.F., doctoral student gr. 18-DIS-3p Chettykbaev R. are working on the creation of an information and analytical system for predicting flooding of territories in emergency situations at hydroelectric power plants. Doctoral student gr. 18-DIS-3p Karmenova M.A., Associate Professor, Candidate of Physical and Mathematical Sciences Popova G.V. are conducting research on the topic "Using 3D modeling" of urban environment objects for the calculation and assessment of seismic resistance. Associate Professor Ph.D. Blinaeva E.V., is the head of the project "Analysis and modeling of the effect of low frequency sounds on the change in the sulfur content and viscosity of crude oil in Kazakhstan fields" under contract No. 35-293-18 dated 05.03.2018, the purpose of which is to study physical aspects of the processes occurring in oil, subjected to processing with low frequency sounds, attracts leading teaching staff as Zhomartkyzy G., Popova G.V. Themes of master's studies and graduate design are due to the corresponding directions.

During the period under review, the teaching staff of the EP passed the following advanced training courses:

International courses: ICT Management and QA Practice (Spain, Mataro, Rojas N. Criulko); seminar "Technology enhanced learning for computer science (Bulgaria, Sofia, Kotlyarova I.A., Khasenova Z.); course "New teaching methods for professional ICT training" (Greece, Thessaloniki, Rojas Kriulko N.P., Urkumbaeva A.M.), "New methods of separation of multicomponent solutions" (Poland, Wroclaw, N. Baigazova A., Smailova S.S.), "Mathematical modeling of objects and systems of automation", "Bayesian networks and decision trees in decision support systems", Information technologies of data analysis (Poland, Lublin, Baklanova O.E.), "Modeling, simulation and Applied Optimization", "Computer and Technology Applications" (Turkey, Uvalieva IM), course of the Obud University, (Budapest, Hungary, Kumargazhanova S.K., Popova G.V. Zhomartkyzy G.), course of the Kiev National University. T.Shevchenko (Ukraine, S.S. Smailova)

In the 2019-2020 academic year production specialists are also involved in the educational process and conduct practical exercises in some disciplines. Zemlyanukhin N.S. - Head of the IT group "Confectioner +" in the disciplines "Network information technologies", "ERP-systems",

Architecture of computer systems ". In the 2017-2018 academic year a certified specialist from 1C Rating LLP O. Perederiy was invited to teach the discipline "Information systems of enterprises".

Reviewers of diploma projects are leading experts in the field of information technology: Kaldybaev Ramil Manarbekovich - service support engineer of the 2nd category of the branch of JSC "Kaspi Bank" (order No. 482-C of 04/29/2019); Zaitsev Alexey Viktorovich - Head of the Service Support Department of the branch of JSC Kaspi Bank; Demina Irina Aleksandrovna - Candidate of Physical and Mathematical Sciences, head of the personnel training group of JSC "AZIA AVTO Kazakhstan". Drat Sergey Yuliusovich - technical director of LLP "Enterprise" KS ", the chairman of the State Joint-Stock Company for the EP" Information Systems ".

The University systematically works actively in expanding the external mobility of teachers and researchers in international exchange programs. Under the Fulbright program Associate Professor of the Department of Information Systems Turganbaev E.M. was invited to Harvard University as a scholar for the 2015-2016 academic year. In 2016 Baklanova O.E. took part in the International Engineering Week with a lecture at the Schmalkalden University of Applied Sciences, Germany and completed scientific internships at NRU ITMO, Russia; Óbuda University, Hungary; Lublin University of Technology, Poland.

In 2017 and 2018 Smailova S.S. completed a scientific internship at the Lublin Technical University, Poland, and in 2019 she completed a scientific internship at the Shevchenko National University of Kiev, Kiev, Ukraine. In 2019 she delivered a course of lectures for doctoral students at the Lublin Technical University, Lublin, Poland.

Doctoral students Beldeubaeva Zh.T. completed a scientific internship in Turkey, Izmir, Izmir University in 2016. Suleimenova L.R. and D. Zyryanov completed a scientific internship at NRU ITMO in December 2017.

In 2019 Kumargazhanova S.K., Popova G.V., Zhomartkyzy G. completed an internship at Obud University, Budapest, Hungary.

From the 2017-2018 academic year a lecturer from Boise State University, USA, Dr. ED Anthony Ray Hetrick visited the university.

In 2019 from May 15 to June 14 Associate Professor, PhD Martin Streckler (Toulouse, France) conducted a lesson for students and undergraduates in the discipline "Programming in the Caml language" ([https://www.ektu.kz/newsevents/professor\\_iz-francii-chitaet-lekcii-v-vkgtu.aspx](https://www.ektu.kz/newsevents/professor_iz-francii-chitaet-lekcii-v-vkgtu.aspx)).

In the 2017-2018 academic year the sub-department employed 3 graduates of the Bolashak program, masters of computer science from the University of Southern California (Los Angeles, USA) Aitmukhanbetova E.A., Korabay U.A., Zhanabaev E.S.

On October 15, 2019 an agreement was signed with Kazan State Energy University on the development and implementation of joint educational programs in the field of IT technology (<https://www.ektu.kz/newsevents/kazanskiy-universitet.aspx>).

On November 29, 2019 the rector of D. Serikbaeva East Kazakhstan Technical University Zh. Shaimardanov and the rector of the National Research Nuclear University MEPhI M. Strikhanov held meeting where they discussed new areas of joint educational programs in information technology, electronics and nanotechnology, organization of industrial practices, etc. Associate professor Zhomartkyzy G. (<https://www.ektu.kz/rectornews/sostoyalas-vstrecha-dvuh-rektorov-vkgtu-i-niyau-mifi.aspx>) is the developer of the joint educational master's program for the educational program "Information Systems".

### ***Analytics***

The university demonstrates an objective and transparent personnel policy, including recruitment, professional growth and personnel development, ensuring the professional competence of the entire staff.

The implementation of educational programs "Information Systems" and "Computing Technology and Software" is provided by teaching staff with basic education corresponding to the profile of the taught discipline and systematically engaged in scientific and / or scientific and

methodological activities. Teachers of special disciplines have an academic degree of candidate, doctor of science and / or experience in the relevant professional field. The total number of teaching staff training students according to the EP is 52 people, including: with academic degrees and titles - 20 people, teaching classes with a master's degree - 32 people.

The University systematically works actively in expanding the external mobility of teachers and researchers in international exchange programs. Every year more than 25 teaching staff of the School participate in programs for academic and scientific exchange with foreign partner universities.

However, in the course of online meetings with the teaching staff several leading scientists (candidates and doctors of science) of the university of accredited EP noted the absence of favorable working conditions and the lack of modern technical equipment necessary for the educational process. During online meetings with the teaching staff, young teachers of the university of accredited EP also spoke about the lack of career opportunities and an incentive system for the professional and personal development of teachers.

***Strengths / Best Practice:***

1. The number of faculty with academic degree by special and profiling disciplines accredited by the EP "Information Systems" and "Computing technology and Software" meets the requirements.
2. The EP's management involves practitioners of the relevant industries in teaching.

***EEC recommendations:***

The management staff of D. Serikbayev EKTU needs:

1. To provide modern favorable working conditions and appropriate technical equipment for all teaching staff.
2. To develop and implement a teaching staff incentive system - an effective contract.
3. To strengthen work on the formation of career growth and professional development of teaching staff.

***The EEC results on the criteria of the standard "Teaching staff" are 9 satisfactory positions and 3 positions requiring improvement for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information Systems (by industry)"; 6B06102 - "Computing Technology and Software"; 7M06102 - "Computing technology and Software".***

***6.8 Standard "Educational Resources and Student Support Systems"***

***Evidence Base***

The educational process within each EP is provided with the necessary classroom fund, training laboratories, and computer labs. In the preparation of students for EP 6B06101 - "Information Systems", 7M06101 - "Information Systems" and 8D06101 - "Information Systems (by industry)" 10 computer classrooms were involved. In the structure of the School of Information Technologies and Intelligent Systems there are special computer classrooms and an IT center. Two specialized classrooms (G-3-507) were equipped for the study of technical support and network system support for computers and networks. Prototype bench equipment based on PC components (motherboards, monitors, ports and device controllers) is used to acquire practical skills for students in assembling, disassembling and reconfiguring computer equipment of mass demand.

Since 2019 the laboratory "Human computer interaction" G-3-210 has been launched. The laboratory specializes in the following areas: pattern recognition; 3D modeling; AR / VR.

Lecture classrooms equipped with modern multimedia projectors and computers (G-3-312) are used to conduct classes using Technical Means of Education and to defend theses (projects). Computer classroom (G-3-325) TEMPUS "PICTET: The system of professional ICT education in Russia and Kazakhstan based on EQF". For teaching staff, undergraduates and managers of EP 6B06101 / 7M06101 / 8D06101 2 classrooms are assigned.

In the above-mentioned computer rooms classes are conducted by special disciplines of the accredited EP. To improve the level of professional skills and to master modern software and system tools in the office G-3-315 there are 10 PCs of the latest models. The department computers are connected to the university corporate network.

For accredited EP 6B06101 / 7M06101 / 8D06101, the following training programs and applications are used: Microsoft Visual Studio, Deductor Academic, R Studio, Microsoft Office, Apache, 1C: Enterprise, MapInfo, AnyLogic, Android Studio, Microsoft SQL Server, WEKA, BPWin, RWin, IBM Rational Rose XDE, Microsoft Windows 10, Linux CentOS (Virtual Box), Android Studio, 1C: Enterprise, Microsoft Visual Studio, Microsoft Office (including Access, Visio, Excel), MapInfo, BPWin, RWin, Deductor Academic, R Studio, WEKA, AnyLogic, etc. Provision of software products and solution of technical problems is implemented by the Department of Information Technologies (<https://www.ektu.kz/divisions/uit.aspx>). To increase the efficiency of using information technologies in the educational process, scientific research and in the management of the educational and organizational work of the university, computer classrooms are used. Computer classrooms meet all sanitary and epidemiological standards. The classrooms are illuminated with daylight and artificial lighting, all computer equipment is regularly maintained and, if necessary, equipment is modernized.

Within the framework of the standard "Educational resources and student support systems", the university operates a number of services that work to meet the educational, personal and career needs of students: hostel, canteens, service center, medical center, gyms, computer centers, IT centers, laboratories, libraries, etc.

The development and improvement of the material and technical base of the School of Information Technologies and Intelligent Systems are carried out on the basis of the University Development Strategy, as well as on the basis of long-term and annual plans. The resources used to organize the learning process are sufficient and meet the requirements of the EP.

In order to support and assist students in the educational process and to preserve the student contingent, a student support and counseling system has been developed.

The university has a registrar's office. It is the organizer of training in the summer additional semester and the university coordinator on internal academic mobility of students. As part of the registrar's office, there is a student personnel department. The office actively uses the information resources of the university - the educational portal Dales and S-Portal.

Since January 2018 the University has been operating a Student Service Center. Student Service Center provides services to students on the principle of one window. Students receive timely and high-quality provision of services, information support, including online within the "Smart-University" <https://www.ektu.kz/centerstudentservice2.aspx>. During this period there were more than 4200 requests, 88% are certificates of training (at the place of request and in the State Center for Internal Affairs). 80% of all requests were made online through the personal accounts of students.

The university also involves the committee on the youth affairs, which promotes the formation of the student's personality, the development of his inner potential, the trade union committee of students, the Council for the Humanitarianization of Education, the Council for Legal Education and the Prevention of Offenses, the Council of Student Self-Government.

For groups of students from 1 to 4 courses curators and advisers are assigned, who are academic mentors of students for the corresponding EP.

Each student has access to a personal account (link: <https://www.do.ektu.kz/Protected/HReports/Personal/Cabinet.asp>) where he can access and

download the necessary educational resources and receive advice from the teacher. In addition, a schedule of online consultations is provided for distance learning students.

The library of the university consists of 10 departments, including 6 reading rooms with 450 seats. The library has a sufficient book fund which is growing steadily. Over the past three years the fund has increased from 1,011,686 to 1,023,326 copies. The fund of literature in the Kazakh language has correspondingly grown from 78 140 copies to 84205 copies. The collection in foreign languages is 21460 copies. The library receives over 130 titles of periodicals. All information about the electronic resources of the library on the website at the link <https://www.ektu.kz/researchlibrary/library.aspx>

There are 37 Wi-Fi access points on the territory of the university and in dormitories with an access speed of 5 MB / s for each connection. All IT-services of the university are implemented according to the "one window" principle. Each student has a mobile version of the "Student Personal Account" application. The student has access to the mobile version of the schedule, progress, all university news, information about the transfer of classes, etc. Each student can download the application from the free internet market (APP Store, GooglePlay).

### ***Analytics***

The university guarantees a sufficient number of educational resources and student support services that meet the goals of the EP. The university demonstrates the sufficiency of material and technical resources and infrastructure, taking into account the needs of various groups of students in the context of EP and during classes, ensures compliance with safety requirements. Within the framework of the standard "Educational resources and student support systems" the university operates a number of services that work to meet the educational, personal and career needs of students.

The EP management demonstrated the compliance of library resources, including the fund of educational, methodological and scientific literature on general education, basic and profiling disciplines on paper and electronic media, periodicals, access to scientific databases. EKTU has a sufficient number of software products, and Wi-Fi operates on the territory of the university and in dormitories which allows for better quality distance learning, for example, in a pandemic. A survey of students, conducted during the visit of the IAAR EEC (External Expert Commission of Independent Rating Accreditation Agency), showed that satisfaction:

- availability of library resources: fully satisfied - 78.8%, partially satisfied - 15.2%, not satisfied - 0%, partially dissatisfied - 0%, find it difficult to answer - 0%.
- the existing educational resources of the university: completely satisfied - 69.7%, partially satisfied - 27.3%, not satisfied - 0%, partially dissatisfied - 0%, I find it difficult to answer - 3%.
- the availability of computer classes and Internet resources: completely satisfied - 60.6%, partially satisfied - 36.4%, not satisfied - 0%, partially dissatisfied - 0%, find it difficult to answer - 3%.
- classrooms, classrooms for large groups: completely satisfied - 66.7%, partially satisfied - 27.3%, not satisfied - 0%, partially dissatisfied - 0%, find it difficult to answer - 6.1%.
- rest rooms for students: completely satisfied - 15.2%, partially satisfied - 36.4%, not satisfied - 9.1%, partially dissatisfied - 12.1%, find it difficult to answer - 27.3%.
- available scientific laboratories: completely satisfied - 72.7%, partially satisfied - 12.1%, not satisfied - 0%, partially dissatisfied - 6.1%, find it difficult to answer - 9.1%.
- providing students with a hostel: completely satisfied - 54.5%, partially satisfied - 12.1%, not satisfied - 0%, partially dissatisfied - 0%, find it difficult to answer - 33.3%.

### ***Strengths / Best Practice:***

1. Educational equipment and software used for mastering EP are similar to those used in the respective industries.
2. The software products used are licensed.

### ***EEC recommendation:***

1. To improve methods and means of conducting distance learning.



*The EEC results on the criteria "Educational resources and student support systems" are 1 strong and 9 satisfactory positions for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information Systems (by industry)"; 6B06102 - "Computing technology and Software"; 7M06102 - "Computing technology and Software".*

## **6.9. Standard "Public Information"**

### **Evidence Base**

The University timely updates the published information about the implemented EP, teaching, learning, assessment procedures, passing scores, educational opportunities provided to students, about the expected learning outcomes, the academic degree / qualifications awarded, as well as information about the employment opportunities of graduates.

Information about the realization of educational program "6B06101 - Information Systems" indicating the expected learning outcomes is posted on the website at the link: <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5475> For the EP of the magistracy "7M06101 - Information systems" information is given on the university website page at the link: <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5526>

The concept of the educational program "6B06101 - Information Systems" - the development of human capital in the digital economy. The main goal of the EP is to train specialists in the design, development, implementation and maintenance of information technologies and systems to solve the problems of the national and regional IT market, as well as to integrate into the conditions of the global IT business: <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5475>

Information on the possibility of awarding qualifications upon graduation from EP "6B06101 - Information Systems" is posted on the website at the link: <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5475> For the Master's EP "7M06101 - Information Systems" information on the possibility of qualifying at the end of the EP is given on the university website: <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5526>.

For the EP of PhD course "8D06101 - Information Systems" information on the possibility of qualification at the end of the EP is given on the university website <https://www.ektu.kz/educationalprograms/educationalprogramdetail.aspx?Code=5654> "Guide-reference book for the first-year students" ([https://www.do.ektu.kz/doektu/media/42805/guid%2019-20\\_ru.pdf](https://www.do.ektu.kz/doektu/media/42805/guid%2019-20_ru.pdf)) contains information about the organization of the educational process, registration procedure for elective courses, system control and assessment of students' knowledge, academic mobility of students, etc.

All information about the passing scores and educational opportunities provided to students can be found in the Documented Procedure DP EKTU 706-VII-2019 "Transfer and restoration of students at D. Serikbayev EKTU". This information is also available in the student's Personal Account.

Information about employment and demand for graduates is objective and relevant. EKTU is the first university that began to receive information from the State Center for the Payment of Pensions (SCPP) on the employment of graduates since 2015. The provision of data from SCPP allows assessing the demand for personnel for the region and conducting constant monitoring. The experience of EKTU was adopted by other universities of the Republic of Kazakhstan. Before publishing any information in any means of communication it is checked for reliability. Information on the employment of graduates is presented on the university website <https://www.ektu.kz/Protected/HReports/BasePractic/Employeed.asp>. You can familiarize

yourself with information about the career development of graduates of the educational program 6B06102 – “Computing technology and Software” by looking at the page "Our graduates "on the university website at the link [https://www.ektu.kz/departments/sc\\_ite/sub\\_departments/inf\\_tech/ourgraduates.aspx](https://www.ektu.kz/departments/sc_ite/sub_departments/inf_tech/ourgraduates.aspx)

The main means of informing the public (future students, their parents, students, alumni and employers) is the official website of the University - <https://www.ektu.kz/>, social media accounts: in V Kontakte ([https://vk.com/ekstu\\_official](https://vk.com/ekstu_official)), YouTube (<https://www.youtube.com/channel/UCWbNJ8XGUZyiSuNttDhIQHQ>), Instagram ([https://instagram.com/itschool\\_ektu?igshid=1rh8e5w9287xd](https://instagram.com/itschool_ektu?igshid=1rh8e5w9287xd)), Facebook (<https://www.facebook.com/EKSTUUniversity/>), Telegram (@EKSTU-helper\_bot). A corporate media resource, the university newspaper "For Knowledge", is actively used to provide information to the internal environment. There are other ways of disseminating information at the University: printed materials, exhibitions, promotions, and flash mobs. The mass media for publication have been determined - these are republican and regional newspapers and television channels. All publications are for informational, image, and explanatory purposes.

The information published is accurate, clear, objective, relevant and accessible to all stakeholders. For foreign partners and stakeholders there is an English version of the site. The effective use of these resources allows you to assess the effectiveness of the EP, to ensure contact with all partners (including foreign ones) and stakeholders.

Currently D. Serikbayev EKTU uses the following traditional channels and IT-channels for communication.

EKTU website: <https://www.ektu.kz>

EKTU on Facebook: <https://www.facebook.com/EKTUUniversity/>

EKTU in V Kontakte: [http://vc.com/ukstu\\_official](http://vc.com/ukstu_official)

EKTU on Instagram: <https://www.instagram.com/ukstuniversity>.

The main means of informing the public (future students, their parents, students, alumni and employers) is the official website of the university <https://www.ektu.kz/>, the news section of the EKTU website: <https://www.ektu.kz/rectornews/sostoyalas-vstrecha-dvuh-rektorov-vkgtu-iniyau-mifi.aspx>, publication and videos posted on Facebook: [https://m.facebook.com/story.php?story\\_fbid=2574807209307194&id=527277280726874](https://m.facebook.com/story.php?story_fbid=2574807209307194&id=527277280726874), as well as posting videos on the Youtube channel: <https://www.youtube.com/watch?v=7VtZ6S4ccqU> & feature = youtu.be (The rector of EKTU Zh. Shaimardanov and the rector of National Research Nuclear University MEPhI M. Strikhanov discussed new directions of joint educational programs at the meeting in Moscow).

The international prestige of the university is confirmed by the fact that in 2016 the university received 3 QS stars (Great Britain) within the framework of the international rating system "QS Stars". An independent audit recognized the university as "star" in such nominations as the quality of education, employment, and innovation.

Among the significant achievements of EKTU are positions in global academic rankings:

1. Ranking of universities QS EECA (Developing Europe and Central Asia) 2019/20 - 190 position.
2. Webometrics - 6915 position in the world ranking (14th among universities in Kazakhstan). More information is available at <http://www.webometrics.info/>.
3. Rating "4 International Colleges & Universities" 2020 - 5978 position in the world ranking, 17 - among 108 universities in Kazakhstan. Detailed information is presented on the official website <http://www.4icu.org/>.

According to the results of the specialized rating of the Independent Accreditation Agency and the rating of 2018, 28 educational programs were included in the top three according to the results of the research of the Republican Rating Agency (RRA), 33 educational programs were included in the top three. The university is one of the five best technical universities in the country according to NAOKO and ranks second according to the RRA.

In the IAAR-2015 ranking EP for bachelor's and doctoral studies 5B070300-“Information Systems” took 3<sup>rd</sup> place, 6M070300-“Information Systems” - 5th place / 15 universities, 6D070300-“Information Systems (by industry)” took the 3<sup>rd</sup> place, <https://atameken.kz>.

In 2018 in the Republican Rating of Research and Production Enterprise (RPE) "Atameken", EP 5B070300 "Information Systems" took 3rd place: [/uploads/content/files/8Information%20systems.pdf](https://uploads/content/files/8Information%20systems.pdf)

The educational program of doctoral studies 6D070300 -"Information systems (by industry)" took 2nd place in the IAAR Rating - 2018, url: <https://ru.calameo.com/read/005278124cf96cccf9f51?page=1>.

In the rating of educational programs conducted by RPE "Atameken" in 2019, EP "5B070300-Information Systems" took 5<sup>th</sup> place among 56 universities. Information is available on the website at: [https://atameken.kz/uploads/content/files/Information%20system\(2\).pdf](https://atameken.kz/uploads/content/files/Information%20system(2).pdf).

In the national rating of the IAAR 2019, EP 6D070300 – “Information Systems (by industry)” took 2nd place in the IAAR rating, <https://ru.calameo.com/read/005278124cf96cccf9f51?page=9>.

### ***Analytics***

The analysis of accredited EP according to this standard allows us to draw the following conclusions.

The University openly publishes complete and reliable information about its activities, the rules for admission of applicants, educational programs, terms and form of study, information about the employment of graduates, alumni reviews, contact and other useful information for applicants and students.

Information about the activities of the university is differentiated and available to all interested parties: applicants, students, parents, graduates, employers, representatives of government bodies and public organizations, business partners, scientific and consulting organizations, foreign universities. The University timely updates the published information about the implemented EP, teaching, learning, assessment procedures, passing scores, educational opportunities provided to students, about the expected learning outcomes, the academic degree / qualifications awarded, as well as information about the employment opportunities of graduates. An important factor is the participation of the university and implemented EP in various external assessment procedures. The proof is that the university fully fulfills the external assessment procedures within the framework of the accredited EP and takes an active part in the National Rating of EP among the universities of the Republic of Kazakhstan, invariably entering the top twenty of republican universities participating in the rating. In the "Education" section of the university website in the "Accreditation and ratings" tab information on the university's positions in world and national rankings is provided <https://www.ektu.kz/educationalactivities/ratings.aspx>.

Information about employment and demand for graduates is objective and relevant.

### ***Strengths / Best Practice:***

1. The University openly publishes complete and reliable information about its activities
2. Information about the activities of the university is differentiated and available to all interested parties
3. The university and the implemented EP participate in a variety of external evaluation procedures.

### ***EEC recommendations***

1. As part of informing the public, periodically fill the site with up-to-date information on the development and achievements of your university and partner universities, including foreign ones.

*The EEC results on the criteria "Public awareness" are 10 strong and 3 satisfactory positions for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing technology and Software"; 7M06102 - "Computing technology and Software".*

#### **6.10. Standard "Standards in the context of individual specialties"**

##### **Evidence Base**

Within the framework of the disciplines "Information systems of Enterprises" and "Economic Information Systems" students attend "Day 1C: Careers", held annually by LLP "1C: Rating"; take part in the Scientific and Practical Conference dedicated to 1C products, participate in the competition of diploma projects executed on the 1C: Enterprise platform, organized by the partner company "1C Rating" LLP.

Within the framework of the agreement on the branch of the department in LLP "Kazzinc", students undergo training and pre-diploma practice. In 2018-2019 academic year at the enterprise the student of the group 15-IS-1 Abashkin G. had training, Abashkin G. and Gazizova D. had pre-diploma training. For the training of specialists in the educational systems "Information Systems" and "Computing technology and Software", advisors with extensive industrial experience were involved: Zagainov I.A. senior lecturer of the department (production experience 15 years), Balova T.G. Associate Professor of the Department, Ph.D. (resigned in 2016, research and production experience 8 years), Mokerov V.O. senior lecturer of the department (resigned in 2017, production experience 8 years), Zhanabaev E.S. (production experience 2 years), Baklanova O.E. (production experience 20 years), Smailova S.S. (production experience 18 years), Kumargazhanova S.K. (production experience 7 years).

Preparation of bachelors by the EP "Information Systems" and "Computing Technology and Software" presupposes an optimal combination of basic knowledge and practice-oriented competencies. For the applied activities basic mathematical, natural science, humanitarian, socio-economic and special technical knowledge is required. They must be adapted to the profile of the field of the study, as well as the ability to apply modern information technologies, to master knowledge of computing technology. The content of disciplines with elements of fundamental natural sciences is predominant in the accredited EP. So, the acquisition of fundamental knowledge in the field of mathematics and in the field of natural sciences is facilitated by mastering the module of the basics of engineering training which includes the following disciplines: Mathematics 1, Mathematics 2, Mathematics 3, Physics.

A graduate of the educational program "Information Systems" must have fundamental knowledge in the field of mathematics, physics and other natural sciences, as well as systematically possess statistics, informatics, computer technologies and modeling methods. In the process of a graduate's professional activity, the direct application of natural science laws and principles is required. For example, disciplines "Physical Foundations of Computers", "Applied Statistics", "Introduction to Mathematical Modeling", "Basics of Information Systems", "Models and Methods of Management in Corporate Information Systems", "Fundamentals of Ensuring Fault Tolerance of Software Components", "Expert and Intellectual Systems" require knowledge in the field of natural sciences.

For practical training in the field of specialization, the number of hours of laboratory work, coursework, all types of practices is more than 60% of the total number of hours of the EP curriculum. The curriculum is given in Appendix 15.

The specifics of the EP "Information Systems" and "Computing Technology and Software" involves the implementation of all types of work using ICT. Licensed software

products are used in the educational process. The introduction of interactive equipment into the educational process, including interactive whiteboards and modern software, continues.

When conducting classes, depending on the direction of training, teachers introduce various innovative methods and teaching technologies. Almost all lectures are conducted using multimedia.

There are specially equipped classrooms in which computer programs are installed for conducting classes, completing assignments for individual work of students, including coursework, diploma and master's theses. All computers are connected to the local network of the university, and also have access to the INTERNET. Since the specialization of these educational programs belongs to the ICT direction, a significant part of the disciplines is related to the preparation of students in the field of using modern information technologies. According to the results of the audit conducted by the Department of Information Technologies, the Center for Quality Assessment and Development of Educational Technologies, the Planning Department, monitoring the educational process at the university in November 2018 for the level of penetration of digitalization into the educational process, i.e. determining the level of IT content of educational programs within the framework of the state program "Digital Kazakhstan", the EP 5B070300- "Information Systems" has 78%.

***Strengths / Best Practice:***

1. In order to familiarize students with the professional environment, topical issues in the field of specialization and strengthen practical training in the field of specialization, the EP includes disciplines and activities aimed at gaining practical experience and skills in the specialty. Excursions and practical training are organized at IT enterprises.
2. The faculty involved in the education program includes full-time faculty members with long-term experience as full-time employees in IT enterprises.

***EEC recommendations:***

1. The EP's management must provide training for students in the field of using modern information technologies, first of all, by updating the methods for acquiring and implementing modern licensed software, as well as developing their own software products.

***The EEC results on the criteria "Standards in the context of individual specialties" are 3 strong and 2 satisfactory positions for such educational programs as 6B06101 - "Information Systems"; 7M06101 - "Information Systems"; 8D06101 - "Information systems (by industry)"; 6B06102 - "Computing technology and Software"; 7M06102 - "Computing technology and Software".***

## **(VII) OVERVIEW OF STRENGTHS / BEST PRACTICES FOR EACH STANDARD**

***Standard "Management of the Educational programme"***

The university adheres to a quality assurance policy (order No. 149-P of 05/04/2017), consisting of 12 structural policies, including academic policy, personnel policy, digital technology policy, etc.

The University has developed the Regulation "Risk Management" (approved 02.07.2018). The purpose of the risk management process is to conduct risk analysis, plan actions to address risks, integrate these actions into the quality management system processes and make decisions for improvement. In this way, the university is committed to sustainable quality assurance while taking into account previous progress and risks.

***Standard "Information Management and Reporting"***

The university has developed a number of internal documents defining the procedure and ensuring information security, they are responsible for the accuracy and timeliness of information analysis and data provision.

The educational portal of EKTU is a system for organizing and managing the educational process, which allows you to take advantage of modern innovative technologies in science and education, taking into account the economic, regulatory and other features associated with training at a technical university.

***Standard "Development and approval of educational programmes"***

The university strictly regulates and documents the EP development procedures and their approval at the institutional level.

There is a good connection and the influence of disciplines and professional practices on the formation of learning outcomes.

The academic community and employers who are professional specialists in a specific subject area are involved in the external independent examination of the EP

***Standard "On-Going monitoring and periodic review of educational programmes"***

Monitoring and periodic evaluation of educational programs in the NJSC "D. Serikbayev East Kazakhstan Technical University" is carried out on a systematic basis.

The management of the PLO is reviewing the content and structure of educational programs with the participation of teaching staff, students and employers; improves the forms of cooperation with employers.

The university strictly regulates and describes the processes of student assessment, including appeal.

***Standard "Student-centered learning, teaching and performance evaluation"***

The EP management demonstrated the existence of a procedure for responding to student complaints.

***Standard "Students"***

The work on the formation of the contingent of students in the context of educational programs of the School of Information Technologies and Intelligent Systems is effective.

***Standard "Teaching staff"***

The degree of degree of the teaching staff of EKTU in the special and profiling disciplines of the accredited EP "Information Systems" and "Computing Machinery and Software" meets the requirements. The EP management involves practitioners of the relevant industries in teaching.

***Standard "Educational resources and student support systems"***

The educational equipment and software used to master the EP are similar to those used in the respective industries.

The software products used are licensed.

***Standard "Public Information"***

The University openly publishes complete and reliable information about its activities

Information on the activities of the university is differentiated and available to all interested parties.

The university and the implemented EP participate in a variety of external evaluation procedures.

***Standard "Standards in the context of individual specialties"***

In order to familiarize students with the professional environment, topical issues in the field of specialization and enhance practical training in the field of specialization, the EP includes disciplines and activities aimed at gaining practical experience and skills in the specialty. Excursions and practical training are organized at IT enterprises.

The faculty involved in the education program includes full-time faculty members with a long history of full-time work in IT enterprises.

## **(VIII) OVERVIEW OF QUALITY IMPROVEMENT RECOMMENDATIONS FOR EACH STANDARD**

### ***Standard "Management of the educational programme"***

Constantly improve the content and structure of the EP, including through the variability of elective disciplines and the implementation of practical training, taking into account the needs of the market.

To organize an advanced training program for educational management programs for EP management.

### ***Standard "Information Management and Reporting"***

The management of the EP to strengthen the reporting system, including the assessment of the effectiveness and efficiency of the departments, EP, scientific research and their interaction, by involving all categories of stakeholders in this work.

### ***Standard "Development and approval of educational programmes"***

Organize work in the field of preparing students for professional certification in EP.

Provide in the plans for the development of bachelor's EP an analysis of the effectiveness of contracts and agreements with foreign educational organizations.

### ***Standard "On-Going monitoring and periodic review of educational programmes"***

Ensure the completeness and timeliness of the information field of the site in accordance with the requirements of openness and accessibility of information for persons interested in the development and development of educational programs.

### ***Standard "Student-centered learning, teaching and performance"***

It is recommended to periodically improve the qualifications of assessors at least once every 5 years, since these persons must possess modern methods of assessing learning outcomes.

### ***Standard "Students"***

To promote the implementation of academic mobility of students at all levels of education, increasing the quality level and availability of vocational education.

Strengthen the work of the public association "Alumni Association" and awareness of its existence.

### ***Standard "Teaching staff"***

The management of EKTU needs to provide modern favorable working conditions and appropriate technical equipment for the entire teaching staff.

Develop and implement a teaching staff incentive system - an effective contract.

Strengthen work on the formation of career growth and professional development of teaching staff.

### ***Standard "Educational resources and student support systems"***

To improve methods and means of conducting distance learning.

### ***Standard "Public Information"***

As part of informing the public, periodically fill the site with up-to-date information on the development and achievements of your university and partner universities, including foreign ones.

### ***Standard "Standards in the context of individual specialties"***

The EP's management must provide training for students in the use of modern information technologies, primarily by updating the methods of acquiring and implementing modern licensed software, as well as developing their own software products.

**Evaluation table "SPECIALISED PROFILE PARAMETERS"**  
**The conclusion of the external expert commission for assessing the quality of educational programs 6B06101 Information systems, 7M06101 Information systems ", 8D06101 Information systems (by industry), 6B06102 Computing equipment and software", 7M06102 Computer equipment and software"**

№	№	Criteria for evaluation	Position of the educational organisation			
			Strong	Satisfying	Suggests improvement	Insufficient
<b>Standard "Management of Educational Programme"</b>						
1	1.	The university must have a published quality assurance policy.		+		
2	2.	The quality assurance policy should reflect the link between research, teaching and learning.		+		
3	3.	The university must demonstrate the development of a culture of quality assurance, including in the context of EP.		+		
4	4.	Commitment to quality assurance should apply to any activity performed by contractors and partners (outsourcing), including the implementation of joint / double degree education and academic mobility.		+		
5	5.	The EP management ensures the transparency of the EP development plan based on the analysis of its functioning, the actual positioning of the university and the focus of its activities on meeting the needs of the state, employers, stakeholders and students.		+		
6	6.	The EP's management demonstrates the functioning of mechanisms for the formation and regular revision of the EP development plan and monitoring its implementation, assessing the achievement of learning goals, meeting the needs of students, employers and society, making decisions aimed at continuous improvement of the EP.		+		
7	7.	EP management should involve representatives of stakeholder groups, including employers, students and teaching staff, in the formation of the EP development plan.		+		
8	8.	The EP management must demonstrate the individuality and uniqueness of the EP development plan, its consistency with national development priorities and the development strategy of the educational organization.		+		
9	9.	The university must demonstrate a clear definition of		+		



		those responsible for business processes within the EP, an unambiguous distribution of staff duties, and the delineation of functions of collegial bodies.				
10	10.	EP management must provide evidence of the transparency of the educational program management system.		+		
11	11.	The EP's management must demonstrate the successful functioning of the internal quality assurance system of the EP, including its design, management and monitoring, their improvement, decision-making based on facts.		+		
12	12.	The EP's management should carry out risk management.		+		
13	13.	The EP management must ensure the participation of representatives of interested persons (employers, teaching staff, students) in the collegial management bodies of the educational program, as well as their representativeness in making decisions on the management of the educational program		+		
14	14.	The university must demonstrate innovation management within the EP, including the analysis and implementation of innovative proposals.		+		
15	15.	EP management must demonstrate evidence of openness and accessibility for students, teaching staff, employers and other interested parties.		+		
16	16.	EP management must be trained in educational management programs.			+	
17	17.	EP management should strive to ensure that the progress achieved since the last external quality assurance procedure is taken into account when preparing for the next procedure.	+			
<b>Total by standard</b>			<b>2</b>	<b>14</b>	<b>1</b>	<b>0</b>
<b>Standard "Information Management and Reporting"</b>						
18	1.	The university must ensure the functioning of the system for collecting, analyzing and managing information based on the use of modern information and communication technologies and software.	+			
19	2.	EP management must demonstrate the systematic use of processed, adequate information to improve the internal quality assurance system.		+		
20	3.	Within the EP, there should be a system of regular reporting, reflecting all levels of the structure, including an assessment of the effectiveness and efficiency of the activities of departments and departments, scientific research.		+		
21	4.	The university must establish the frequency, forms and methods of assessing EP management, the activities of collegial bodies and structural units, top management, and the implementation of scientific projects.		+		
22	5.	The university must demonstrate the determination of the order and ensuring the protection of information,	+			

		including the identification of persons responsible for the accuracy and timeliness of the analysis of information and the provision of data.				
23	6.	An important factor is the involvement of students, employees and teaching staff in the processes of collecting and analyzing information, as well as making decisions based on them.		+		
24	7.	EP management must demonstrate the existence of a communication mechanism with students, employees and other stakeholders, including the availability of mechanisms for resolving conflicts.		+		
25	8.	The university must ensure the measurement of the degree of satisfaction of the needs of teaching staff, staff and students within the EP and demonstrate evidence of elimination of the identified deficiencies.		+		
26	9.	The university should evaluate the effectiveness and efficiency of activities, including in the context of EP.		+		
2		The information collected and analyzed by the university should take into account:				
27	10.	key performance indicators;		+		
28	11.	dynamics of the contingent of students in the context of forms and types;		+		
29	12.	the level of academic performance, student achievement and expulsion;		+		
30	13.	satisfaction of students with the implementation of EP and the quality of education at the university;		+		
31	14.	availability of educational resources and support systems for students;		+		
32	15.	employment and career growth of graduates.		+		
33	16.	Students, employees and teaching staff must document their consent to the processing of personal data.		+		
34	17.	The EP's management should contribute to the provision of all the necessary information in the relevant fields of science.		+		
<b>Total by standard</b>			<b>2</b>	<b>15</b>	<b>0</b>	<b>0</b>
<b>Standard "Development and approval of educational programmes"</b>						
35	1.	The university must define and document procedures for the development of EP and their approval at the institutional level.	+			
36	2.	EP management must ensure that the developed EP meets the established goals, including the expected learning outcomes.		+		
37	3.	The EP management must ensure the availability of developed models of the EP graduate, describing the learning outcomes and personal qualities.		+		

38	4.	The EP's management must demonstrate the conduct of external examinations of the EP.		+		
39	5.	The qualifications obtained upon completion of the EP must be clearly defined, explained and correspond to a certain level of the NQF.		+		
40	6.	EP management must determine the influence of disciplines and professional practices on the formation of learning outcomes.	+			
41	7.	An important factor is the ability to prepare students for professional certification.			+	
42	8.	EP management must provide evidence of the participation of students, teaching staff and other stakeholders in the development of the EP, ensuring their quality.		+		
43	9.	The complexity of the EP should be clearly defined in Kazakhstani loans and ECTS.		+		
44	10.	EP management must ensure the content of academic disciplines and learning outcomes at the level of training (bachelor's, master's, doctoral studies).		+		
45	11.	The structure of the EP should provide for various types of activities corresponding to the learning outcomes.		+		
46	12.	An important factor is the presence of joint EP with foreign educational organizations.		+		
<b>Total by standard</b>			<b>2</b>	<b>9</b>	<b>1</b>	<b>0</b>
<b>Standard "On-Going Monitoring and Periodic Review of Educational programmes"</b>						
47	1.	The university must monitor and periodically evaluate the EP in order to ensure the achievement of the goal and meet the needs of students and society. The results of these processes are aimed at continuous improvement of the EP.		+		
		Monitoring and periodic evaluation of the EP should consider:				
48	2.	the content of the programs in the light of the latest achievements of science in a specific discipline to ensure the relevance of the taught discipline;		+		
49	3.	changes in the needs of society and professional environment;		+		
50	4.	workload, academic performance and graduation of students;		+		
51	5.	the effectiveness of student assessment procedures;		+		
52	6.	expectations, needs and satisfaction of students with EP training;		+		
53	7.	educational environment and support services and their compliance with the objectives of the EP.		+		
54	8.	The university and EP management must provide evidence of the participation of students, employers and other stakeholders in the revision of the EP.		+		
55	9.	All stakeholders should be informed of any planned or taken action with respect to the EP. All changes made to		+		

		the OP must be published.				
56	10.	The EP management must ensure the revision of the content and structure of the EP, taking into account changes in the labor market, the requirements of employers and the social demand of society.		+		
<b>Total by standard</b>			<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>
<b>Standard "Student-centered Learning, Teaching and Performance Evaluation"</b>						
57	1.	EP management should ensure respect and attention to various groups of students and their needs, providing them with flexible learning paths.		+		
58	2.	EP management must ensure the use of various forms and methods of teaching and learning.		+		
59	3.	An important factor is the availability of their own research in the field of teaching methods of educational disciplines EP.		+		
60	4.	EP management must demonstrate the existence of a feedback system on the use of various teaching methods and assessment of learning outcomes.		+		
61	5.	The EP's leadership must demonstrate support for the autonomy of students while providing guidance and assistance from the teacher.		+		
62	6.	The EP's management must demonstrate the existence of a procedure for responding to student complaints.		+		
63	7.	The university must ensure consistency, transparency and objectivity of the learning outcome assessment mechanism for each EP, including appeal.		+		
64	8.	The university must ensure that the procedures for assessing the learning outcomes of EP students are consistent with the planned learning outcomes and the objectives of the program. Criteria and methods of assessment within the EP should be published in advance.		+		
65	9.	The university should determine the mechanisms for ensuring the development of learning outcomes by each EP graduate and ensure the completeness of their formation.		+		
66	10.	Evaluators should be proficient in modern methods of assessing learning outcomes and regularly improve their qualifications in this area.			+	
<b>Total by standard</b>			<b>0</b>	<b>9</b>	<b>1</b>	<b>0</b>
<b>Standard "Students"</b>						
67	1.	The university must demonstrate the policy of forming a contingent of students from admission to graduation and ensure the transparency of its procedures. The procedures governing the life cycle of students (from admission to completion) must be defined, approved, published.		+		
68	2.	The EP's management must demonstrate the		+		

		implementation of special adaptation and support programs for newly admitted and foreign students.				
69	3.	The university must demonstrate the compliance of its actions with the Lisbon Recognition Convention.		+		
70	4.	The university should cooperate with other educational organizations and national centers of the "European Network of National Information Centers for Academic Recognition and Mobility / National Academic Recognition Information Centers" ENIC / NARIC in order to ensure comparable recognition of qualifications.		+		
71	5.	EP management must demonstrate the existence and application of a mechanism for recognizing the results of academic mobility of students, as well as the results of additional, formal and non-formal education.		+		
72	6.	The university should provide an opportunity for external and internal mobility of EP students, as well as assist them in obtaining external grants for training.		+		
73	7.	The EP's management should make the maximum amount of effort to provide students with places of practice, promote employment of graduates, and maintain communication with them.		+		
74	8.	The university must provide EP graduates with documents confirming the qualifications received, including the learning outcomes achieved, as well as the context, content and status of the education received and evidence of its completion.		+		
75	9.	An important factor is monitoring the employment and professional activity of EP graduates.		+		
76	10.	EP management should actively stimulate students to self-education and development outside the main program (extracurricular activities).		+		
77	11.	An important factor is the existence of an active alumni association / association.			+	
78	12.	An important factor is the availability of a support mechanism for gifted students.		+		
<b>Total by standard</b>			<b>0</b>	<b>11</b>	<b>1</b>	<b>0</b>
<b>Standard "Teaching staff"</b>						
79	1.	The university must have an objective and transparent personnel policy, including recruitment, professional growth and personnel development, ensuring the professional competence of the entire staff.		+		
80	2.	The university must demonstrate the compliance of the staff potential of the teaching staff with the development strategy of the university and the specifics of the EP.		+		
81	3.	EP management must demonstrate awareness of responsibility for their employees and providing them with favorable working conditions.			+	
82	4.	EP management must demonstrate a change in the role of the teacher in connection with the transition to		+		

		student-centered learning.				
83	5.	The university must determine the contribution of the teaching staff of the EP to the implementation of the development strategy of the university, and other strategic documents.		+		
84	6.	The university should provide opportunities for career growth and professional development of the teaching staff of the EP.			+	
85	7.	The EP's management should involve practitioners of the relevant industries in teaching.		+		
86	8.	The EP's management should provide targeted actions for the development of young teachers.		+		
87	9.	The university must demonstrate the motivation for the professional and personal development of EP teachers, including the encouragement of both the integration of scientific activity and education, and the use of innovative teaching methods.			+	
88	10.	An important factor is the active use of information and communication technologies by the teaching staff in the educational process (for example, on-line training, e-portfolio, MOOCs, etc.).		+		
89	11.	An important factor is the development of academic mobility within the EP, attracting the best foreign and domestic teachers.		+		
90	12.	An important factor is the involvement of the teaching staff of the EP in the life of society (the role of the teaching staff in the education system, in the development of science, the region, the creation of a cultural environment, participation in exhibitions, creative competitions, charity programs, etc.).		+		
<b>Total by standard</b>			<b>0</b>	<b>9</b>	<b>3</b>	<b>0</b>
<b>Standard "Educational resources and student support systems"</b>						
91	1.	EP management must demonstrate the sufficiency of material and technical resources and infrastructure.		+		
92	2.	The EP's management must demonstrate the existence of procedures for supporting various groups of students, including information and counseling.		+		
		The EP management must demonstrate the compliance of information resources with the EP specifics, including compliance with:				
93	3.	technological support for students and teaching staff in accordance with educational programs (for example, online training, modeling, databases, data analysis programs);		+		
94	4.	library resources, including the fund of educational, methodological and scientific literature on general education, basic and profiling disciplines on paper and electronic media, periodicals, access to scientific databases;		+		

95	5.	examination of research results, graduation works, dissertations for plagiarism;		+		
96	6.	access to educational Internet resources		+		
97	7.	functioning of WI-FI on the territory of the educational organization.		+		
98	8.	The university should strive to ensure that the educational equipment and software used for mastering the EP are similar to those used in the respective industries.	+			
99	9.	The university must ensure compliance with safety requirements in the learning process.		+		
100	10.	The university should strive to take into account the needs of various groups of students in the context of EP (adults, working people, foreign students, as well as students with disabilities).		+		
<b>Total by standard</b>			<b>1</b>	<b>9</b>	<b>0</b>	<b>0</b>
<b>Standard “Public Information”</b>						
		The information published by the university in the framework of the EP must be accurate, objective, relevant and must include:				
101	1.	programs being implemented, indicating the expected learning outcomes;	+			
102	2.	information on the possibility of qualifying at the end of the EP;	+			
103	3.	information about teaching, learning, assessment procedures;	+			
104	4.	information about passing scores and learning opportunities provided to students;	+			
105	5.	information about the employment opportunities of graduates.	+			
106	6.	The EP's management should use a variety of ways to disseminate information (including mass media, web resources, information networks, etc.) to inform the general public and stakeholders.		+		
117	7.	Public awareness should include support and explanation of national development programs for the country and the system of higher and postgraduate education.	+			
118	8.	The university must publish audited financial statements on its own web resource.		+		
119	9.	The university must demonstrate the reflection on the web resource of information characterizing the university as a whole and in the context of EP.	+			
120	10.	An important factor is the availability of adequate and objective information about the teaching staff of the EP, in the context of personalities.	+			
121	11.	An important factor is informing the public about cooperation and interaction with partners within the EP, including with scientific / consulting organizations,		+		

		business partners, social partners and educational organizations.				
122	12.	The university should post information and links to external resources based on the results of external evaluation procedures.	+			
113	13.	An important factor is the participation of the university and the implemented EP in various external assessment procedures.	+			
<b>Total by standard</b>			<b>10</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>Standards in the context of individual specialties</b>						
<b>NATURAL SCIENCES, AGRICULTURAL SCIENCES, TECHNICAL SCIENCES, AND TECHNOLOGIES</b>						
		Educational programs in the areas of "Natural Sciences", "Technical Sciences and Technologies", such as "Mathematics", "Physics", "Information Systems", etc., must meet the following requirements:				
114	1.	In order to familiarize students with the professional environment and current issues in the field of specialization, as well as to acquire skills based on theoretical training, the educational program should include disciplines and activities aimed at gaining practical experience and skills in the specialty in general and in the major disciplines in particular, including .h .: - excursions to enterprises in the field of specialization (factories, workshops, research institutes, laboratories, educational and experimental farms, etc.), - conducting individual classes or entire disciplines at the enterprise of specialization, - holding seminars to solve practical problems relevant for enterprises in the field of specialization, etc.	+			
115	2.	The faculty involved in the education program should include full-time teachers with long-term experience as full-time employees in enterprises in the area of specialization of the education program.	+			
116	3.	The content of all EP disciplines should be based in one way or another and include a clear relationship with the content of fundamental natural sciences, such as mathematics, chemistry, physics.		+		
117	4.	EP management should provide measures to strengthen practical training in the field of specialization.	+			
118	5.	EP management must provide training for students in the use of modern information technologies.		+		
<b>Total by standard</b>			<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>			<b>20</b>	<b>91</b>	<b>7</b>	<b>0</b>