«АККРЕДИТТЕУ ЖӘНЕ РЕЙТИНГТІҢ ТӘУЕЛСІЗ АГЕНТТІГІ» КЕМ

НУ «НЕЗАВИСИМОЕ АГЕНТСТВО АККРЕДИТАЦИИ И РЕЙТИНГА»

INDEPENDENT AGENCY FOR ACCREDITATION AND RATING

REPORT

on the results of the work of an external expert commission for assessing compliance with the requirements of the standards of specialized accreditation of educational programs

5B070200 «AUTOMATION AND MANAGEMENT»,
6M070200 «AUTOMATION AND MANAGEMENT»,
5B071600 «INSTRUMENTATION»,
6M071600 «INSTRUMENTATION»,
6M075000 «METROLOGY»,

KARAGANDA STATE TECHNICAL UNIVERSITY

Site Visit Dates: from May 20 to May 23, 2019

INDEPENDENT AGENCY FOR ACCREDITATION AND RATING
External expert commission

Addressed to
IAAR Accreditation
Council

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KARAGANDA STATE TECHNICAL UNIVERSITY

from May 20 to May 23, 2019

Karaganda, 2019

CONTENT

(I) LIST OF DESIGNATIONS AND ABBREVIATIONS

APP - Automation of production processes
JSC - Joint Stock Company
EAEA - external assessment of educational achievements
SCC- State Certification Commission
SUC - state utility company
DAA - Department of Academic Affairs
DIE - Department of Innovation and Entrepreneurship
HRD - Human Resources Department
MEI - measuring equipment and instrumentation
ISP - individual study plan
KSTU - Karaganda State Technical University
NAS RK - National Academy of Sciences of the Republic of Kazakhstan
RI - research institute
SR - student research
RW - research work
EP - educational program
RO - registration office
BEM - based on economic management
AS – Academic staff
WI– work instruction
RSE– Republican State Enterprise
WTP - working training plan
QMS - quality management system
MM- mass media
TTP - typical training plan
LLP - limited liability partnership
EMCD - educational-methodical complex of discipline
PUD - postgraduate education department
EPOD - educational process organization department

(II) INTRODUCTION

In accordance with the order No. 53-19-OD of 05/02/2019 of the Independent Agency for Accreditation and Rating, from May 20 to 23, 2019, the External Expert Commission assessed the conformity of educational programs 5B070200 “Automation and Management”, 6M070200 “Automation and Management”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”, 6M075000 “Metrology” of the Karaganda State Technical University to the standards of specialized accreditation of the IAAR (No. 10-17-OD dated February 24, 2017, fifth edition).

The report of the external expert commission (EEC) contains an assessment of the submitted educational programs to the IAAR criteria, recommendations of the EEC on further improvement of educational programs and profile parameters of educational programs.

The composition of the EEC:

1. The chairman of the commission - Gita Revalde, PhD in Physics, corresponding member of the Latvian Academy of Sciences, member of the Latvian Science Association, president of the Almaty University of Energy and Communications (Almaty);

2. Foreign expert - Mikhail Yuryevich Narkevich, candidate of technical sciences, docent, G.I. Magnitogorsk State Technical University (MSTU) Nosova, expert of the Federal Accreditation Agency (Magnitogorsk, Russian Federation);

3. **Foreign expert** - Torobekov Bekzhan Torobekovich, candidate of technical sciences, professor, vice-rector for development and the state language, Kyrgyz State Technical University named after I. Razzakova (Kyrgyzstan, Bishkek);

4. Expert - Ibraishina Gulnar Kenzhegazievna, candidates of philosophical sciences, docent, International Educational Corporation (KazGASA) (Almaty);

5. Expert - Kalshabekova Elmira Nurlybaevna, candidate of technical sciences, associate docent, South Kazakhstan State University named after M. Auezova (Shymkent);

6. Expert - Kasimov Askar Bagdatovich, Doctor PhD, Shakarim State University of Semey;

7. Expert - Abdimuratov Zhubanyshbay Suinullaevich, candidate of technical sciences, docent, Almaty University of Energy and Communications (Almaty);

8. Expert - Markovsky Vadim Pavlovich, candidate of technical sciences, docent, Pavlodar State University named after S. Toraigyrov (Pavlodar);

9. Expert - Bulashev Berdibek Kabkenovich, candidate of agricultural sciences, docent, S. Seifullin Kazakh Agrotechnical University (Nur-Sultan);

10. Expert - Polyakova Lyudmila Vladimirovna, Deputy. Chairman of UMCU, Kazakhstan Engineering and Technology University (Almaty);

11. Expert - Aldungarova Aliya Kairatovna, Doctor PhD, Associate Professor, Pavlodar State University named after S. Toraigyrov (Pavlodar);

12. Employer - Kutlin Sergey Yuryevich, Director of the Logic-Soft Training Center (Karaganda);

13. Employer - Kairbekova Naylya Kamalovna, director of the Association of Developers of the Karaganda Region OIPiUL (Karaganda);

14. Student - Pozilbekov Murotkhon Mukhtorugli, member of the Alliance of Students of Kazakhstan, 1st year student of EP “5B071800-Electrical Power Engineering”, Karaganda State Industrial University (Temirtau);

15. Student - Omirzakova Aizhan Amangeldyevna, member of the Alliance of Students of Kazakhstan, 2nd year student of EP “5B071600-Instrumentation”, Karaganda State University named after academician E.A. Buketova (Karaganda);

16. Student - Ayman Askhatkyzy, Tlegenova, member of the Students' Alliance of Kazakhstan, 1st year student of the EP “5B071900-Radio Engineering, Electronics and Telecommunications”, Karaganda State University named after Academician E.A. Buketova (Karaganda);

17. Student - Asanov Alikhan Altinbekuly, leader of the Alliance of Students of Kazakhstan in the Karaganda region (Karaganda);

18. The observer for the Agency - Timur Yerbolatovich Kanapyanov, Doctor PhD, Head of International Projects and Public Relations of the IAAR (Nur-Sultan).

(III) REPRESENTATION OF THE EDUCATION ORGANIZATION

The Republican State Enterprise Karaganda State Technical University (hereinafter KSTU) is a subject of higher professional education of the Republic of Kazakhstan and acts on the basis of the Charter registered in the Karaganda Regional Department of Justice on April 14, 2004 No. 3-8 / 139, certificate of state re-registration of legal entity No. 8488-1930-GP 02.24.2000

In 2012, the State Enterprise "Karaganda State Technical University" was transformed into the Republican State Enterprise on the right of economic management "Karaganda State Technical University". The charter of the university was approved by order of the Chairman of the State Property and Privatization Committee of the Ministry of Finance of the Republic of Kazakhstan No. 922 of 09/17/2012.

KSTU is one of the largest higher education institutions in Kazakhstan, which provides training of highly qualified specialists for industrial enterprises of Kazakhstan, the implementation of scientific research and training on their basis of highly qualified personnel. Personnel training at KSTU is carried out in accordance with the State license for educational activities in the field of higher and postgraduate education No. 12014940 dated 10/22/2012, appendices to the license of the order of the Chairman of the Committee for Control in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan No. 547 dated 05/31/2016. 82 specialties, including: 40 undergraduate majors, 27 graduate majors and 8 doctoral majors, 7 military specialties, and appendices to the license dated 04/02/2019. in 12 areas of undergraduate, 9 areas of magistracy and 3 areas of doctoral studies.

In 2014, the university passed institutional, in 2014-2015 - specialized accreditation of 24 educational programs in the IAAR. In 2014-2015, the university also passed specialized accreditation of 27 educational programs at IQAA and international specialized accreditation of 15 educational programs at ASIIN. In 2016, 10 educational programs of KSTU passed international specialized accreditation at ACQUIN.

In 2018, KSTU passed international reaccreditation in the IAAR for a period of 7 years.

In 2018, KSTU acquired 3rd place in the national rating of the best technical universities in Kazakhstan, conducted by IAQAE.

According to the results of the national rating conducted by the Independent Agency for Accreditation and Rating (IAAR) in 2015, 36 university universities acquired prizes out of 68 participating; in 2016 - 37 of the 38; in 2017 - 41 of 50; in 2018 - 35 of 50 out of 50; in 2019 - 41 of 50 out of 50, respectively.

In international ratings in 2018, the university acquired the following positions: QS World University Rankings 751+ place; QS University Rankings EECA - 171 place (Top-300); UNIRANK World University Rankings 2765 - place; UNIRANK Country University Rankings 2 - place; RANKPRO Worldwide Proffessional University Rankings 577 - place; RANKPRO Country University Rankings 2 - place; UI Green Metric World University Rankings 482 - place; UI Green Metric Country University Rankings 5th place; WEBOMETRICS World University Rankings 5574 - place; WEBOMETRICS Country University Rankings 6th place; ARES World Universities-European Standard ARES - BBB +.

The total area of buildings owned by the University is 91,268.6 sq.m. The structure of the university includes 8 faculties (architectural and construction; mining; engineering, transport and road; engineering economics and management; innovative technologies; energy, automation and telecommunications; distance and distance learning), 30 departments, 8 departments, the Triune Languages Center them. Shakarima Kudaiberdieva, Center for career guidance, Center for work professions, Center for engineering pedagogy, Training center Serpin - 2050, Center for IT competencies, Career

growth center, Upgrade center, International center for materials science, Research Institute "Kazakhstan Multidisciplinary Institute for Reconstruction and Development", Kazakhstan Institute of Welding college.

To receive working professions at the first stage of student training at KSTU there are 6 Centers: engineering, mining, construction, welding, energy and telecommunications.

In order to improve the organizational structure, centrally managing the implementation and promotion of innovative projects on the market, a university innovative scientific and technical complex has been created at KSTU, including:

- 6 research institutes;
- 4 scientific and educational complexes (Industry 4.0, Digital Engineering, Nanotechnology in Metallurgy and Bioengineering);
- 16 innovation centers;
- Testing laboratory of engineering profile "Integrated development of mineral resources."

The university has a catering complex, including a Polytechnic cafe with an area of 2345.9 square meters, 9 buffets, 3 student dormitories, a Polytechnic sports and recreation camp, and the Zhastar Alemi Youth Palace.

Training sessions are taught by 67 (of which 60 are full-time) doctors of science, including 46 with the academic title of professor (HAK), 236 candidates of science (of which 218 are full-time), including 109 with the academic title of associate professor (HAK) - 109 pers., 26 PhD doctors, 278 masters.

The contingent at the university is 11,402 students, including 1394 undergraduates and 128 doctoral students.

The university, as part of its professional activities, uses a number of licensed software products that provide rational support for the educational, scientific, organizational and control functions.

The educational process uses 72 interactive kits, 3186 modern computers with Internet access. The library is located in 3 educational buildings. The area of the library is 2311.06 sq.m. Seats in reading rooms 290. In the public domain on an area of 72.1 sq.m. 2140 copies are presented. literature. The general fund of the library is 1 898 611 storage units, it contains all the materials necessary for training: educational, technical, reference, non-fiction, various periodicals. The current fund - 1 185 771 copies, including 337045 copies in the state language.

In recent years, a positive trend has been achieved in the growth of total research funding. In 2018, 98 scientific and scientific-technical projects in the amount of 980.1 million tenge were completed, including: 237 million tenge - under the state budget, 743 million tenge - under economic agreements, which exceeded this figure for 2017 by 90, 9 million tenge the main customers of contractual work are: ArcelorMittal Temirtau JSC, Kazakhmys Corporation LLP, SSGPO JSC, Bogatyr Komir LLP, Zhairemsky GOK JSC, Shubarkol Komir JSC, etc.

In 2018, the university passed a recertification audit for compliance with the requirements of the ISO 9001: 2015 standard.

The APP Department was founded in 1962 and is currently training technical specialists in the field of automation of technological processes and production, automated electric drives, electric power, mechatronics and robotics, integrated automation technologies, the use of non-traditional sources of electricity, automated heuristic (including remote) training systems and knowledge assessment.

The first admission to the specialty "Information-measuring equipment" acquired place in 1986, and in 2005 the specialty "Metrology" was opened. In December 1989, the Department of ITPS was opened (at that time the Department of Information and Measuring Technology). All these years, the department graduated from high quality

electrical engineers, which is confirmed by the successful passage of multiple state certifications from the Ministry of Education and Science of the Republic of Kazakhstan.

The departments are equipped with the most advanced tools at the moment, automation systems and software for research, design and technical implementation of industrial automated technological complexes, information-measuring systems and complexes, means of metrological support of production.

The contingent of full-time and part-time students in the EP “Automation and Management” for 2014-2019.

Contingent	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
baccalaureate	316	279	314	309	436
magistracy	34	67	70	75	89

The contingent of full-time and part-time students at the EP “Instrumentation” in 2014-2019

Contingent	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
baccalaureate	140	128	104	111	118
magistracy	10	15	15	0	16
Total	150	143	119	111	134

Qualitative and quantitative composition of teachers at the EP “Automation and Control”

№	School years	The total number. AS by staffing table, people	Including staff. teacher, people (%)	Including comm. people.	Reduce people (%)	Average age, years	Including practical people (%)
	2014-2015	37	27 (63 %)	10 (27 %)	12 (44,3%)	41	7 (18,9%)
	2015-2016	36	26 (59 %)	8 (22 %)	12 (46,6%)	41	10 (27,7%)
	2016-2017	40	30 (48 %)	10 (25 %)	16 (53,3%)	44	12 (30,0%)
	2017-2018	40	31 (52%)	9 (23%)	17 (53,1%)	41	11 (27,5%)
	2018-2019	38	32 (71%)	6 (16%)	18 (56,2%)	40	7 (18,4%)

Qualitative and quantitative composition of teachers in the EP "Instrumentation", "Metrology"

№ п/п	School years	The total number. AS by staffing table,	Including staff. teacher,	Including comm. people.	Reduce people (%)	Average age, years	Including practical people (%)
	2014-2015	20	17(86%)	3(15%)	10 (58%)	47	5 (25%)
	2015-2016	19	16 (85%)	3(16%)	9 (56%)	47	5 (26%)
	2016-2017	19	16 (78%)	3(16%)	9 (56%)	47	6 (32%)
	2017-2018	17	15 (83%)	2(12%)	8 (53%)	46	4 (23%)
	2018-2019	17	14 (83 %)	3 (17%)	7 (50%)	48	3 (17%)

The quality of training for students in the EP 5B070200 - “Automation and Control” confirms the level of employment of graduates.

Information on the employment of graduates of the bachelor degree EP 5B070200 - “Automation and Control”

Indicator	2014	2015	2016	2017	2018

Number of graduates	60	47	50	47	53
On a budget basis	26	8	26	26	17
On a commercial basis	34	39	24	21	36
Employed	60	47	44	38	39
On a budget basis	26	8	26	22	16
On a commercial basis	34	39	18	16	23

Information on the employment of graduates of the magistracy EP 6M070200 - "Automation and Control"

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	10	64	63	68
On a budget basis	5	62	59	68
On a commercial basis	5	2	4	-
Employed %	100	100	95	87
On a budget basis %	100	100	95	87
On a commercial basis %	100	100	100	-

Information on the employment of graduates of the bachelor degree EP 5B071600 - "Instrumentation"

Number of graduates	2014-2015	2015-2016	2016-2017	2017-2018
On a budget basis	25	29	46	27
On a commercial basis	24	29	46	27
Employed %	1	0	0	0
Number of graduates	81	82	86	85

Information on the employment of graduates of the magistracy EP 6M071600 - "Instrumentation", 6M075000– "Metrology"

Number of graduates	2014-2015	2015-2016	2016-2017	2017-2018
On a budget basis	8	6	9	7
On a commercial basis	8	6	8	7
Employed %	0	0	1	0
Number of graduates	100	100	100	100

In the period 2014-2019 Under the program of external academic mobility, 24 students were trained for one semester in universities in Europe and Asia. At the moment, 2 students are studying in academic mobility in Poland and the Czech Republic. (http://www.kstu.kz/mezhdunarodnoe-sotrudnichestvo-22/)

13 undergraduates were sent for academic mobility under the program of the University of the Shanghai Cooperation Organization. (http://www.kstu.kz/mezhdunarodnoe-sotrudnichestvo-22/). Master student gr. AUM-16-3 Ohapova Sh. 2016-2017 academic year studied as part of a science grant from Sweden at the University of Lileu, Sweden.

Students of KGIU specializing in Automation and Management are trained in internal academic mobility, with the issuance of a transcript, according to an agreement on mutual cooperation in the field of educational services between KSTU and KGIU from 03/14/2011.

The Academic staff of the APP department carry out research work of an innovative nature:

- "Development of distributed software and hardware systems for protection and diagnostics of elements of high-voltage power lines". Grant of the Ministry of Education and Science of the Republic of Kazakhstan (2013-2015), 30 million tenge, scientific adviser.

Breido I.V.;

- "Creation of a distributed noise-resistant "smart grid" system for monitoring the condition of HVPL poles using combined methods of transmitting information". Grant of the Ministry of Education and Science of the Republic of Kazakhstan (2015-2017), 51 million tenge, scientific adviser Breido I.V.;
- Participation in the development and experimental studies of hydrodynamic water heaters, responsible executive from the Department of APP PhD Ph.D. Kalinin A.A.;
- Creation of remote monitoring systems for monitoring the operation modes of high-voltage substations and mining equipment for open cast mining (through the Elat company, which is part of the KSTU-INTECH consortium);
- Creation of high-speed means of protection of mining electrical complexes;
- Creation of remote monitoring systems for monitoring the operation modes of high-voltage substations and mining equipment for open cast mining (through the Elat company, which is part of the KSTU-INTECH consortium);
- Development of software and hardware for training and retraining of specialists in the field of modern technologies of electric drive and automation.

Prof. prof. V.S. Vyatkin, a well-known smart grid technology scientist from AALTO University, Helsinki, Finland.

The development of the department "Device for protection against leakage currents" is included in the list of exhibits of the World Exhibition "Expo-2017".

The department participates in the international organization for automation and mechatronics DAAAM International, bringing together scientists from 59 countries, with headquarters in Vienna (Austria). Head Chair prof. I.V. Breido is the President of DAAAM International for Kazakhstan, as well as a member of the DAAAM International Scientific Committee.

(IV) DESCRIPTION OF THE PREVIOUS ACCREDITATION PROCEDURE

In accordance with the order of the Independent Agency for Accreditation and Rating No. 26-14-OD dated 10.10.2014, from 14 to 17 October 2014, an external expert commission assessed the conformity of educational programs 5B070200 "Automation and Management", 6M070200 "Automation and Management" at KSTU, 5B071600 Instrumentation, 6M071600 Instrumentation to the standards of specialized accreditation of the IAAR (dated April 26, 2012 No. 08-OD, second edition).

The educational program 6M075000 "Metrology" is accredited by the IAAR for the first time.

The report of the previous external expert commission (EEC) contains an assessment of the educational programs presented by the organization of education to the criteria of IAAR, recommendations of the EEC on further improvement of educational programs and profile parameters of educational programs of KSTU.

The composition of the previous EEC in KSTU:

1. The chairman of the commission - Shunkeev Kuanyshbek Shunkeevich, Doctor of Physical and Mathematical Sciences, Professor, First Vice-Rector of Aktobe State Regional University named after K. Zhubanova;

2. Foreign expert - Kolesova Svetlana Borisovna, candidates of economical sciences, Deputy Director for Academic Affairs of the Oil and Gas Institute named after M.S. Gutseriev Udmurt State University (Izhevsk, Udmurt Republic);

3. Expert - Aryngazin Kapar Shakimovich, candidates of technical sciences, professor, head of the department "Professional training and environmental protection" Pavlodar State University named after S. Toraigyrov;

4. Expert - Zhunusov Akylbek Asyrarkulovich, candidate of geological and mineralogical sciences, professor, head of the department, geological survey, search and exploration of mineral deposits of the Kazakh National Technical University named after K.I. Satpayev (Almaty);

5. Expert - Kasymkanova Haini-Kamal Mikhailovna, doctor of technical sciences, docent, Head of the Department of Cartography and Geoinformatics, Al-Farabi Kazakh National University;

6. Expert - Smirnov Mikhail Borisovich, candidates of technical sciences, professor, head of the methodological department of the Shakarim State University of Semey;

7. Expert - Kanaev Amangeldy Tokeshovich, doctor of technical sciences, professor of the Kazakh Agrotechnical University named after S. Seifullin (Astana);

8. Expert - Sagalieva Zhanar Kaukerbekovna, candidate of pedagogical sciences, Senior Lecturer, Department of Professional Education, Kazakh Agro Technical University named after S. Seifullin;

9. Expert - Sagitov Pulat Ismailovich, doctor of technical sciences, Professor, Head of the Department of Electric Drive and Automation of Industrial Installations, Almaty University of Energy and Communications;

10. Expert - Baklanov Alexander Evgenievich, candidates of physical and mathematical sciences, Head of the Department of Instrumentation and Automation of Technological Processes of East Kazakhstan State Technical University (Ust-Kamenogorsk);

11. Employer - Akhmetov Serikkazy Intybekovich, director of the branch of the state-owned enterprise "Kazgeodegia" "Ortalykmarkshaderiya" (Karaganda);

12. Student - Tusupbekova Sulushash Eleusizovna, 3rd year student of the specialty "Finance" of Karaganda State University named after E.A. Buketova;

13. The observer for the Agency - Nurakhmetova Aiman Bekbolatovna, the head of the information and analytical project of the Agency.

RECOMMENDATIONS TO THE HIGHER EDUCATIONAL INSTITUTION WITHIN THE FRAMEWORK OF THE PREVIOUS ACCREDITATION PROCEDURE

In 2014, the EEC for specialized accreditation of educational programs 5B070200 "Automation and Control", 6M070200 "Automation and Control" recommended:

According to the standard "Management of the educational program"

- cooperation with other universities that implement the same educational programs is a two-way process and, obviously, if the partners are ready for joint communication. The Internet can become a platform for searching for the latter (i.e., communication - cooperation). Therefore, it is recommended to maximally popularize the effective experience of managing a cluster of social networks in social networks;

- in order to level the education of participants in double-degree education programs and academic mobility, it is necessary to create conditions that initially allow students and graduate students of KSTU (APP department) to establish a measure of the difference between their knowledge and the knowledge required in a partner university, and then offer them technology to improve their education. Obviously, at the same time, if possible, commercialization of this process should be excluded. This is possible if the department will, within the framework of its existing academic load, create conditions for obtaining the necessary knowledge. Again, the place where this can be done is local and global networks;

- the only way to somehow influence the process of centralized distribution of grants to improve the scientific qualifications of the department's employees is to constantly display the department's readiness to receive such grants. Which is recommended to continue to do the department.

According to the standard "Specificity of the educational program"

- improve the content of educational programs that provide the logic of the relationship of work performed by students with mastered competencies;

- focus on the logic of combining disciplines into modules and observing their continuity in courses during the examination of training modules;

- organize the mobility of teachers of the department in foreign universities;

- to intensify the participation of Academic staff in the research work of the department in the form of conclusion of business agreements with enterprises;

- direct the work of the department staff to increase the book stock by developing basic and online versions of textbooks and teaching aids for EP 6M070200 - "Automation and Control".

According to the standard "Academic staff and the effectiveness of teaching"

- open doctoral Ph.D in specialty 6D070200 "Automation and control";

- expand the training of scientific and academic staff in the academic mobility programs Bolashak, Erasus Mundus +;

- to develop mechanisms for job seeking and postgraduate studies in other countries;

- Further development of international relations and advanced training of teachers in universities near and far abroad;

- increase the level of preparedness of academic staff in the study of a foreign language.

According to the standard "Students"

- to intensify the participation of students in research activities;

- expand the geography of universities to ensure academic mobility of students;

- increase the level of students' awareness of the decisions of collegial bodies on the management of EP;

- take measures to increase the level of knowledge of foreign languages with a professional (technical) focus.

According to the standard "Resources available to educational programs"

- continue to further improve the material and technical equipment of educational programs;

- step up work on attracting students to funded research and development work;

- consider accelerating the process of updating the material and technical base, library funds by attracting sponsorship funds;

- continue the further development of the Synergy project.

According to the standard "Standards in the context of individual specialties"

- to recommend young teachers in accredited educational institutions to take internships and continuing education courses at enterprises specializing in modern automation technologies;

- to increase the number of places in the magistracy "Automation and Management" to attract interested employers - members of the "Corporate University" association to the process of preparing applications to the Ministry of Education and Science of the Republic of Kazakhstan.

On November 29, 2014, by the decision of the Accreditation Council of the IAAR, the educational programs 5B070200 "Automation and Control", 6M070200 "Automation and Control" implemented by KSTU were accredited for 5 years.

Post-monitoring control to assess the implementation of the recommendations of the Higher Attestation Commission of the IAAR, formed according to the results of specialized accreditation of educational programs 5B070200 "Automation and Control", 6M070200 "Automation and Control" by the IAAR expert group was held in KSTU on May 26-27, 2016.

Post-accreditation monitoring of KSTU activities showed that, in general, the recommendations of these EECs are being implemented. The measures and actions taken have contributed to improving the quality of the educational process and the

implementation of the educational programs of the university, positive trends in attracting students to research, creating conditions for expanding the geography of partner universities and developing conditions that contribute to the formation of the student's personality.

At the same time, members of the EEC who conducted re-accreditation from May 20 to May 23, 2019 established that the following work was carried out according to the recommendations of the previous EEC:

1. According to the recommendations of the standard "Management of the educational program":

- An Agreement No. 359 in the field of scientific and educational activities was concluded with the Peter the Great St. Petersburg Polytechnic University, the Baltic State Technical University "VOENMEH" named after D.F. Ustinova (BSTU, St. Petersburg, Russia), NRU "Moscow Power Engineering University" (NRU MEI, Russia), Omsk State Technical University (Omsk State Technical University, Omsk, Russia). Double-degree education programs have been implemented with NI TPU (g. Tomsk, Russia), NRU MPEI and NRU ITMO (St. Petersburg, Russia). During the reporting period 10 graduates were graduated. In 2019 2 undergraduates are defending at NRU ITMO; 2 undergraduates are completing their first year at Kargu. To ensure maximum use of Internet resources, on-line lectures were given to undergraduates in the disciplines Design Fundamentals of Industrial Automated Complexes September-December 2015, management and control systems for ATC operation modes February-April 2016, operational-dispatch control systems ATK February-April 2016, methods and tools for modeling industrial robots February-April 2016 Starting in the fall of 2016. Two modular courses are taught in the schedule grid over the Internet: Modern Management Theory and Intelligent Management Systems. There are 4 modules in each discipline, each of which is read on the Internet by the teacher of the university participating in the Synergy project (NRU SPbPU Peter the Great, NRU MEI (Moscow), KSTU, and students of these universities are listening at the same time;

- Students participate in an online conference on the basis of Omsk State Technical University; during the reporting period, 30 students took an active part. The annual joint online presentation of the best master's theses of KSTU, BSTU, OmSTU, MPEI, as well as testing and preliminary defense of dissertations on the basis of BSTU, is held. Every year, graduate students of KSTU undergo an internship at Peter the Great SPbPU (from 2015 to 2019, 140 undergraduates passed an internship, of which 118 are under the SPIID-2 program). In the framework of the project, Synergy annually, starting from 2016, internships in Vienna under the supervision of a professor at the Vienna Technical University B. Katalinich are conducted in English by 3-4 undergraduates. Within the framework of the SCO University, 3-4 graduate students undergo semester studies annually at MPEI (Moscow) and UrFU (Yekaterinburg). This leads to equalization of the level of education of students and to get rid of the provincial complex;

- In the implementation of the grant "Creation of a distributed noise-resistant "smart grid" system for monitoring the condition of VLEP poles using combined methods of transmitting information," takes part prof. V.S.Vyatkin, a famous scientist in the field of smart grid technologies from AALTO University (Helsinki, Finland). A systematic internship of undergraduates and faculty of the department was organized at the expense of the republican program of SPIID-2, which KSTU received on a competitive basis. Currently, 34 undergraduates have completed internships. Of the faculty members of the department, 9 people underwent internship at SPbPU 2015 with obtaining certificates. As part of the development of the program of SPIID-2 prof. Breido I.V. In 2015, he visited the Riga Technical University (Riga, Latvia) and passed a training workshop on mechatronics with the issuance of a certificate. Breido I.V. participated in the DAAAM symposium Zadarsk, Croatia, June 2015 In July 2015 Kochkin A.M. He completed an internship under the

program "Innovations in Teaching and Learning" at Nanyang Technological University (Singapore). In KSTU 2015, Schneider Electric experts trained 9 people in the academic staff of the department to work on the stands of this concern. The Department of Foreign Languages of KSTU in the 2015-2016 academic year organized courses to improve knowledge of the English language, at which associate professors of the department Kochkin A.M. and Smagulova K.K., senior lecturer Parshina G.I. In 2017, the department participated in 3 competitions for grant financing, after passing the foreign examination, points 31.33, 30 and 24 were received, but the projects of the NNS were not approved. In 2017-2018. the department participated in the ISTC competition, also underwent an experiment with positive results, but the project was not funded. In 2019 A joint project is being prepared with Nazarbayev University.

2. According to the recommendations of the standard "Specificity of the educational program":

- In the working curriculum of the bachelor's degree program, the relationship between the work performed and the competencies is established, and practical classes and theoretical courses are provided in parallel with practical training. A modular EP for the “Robotics. Management Systems”, which also establishes the relationship of work with competencies;
- New work syllabuses from 06/26/2015 have been developed, with improved modules in which the principle of continuity and the logical relationship of disciplines is observed. In 2018 developed new modular curricula for the new classifier, in which the principles of continuity are implemented;
- An internship program for the academic staff of the department for the period 2015-2017 was developed. As part of the development of the program, 12 teachers of the department took internships in Latvia, Singapore, St. Petersburg, and others. In 2017, Breido I.V. gave a series of lectures at Shihezi University (PRC). As part of the international project Erasmus Plus in 2019 an internship of 2 teachers of the department at the Bucharest Technical University is planned;
- In the period 2014-2016. The academic staff of the APP department carry out research work on 10 topics for a total of 81 million tenge. In the period 2017-2019, research work was performed in the amount of 25 million tenge, including 14 million, through the innovative company Elat, which is part of the KSTU-Intech Consortium;
- During the reporting period, teachers of the department published 16 editions. They are preparing for the publication of two courses in the form of slide lectures in English for undergraduates (Kochka A.M., Parshina G.I.). In the period 2017-2019. lecturers of the department published 5 monographs and 5 study guides for graduate studies.

3. According to the recommendations of the standard "Faculty and teaching effectiveness":

- Comments were eliminated, documents were prepared and sent to the Ministry of Education and Science of the Republic of Kazakhstan for the opening of a EP PhD doctoral program in specialty 6D070200 “Automation and Control”. For 3 annual applications in the period 2016-2018. failures were received for the opening of a PhD doctoral program in specialty 6D070200 “Automation and Control” due to lack of a buffet at the military department, lack of long-term funded contracts for 3 years, etc.;
- Cooperation agreements have been concluded with Peter the Great St. Petersburg Polytechnic University and the NRU Informatics, Precision Mechanics and Optics (ITMO St. Petersburg). Within the framework of the Synergy program and the republican program SPIIR-2, the senior lecturer S. Voitkevich In April 2016, she completed an internship at St. Petersburg Polytechnic University at the Faculty of Energy and tested the results of her research work. In the period 2016-2018. Art. Lecturer Kalinin completed a scientific internship in UrFU (Yekaterinburg), senior lecturer V. Ivanov Held a scientific internship at

NSTU (Novosibirsk), senior lecturer G. Nurmaganbetova- in KuzGTU (Kemerovo), senior lecturer G. Parshina - in BSTU (St. Petersburg);

- Senior Lecturer A. Kritsky in graduate school, NI of the Tomsk Polytechnic University is completing work on a PhD thesis;

- In the framework of the program "SPIID-2" head. Department of APP Breido I.V. gave a course of lectures at Shihotzi University (China, XUAR, Shanghai); In December 2015, 11 teachers underwent an internship at the SPbPU Research Institute under the program “Improving Curricula in the Framework of International Cooperation”. In 2017, Breido I.V. gave a series of lectures at Shihezi University (PRC). Within the framework of the Erasmus Plus international project, in 2019 an internship of 2 teachers of the department at the Bucharest Technical University is planned within the framework of international cooperation”;

- Associate professors of the department A. Kochkin and Smagulova K.K., senior teacher Parshina G.I. in the 2015-2016 academic year, attend courses to improve the English language. Senior Lecturer Kalinin A.A. received a certificate of French language proficiency at DELFA2. The courses in professional English are taught by Parshina G.I. Voitkevich S.V., Kalinin A.A., Smagulova K.K.;

4. According to the recommendations of the standard "Students":

- For 2014-2015, 9 students of the EP received certificates of honor for scientific research work, for 2015-2016, 16 students received certificates and diplomas for scientific research work. Published by students of the EP for 2014-2015 7 articles in the VI International Scientific and Technical Internet Conference of Young Scientists "Automation, Mechatronics, Information Technologies", 10 articles published by students of the International Scientific and Practical Conference "Integration of Science, Education and Production - the Basis for Implementing the Plan nation (Saginov readings number 7) "in December 2015. At the department of APP, currently, student research teams are actively functioning in the following areas: 1. Non-traditional sources of energy; 2. Computer technology in training; 3. Automation of production processes; 4. Industrial controllers; 5. Automated electric drive;

- Contracts of cooperation were concluded by Peter the Great St. Petersburg Polytechnic University for the preparation of joint academic programs for undergraduate and graduate studies and the National Research University of Informatics, Precision Mechanics and Optics (ITMO St. Petersburg) under the double-degree program. Work is underway to develop a joint study program with the Riga Technical University. For the period 2014-2016, the department organized a program of academic mobility for students from far abroad to study undergraduate programs for the following 13 students, from Tomsk Polytechnic University from September 1, 2014 to January 31, 2015, and from Beijing Polytechnic University (China) from 03/04/2015 to 08/05/2015, to the University of Applied Sciences (Wilhemshaven, Germany) from 10/01/2015 to 02/29/2016. In the period 2016-2018. The program of academic mobility organized the departure of 10 students to the following universities abroad: Poznan University of Technology (Poland), Ostrava Technical University (Czech Republic), Warsaw Technical University (Poland), Beijing Polytechnic University (China), Riga Technical University (Latvia), University Keymung (South Korea);

- In order to improve collegial and democratic forms of university management, students are represented in the Academic Council, regional youth structures, the trade union organization of students, as well as in the Academic Council of the Faculty of Energy, Automation and Telecommunications. On curatorial hours, discussions are held on the implementation of the educational program, an analysis of legislative changes in the field of higher education. Coverage of students on curatorial hours on these issues is 100%. In KSTU, there are the Student Parliament, the Department of Youth Policy, the student trade

union committee, the Council on Ideology and Educational Work, the MTR, the Zhasyl El squads, the youth wing of the Zhas Otan party, the branches of the Kazakhstan Student Alliance, the student charity movement Akniet, etc. Dynamics of participation in collegial bodies of students from A&U groups over the past 2 years: 2014-2015 - 7 students; 2015-2016 - 9 students. Students have the opportunity to influence the management of this EP through the Association of APP Alumni. One of the mechanisms of students' influence on the quality of educational programs is the interaction of students with group curators. In particular, second-year students asked to change the program of summer computing practice;

- The plan for the transition of the EP to trilingualism has been studied, it is planned in the 2016-2017 academic year to begin training in a master's program in multilingualism. In the 2016-2017 academic year, it is planned to develop two courses in the form of slide lectures in English for undergraduates (Kochkin A.M., Parshina G.I.).

5. По рекомендациям стандарта «Ресурсы, доступные образовательным программам»:

- In 2015 and 2016, the department replenished the laboratory base to ensure the educational process through sponsorship for a total of 2723 thousand tenge, including. As part of the budgetary funds received by KSTU for the implementation of the republican program of SPIID-2, 49 million tenge were spent to purchase equipment. In 2017-2018. new hardware and software and equipment from Kazpromavtomatika, ASEP LLP, Promelectrosystem LLP and Ergonomics LLP worth over 8 million tenge were donated to the department. Due to sponsorship in 2018, a new audience was opened. In 2018, the Industry-4.0 scientific and educational complex was opened. At the opening of the 2015 academic year in KSTU the Authorized Training Center "KSTU - Schneider Electric" on the basis of an automation laboratory in metallurgy mastered 21 million tenge. Currently, the Authorized Training Center "KarSTU - Mitsubishi Electric –Festo - Kazpromavtomatika" has been opened for its equipment; equipment for a total amount of 28 million tenge has been purchased;

- In the period 2013-2016. 4 students took part in funded research projects. As part of the financing of research, a master's thesis on the theme "Development of a system for transmitting telemetric information based on radio modems" is being carried out undergraduate Muravlev V. S.;

- In the 2015 academic year, the KarSTU Authorized Training Center “KarSTU - Schneider Electric” was opened at the automation laboratory in metallurgy. The entire list of equipment includes 54 items. A joint center "KarSTU - Mitsubishi Electric –Festo - Kazpromavtomatika" was opened. Open audience "Digital Industry". By attracting sponsorship funds, the library fund of the specialty was replenished in the amount of 150 thousand tenge;

- An international agreement was signed between TCI – Festo and KSTU, on the basis of which the Republican Scientific and Educational Center “KSTU - Festo-Synergy” was opened and operates. An international project site has been developed. Within the framework of the Synergy project, international practice of undergraduates in Austria was organized, as well as a limit for 2 free publications in the Scopus database journal and participation in the annual DAAAM symposium.

6. According to the recommendations of the standard "In the context of individual specialties":

- Annually, teachers on an advanced training schedule undergo an internship at the enterprise. In accordance with the training schedule of the faculty of the department in the period 2014-2016. internships were held at innovative enterprises: UD ArcelorMittal Temirtau JSC - Zhumagulova DK, Karakulin M.L., Parshina G.I., Kalinin A.A., Lapina L.M.; LLP "Kazpromavtomatika" - Telbaeva Sh.Z. Nurmaganbetova Zh.S., Kochkin A.M.; JSC

"Kazchermetavtomatika" - Ivanov V.A., Potemkina E.B.; LLP "Kazpromavtomatika" - Lisitsyn D.V., Marquardt R.M.; Schneider Electric Center at KSTU - Sichkarenko A.V., Daych L.I. In the period 2016-2018, internships at the enterprises of Kazpromavtomatika, Kazakhmys Corporation, ArcelorMittalTemirtau and others passed 100% of full-time academic staff;

- KSTU was included in the program SPIIR-2, in accordance with which it is training specialists in the field of study of specialized magistracy along the trajectory "Robotics. Control systems". As a result, in 2015, 62 people on a budgetary basis and 2 people on a paid basis were enrolled in this program on a competitive basis. All undergraduates of this program have entered into three third-party agreements "university - undergraduate - enterprise" on employment.

An analysis of the experts showed that, in general, according to the recommendations given by the EEC with respect to accredited educational programs, there is a good positive trend. The measures and actions taken by the university contribute to improving the quality of the educational process and the implementation of educational programs, positive trends in the development of student mobility, the expansion of creative relationships, support for young teachers and the development of the research component of the educational program.

At the same time, the commission recommends continuing work on obtaining a license for doctoral studies in the EP Automation and Management.

In 2014, the EEC for specialized accreditation of educational programs 5B071600 "Instrumentation", 6M071600 "Instrumentation", recommended:

According to the standard "Specificity of the educational program"

- to establish a relationship between the continuity of educational programs through the academic interconnection of disciplines in the form of the development of modular education and the creation of an academic interconnection of disciplines;
- expand the work on the implementation of joint educational programs with domestic universities;
- ensure the continuity of the implementation of the results of scientific research in the educational process (lectures, laboratory, etc.);
- it is necessary to provide interested parties with access to open information about the OP and its resources.

According to the standard "Academic staff and the effectiveness of teaching"

- provide targeted action for the development of young teachers;
- ensure the involvement of practitioners with work experience in the implementation of the EP;
- strengthen the participation of faculty in the life of society, in the development of science in the region, etc.

According to the standard "Students"

- intensify student participation in research;
- improve the program for the development of intra-university scholarships, business trips to participate in conferences;
- determine the direction of moral stimulation for bachelors and masters in order to continue education.

According to the standard "Resources available to educational programs"

– further development of students' access to interactive resources, virtual laboratories.

On November 29, 2014, by the decision of the Accreditation Council of the IAAR, the educational programs 5B071600 "Instrumentation", 6M071600 "Instrumentation" implemented by KSTU were accredited for 5 years.

Post-monitoring control to assess the implementation of the recommendations of the Higher Attestation Commission of the IAAR, formed according to the results of specialized accreditation of educational programs 5B071600 “Instrumentation”, 6M071600 “Instrumentation”, was carried out by the IAAR expert group in KSTU on May 26-27, 2016.

Post-accreditation monitoring of KSTU activities showed that, in general, the recommendations of these EECs are being implemented. The measures and actions taken have contributed to improving the quality of the educational process and the implementation of the educational programs of the university, positive trends in attracting students to research, creating conditions for expanding the geography of partner universities and developing conditions that contribute to the formation of the student’s personality.

At the same time, members of the EEC who conducted re-accreditation from May 20 to May 23, 2019 established that the following work was carried out according to the recommendations of the previous EEC:

1. According to the recommendations of the standard "Specificity of the educational program":

- For the first time, modular educational programs have been developed for the cycles of disciplines of the specialty “Instrumentation”. Modular educational programs for specialties 5B071600 6M071600– “Instrumentation” approved on 26. 06.2015 includes 19 modules;

- The plan for the development of joint educational programs with other universities for the preparation of bachelors is at the approval stage according to the plan for the implementation of the recommendations of the EEC for a period of 5 years;

- Based on the results of the research work “Improving the educational process using computer systems and computers”, the automated laboratory complex ALK-1 was introduced into the educational process. On its basis, laboratory work was developed and implemented in the discipline "Automation of measurement of technological processes" for measuring pressure (bench IV-2) and temperature (bench IV-1). A stand was developed and manufactured as a part of a Mercury type electric meter, a modem connected to RS-485, and current and voltage simulators. Two master's theses were prepared and defended on this topic: Nysanbaeva R.O. “Development of technical and methodological support for the training laboratory complex ALK”, B. Zh. Genisbekov. “Development of a microprocessor system for the laboratory installation LKU-5”. An article was published in the journal Research, Results (KazNAU) (Nysanbaeva R.O., Esenbaev S.Kh., Yurchenko V.V.). Two reports were prepared at the Republican Student Scientific Conference "The contribution of youth science to the implementation of the Kazakhstan-2050 Strategy;

- On the university’s website www.kstu.kz, information on the full schedule of consultations, qualifications assigned, number of credits, and requirements for admission to the program are fully reflected. Access to interested persons is carried out through the information website of the Educational portal of distance learning www.clix.kstu.kz and the Resource Center.

2. According to the recommendations of the standard "Academic staff and teaching effectiveness":

2. According to the recommendations of the standard "Academic staff and the effectiveness of teaching": - Three Masters of the Department of Instrumentation (Aimagambetova R.Zh., Tusupbekova G.M., Alkina A.D.) continue their postgraduate studies at NI TPU with a degree in "Devices , methods for the study of substances and the environment ”;

- Namazbaev TS, president of Kazchermetavtomatika JSC, Belik M.N., Yurchenko V.V., Selaev I– LLP “Kayur” conduct classes at the Instrumentation Unitary Enterprise;

- Teachers of the department published 1 monograph for the reporting period, 15 articles in journals. Of these, 10 (3) in Kazakhstan, 2 in Russia, and foreign countries 3. Of these, 2 in journals included in the Scopus database, with a citation index of RSCI-5, KazBC - 3. 35 reports were presented at the conference, including 28 international (4 of them in the far abroad, 5 in Russia, 19 in Kazakhstan). Received 4 certificates of intellectual property, including one international (Russia).

3. According to the recommendations of the standard "Students":

- In the 2014-2015 academic year, 2 works were presented at the inter-university stage in the Republican competition of NIRS MES RK: “Development of an information-measuring subsystem for accounting and distribution of coal based on the Vostochny open pit,” Satanova A.S. (PS-11-2), (scientific adviser: Belik M.N.); “Development of a subsystem for studying the optical properties of materials”, Ignatiev V.S., (PS-11-2), (scientific adviser: Belik M.N.). Both were awarded Diplomas of the III degree. Graduate students of the department took part in the Republican competition of scientific works and creative projects of students and undergraduates Section: “Transport, transport equipment and technologies” and aquired 2nd place (Slyamova A. (PSM-14-1)) and 3rd place (Suleymenova G.S. (PSM-14-1)) (scientific adviser: Ayzhambaeva S.Zh.). In the 2015-2016 academic year, 2 works were presented at the inter-university stage in the Republican competition of NIRS MES RK. At the Republican contest of the Fund of the First President “Scientist of the Future” 2 works are presented. In 2014-2015, undergraduates published 2 articles in rating magazines (RSCI, KazBTS), 1 article in Ukraine. In the 2014-2015 academic year, students and graduate students of the specialty "Instrumentation" at the conference at various levels presented 15 reports (0.115 reports per student). In 2015-2016, undergraduates published 1 article in a rating magazine (RSCI, KazBTS). In the 2015-2016 academic year, students and undergraduates majoring in Instrumentation at the conference at various levels presented 45 reports (0.36 reports per student);

- In April 2016, students of gr. PS-13-1 Esbolat A., Aldanazarova A., Kenzhebek A. at the expense of contractual subjects of the department were seconded to AUES of Almaty to participate in the Republican Student Olympiad in Instrumentation, where they aquired 4th place in the team event;

- The direction of moral incentives for bachelors and masters with the aim of continuing education is, on the basis of a decision of the department’s meeting, a recommendation for admission to magistracy and doctoral programs, rewarding with diplomas, diplomas, as well as examples of graduates who graduate from the magistracy, are constantly engaged in raising the level of education, occupying high positions, having authority in the team and society.

4. According to the recommendations of the standard "Resources available to educational programs":

- Students access to interactive resources, sites and virtual laboratories is based on the educational information environment of the university, which includes: AIS "KSTU", an automated library system; Web sites (www.kstu.kz, lib.kstu.kz, lip.kstu.kz, museum.kstu.kz, inter.kstu.kz, blog.kstu.kz, zhasorda.kstu.kz, serpin.kstu. kz, person.kstu.kz), Zimbra mail server and computer testing system. Students and undergraduates are provided with test access to electronic library systems. In the 2015/16 academic year, they were provided with test access to the Znaniye Electronic Library System, the Yurait Publishing House Electronic Library System, the IPRbooks Electronic Library System and the Ədilet search and reference legal system. Access to the Polpred.com resource is open by IP address from the KSTU internal network without registration or from any point where there is Internet with pre-registration of a personal account at the university. The resource contains full texts of articles from hundreds of news agencies and media from around the world.

An analysis of the experts showed that, in general, according to the recommendations given by the EEC with respect to accredited educational programs, there is a good positive trend. The measures and actions taken by the university contribute to improving the quality of the educational process and the implementation of educational programs, positive trends in the development of student mobility, the expansion of creative relationships, support for young teachers and the development of the research component of the educational program.

(V) DESCRIPTION OF EEC VISIT

The work of the EEC was carried out on the basis of the approved Program of the visit of the expert commission on specialized accreditation of educational programs at KSTU in the period from May 20 to 23, 2019.

In order to coordinate the work of the EEC on May 19, 2019, an assembly meeting was held, during which the powers were distributed among the members of the commission, the schedule of the visit was clarified, agreement was reached on the choice of examination methods.

In order 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, meetings were held with the rector, vice-rectors of the university in areas of activity, heads of structural divisions, deans of faculties, heads of departments, teachers, students, graduates, employers. In total, 171 representatives took part in the meetings (table1).

Table 1 - Information about the employees and students who took part in the meetings with EEC IAAR:

Category of participants	Quantity
Rector	1
Vice-rectors and chief of staff of the rector	6
Head of Departments	36
Deans of faculties	2
Department Heads	6
Teachers	25
Students	25
Graduates	35
Employers	35

Total	**171**

During the tour, members of the EEC visited the Industry-4.0 scientific and educational complex. The complex includes 3 Engineering Competence Centers, created jointly with leading multinational companies and innovative companies of Central Kazakhstan and the innovative lecture audience “Digital Industry”. EEC members familiarized themselves with the state of the material and technical base, visited the dean’s office of the FEAT and the audience:

- Auditorium No. 104 (ES) Laboratory of Theoretical Foundations of Electrical Engineering and Electrical Measurements. The laboratory carries out laboratory work in the discipline "Power plants and substations." Equipment: Laboratory complex LLC "Training equipment";
- Auditorium No. 107 (ES) Laboratory of electrical machines and drives. In the laboratory, work is being carried out in the disciplines “Electrical Machines”, “Electrical Installations”, “Electric Drive and Electrical Equipment”. Equipment: Laboratory stand "Electric machines and drive" LLC "Training equipment";
- Audience No. 02 (ES) Research Laboratory "Energy Efficient Technologies". The laboratory conducts laboratory work in the discipline "Modern problems of the electric power industry" for undergraduates, and is also used to conduct research work of undergraduates. Equipment of the Schneider Electric company;
- Audience No. 05в (ЭС) laboratory work is being carried out in the disciplines “Heat supply”, “Fundamentals of heating”, “Boiler plants and steam generators”. Equipment: Models of a heat supply system and turbine installations.
- Audience No. 136 (APP) Innovative lecture audience of the Digital Industry. The audience "Digital Industry" is framed by the company "Promelectrosystem", organized by graduates of the department;
- Auditorium No. 144 (ES) “Center for Work Occupations No. 6”. The laboratory carries out laboratory work in the disciplines of "Electrotechnical materials science", "Electrical materials", "Relay protection and automation". The audience has a measuring device for relay protection parameters and a line protection cabinet and circuit breaker control automatics, a transformer protection cabinet, a central alarm cabinet. Equipment RETOM-11M.

During the tour, members of the EEC visited the Industry-4.0 scientific and educational complex. The complex includes 3 Engineering Competence Centers, created jointly with leading multinational companies and innovative companies of Central Kazakhstan and the innovative lecture audience “Digital Industry”:

- Audience number 128 (APP). The authorized educational center "KarSTU - Schneider - Electric". The center is open as part of the creation of a new educational program of the master's program “Robotics. Management Systems” at the expense of budget funds. It contains the most modern digital equipment for automation and electric power, manufactured by the Schneider-Electric concern (France). The modern equipment of the Schneider-Electric Concern and the new stands created by the forces of students and undergraduates in the process of certification are demonstrated. The development of the department “Anti-loading system for overhead cranes” is shown in action. It also implements innovative projects;
- Audience No. 133 (APP). Scientific and Educational Republican Center "KSTU - FESTO: Synergy". In the center, on the basis of an agreement signed with TCI - FESTO, which is part of the Festo group of companies (Austria, Germany), an international scientific and educational project Synergy is being implemented, based on combining the best laboratories and the best teachers of leading technical universities of the CIS into a single educational Internet complex. For several years, he has been studying at the

international magistracy in the field of automation and mechatronics. The Center has the Festo mechatronic line, as well as modernized training stands for automation;

- Audience number 134 (APP). Joint educational center "KarSTU-Mitsubishi-Electric - Kazpromavtomatika". The center was created with the help of Kazpromavtomatika, on the basis of Mitsubishi Electric equipment, donated free of charge, by the forces of specialists, students and undergraduates of the department. The Center hosts modern equipment based on hardware and software automation and electric power produced by the Mitsubishi Electric Concern.

At the meeting of the EEC of the IAAR with the target groups of KSTU, the mechanisms for implementing the policy of the university were refined and the specifics presented in the self-assessment report of the university were specified.

For the accreditation period, classes at the university were no longer scheduled, therefore, exams were attended in the AiUM-18-2 group, discipline - Industrial Robot Control Systems, teacher - PhD, acting docent S. Voitkevich, 15 students on the list, the language of instruction is Russian, in the group EE-16-5, discipline - Application of SCADA systems in general industrial complexes, teacher - Dr. PhD, senior lecturer. Kalinin A.A., students on the list - 15, the language of instruction is Russian. The technology of examinations and the characteristics of exam materials: examinations were carried out in writing, the number of questions on the ticket was 3, the last question is a task, the time allocated for an exam is 3 hours, the number of tickets exceeds the number of undergraduates by 30%. The course of the exam: students are admitted to the examination audience according to the test books, the Univer program controls admission - in the event that they are not admitted to the exam, the undergraduate is absent from the register. Before the exam begins, an individual individual cipher of the student's work is put down on a safe list. All answer sheets are signed by the head of the department. The teacher brings the technology of the exam to the students, including the time allocated for the exam, the students' responsibility in the case of using extraneous materials. On the answer sheets, students write the exam date and an individual code. Violations during the exam, such as the use of cheat sheets, cell phones, student negotiations, increased noise, etc., were not detected. After the exam, the students' answers are checked, grades are put on the answer sheets, the answer sheets are decrypted. The teacher makes assessments in the Univer database, brings to the attention of students, examination and final grades.

During their work, members of the EEC visited the practice base, Kazpromavtomatika LLP. KAZPROMAVTOMATIKA Group of Companies is a leading structure in the market of integrated automation, providing the supply and installation of equipment of the largest world manufacturers for structure-forming enterprises in Kazakhstan. These include: Kazakhmys Corporation LLP, ArcelorMittal Temirtau JSC, Kazatomprom JSC Zhairemsky Mining and Processing Plant, Kazvodkhoz, etc. Various projects have been implemented in Russia and Tajikistan. It is organized by the graduates of the department of APP, in its composition more than 70% are graduates of the department. The company is the only distributor, partner and integrator of the Mitsubishi Electric Factory Automation concern in Kazakhstan, which is an international giant in the field of production of electrical and electronic equipment. The company's arsenal includes about 1000 implementations of automatic control and management systems of various levels.

In accordance with the accreditation procedure, a survey was conducted of 104 teachers, 127 students, including junior and senior students.

In order to confirm the information presented in the Self-Assessment Report by external experts, the university's working documentation was requested and analyzed. Along with this, experts studied the university's online positioning through the university's official website www.kstu.kz

Within the framework of the planned program, recommendations for improving the accredited educational programs of KSTU developed by the EEC based on the results of the examination were presented at a meeting with the management on 05/23/2019.

(VI) COMPLIANCE WITH SPECIALIZED ACCREDITATION STANDARDS

6.1. Standard "Management of the educational program"

Evidence part

The success of each EP implementation is determined by the systematic, focused and effective implementation of the goals and development plan of the cluster of the program developed above with the involvement of all interested parties, taking into account the satisfaction analysis of students and faculty / staff, analysis of the resources available and necessary for the program, including the material and technical base.

The mission of the University is the formation in Central Kazakhstan of a technical university of innovative and entrepreneurial type, providing comprehensive training for competitive specialists with higher and postgraduate education, meeting the modern requirements of the socio-economic environment, based on the integration of education, science, innovation, production and business. http://www.kstu.kz/dorogie-druz-ya-2/

The University's policy in the field of quality is focused on the constant provision of consumers of all forms of ownership with educational services at a level determined by legislative and regulatory requirements, market conditions with long-term relationships with suppliers. It is posted on the University's website at http://www.kstu.kz/wp-content/uploads/2018/11/%D1%86%D0%B5%D0%BB%D0%B8%20%D0%B8%20%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0.pdf.

This policy of the University is also reflected in the following documents:

- Strategic Development Plan of KSTU for 2014-2023. http://www.kstu.kz/wp-content/uploads/2018/10/15/StrPlan2014-2023.pdf;
- The comprehensive development program of KSTU for 2018 http://www.kstu.kz/wp-content/uploads/2012/10/Kompleksnaya-programma-2018.pdf.
- KSTU comprehensive development program for 2019 http://www.kstu.kz/wp-content/uploads/2018/10/Kompleksnaya-programma-razvitiya-Karagandinskogo-gosudarstvennogo-tehnicheskogo-universiteta-na-2019-god.pdf

The main activities presented in the Integrated Development Program of KSTU for 2019, taking into account the strategic objectives of the Messages of the President of the Republic of Kazakhstan - Leader of the nation N.A. Nazarbayev to the people of Kazakhstan "New Development Opportunities in the Conditions of the Fourth Industrial Revolution", "Five Social Initiatives of the President" and "Growing Welfare of Kazakhstan People: Increasing Incomes and Quality of Life", the following:

1. Modernization of the content of higher and postgraduate education in the context of global trends based on cooperation with strategic partners.

2. Ensuring a high level of higher and postgraduate education in accordance with the needs of the region and the industrial and innovative development of the basic sectors of its economy.

3. Formation of the entrepreneurial orientation of the university by creating conditions for the commercialization of the results of scientific activities, risk management, expanding the transfer of knowledge and technology.

4. The increase in the contribution of science to the development of the economy through the formation of the innovative orientation of the university.

5. Development of the principles of corporate governance of the university as part

of the phased implementation of the academic, managerial and financial autonomy of the university.

6. Development of human resources and human resources management system.

7. Implementation of a set of measures to engage student youth in strengthening the moral values of the nationwide patriotic idea of “Mangilik El”, “Rukhani zhangyru” and a healthy lifestyle culture.

All quality assurance policy documents are available to all EP participants and all third-party stakeholders.

The relationship between research, teaching and learning at the University is carried out through:

- implementation of the results of scientific research in the educational process (writing teaching aids, setting up laboratory work, completing coursework and design work, undergraduate work in undergraduate studies, writing master's projects in specialized magistracy and dissertations in scientific and pedagogical magistracy);

- academic staff of departments in doctoral studies at KSTU or foreign universities, the scientific topics of university departments or joint research;

- involving students in research work, the comprehensive implementation of scientific research by undergraduate and graduate students under the guidance of doctoral students.

In the quality policy, the interaction between the business community, the scientific community, faculty and students is reflected in the main directions of the implementation of activities presented in the Integrated Development Program of KSTU for 2019 2-4.

The implementation of these provisions within the framework of the OP cluster can be shown in the following examples:

- The APP Department, together with the units of the Moscow Energy Institute, the Baltic State Technical University, Omsk State Technical University and Sevastopol State University, on the basis of the signed agreements, participates in the Synergy international project. The project is being implemented under the auspices of the concern “FESTO” (Austria, Germany). In the reporting period, regular online training in international magistracy is conducted on-line in the schedule grid for three semesters within the framework of modules prepared by partner universities and Festo KarSTU. Lecture courses are taught by leading university lecturers. In the process of learning via the Internet, an integrated educational complex is used on the basis of joint laboratories and a joint scientific and pedagogical team.

- Within the framework of the same project, International Internet conferences on the basis of Omsk State Technical University are held annually, in which students, undergraduates and doctoral students of the Department of APP and partner universities participate in the publication of reports, thereby communicating

- Currently, master's degrees in the cluster provide training for KSTU masters under the double-degree program: NRU ITMO (St. Petersburg), NRU TPU, and also such a program is available from MPEI (Moscow).

- Professors of foreign universities more than once in the reporting period came to KSTU with lectures at the undergraduate and graduate programs within the EP cluster on modern problems of automation, automated electric drives and information measuring systems, as well as for scientific advice to doctoral students. So prof. Lucas V.A. (Berlin Technical University) was a scientific consultant to doctoral students Smagulova K.K., Iskakova U.K. and Parshina G.I.), prof. Zyuzev A.M. (UrFU named after B.N. Yeltsin, Yekaterinburg) advised doctoral students A. A. Kalinin, prof. Vyatkin V. (AALTO University, Finland - scientific consultant for doctoral student Voitkevich S.V. All doctoral students successfully defended PhD theses,

- Annually, undergraduates in the specialty Automation and Management undergo

an internship at OmSTU and SPbPU Peter the Great. This helps to improve the quality of public education at the university.

- Breido I.V. - Member of the program and organizational committees of several foreign scientific conferences, member of the editorial board of the Higher Attestation Commission of the Russian Federation journal, editor for special issues of the European journal Energy Networks and Information Technologies, a member of the Scopus database, president of the international organization for automation "DAAAM" in Kazakhstan, which includes 53 countries, headquartered in Vienna.

To ensure a harmonious and effective achievement of educational activities, the University attracts contractors and partners. The management of the public association is involved in the work related to ensuring security in the educational buildings and dormitories of the University, the security agency LLP Berkut 7, and in the company providing operational maintenance, repair and commissioning of computers and technical training equipment, the LLP Microlux Service. In addition, the status of the provider is provided by Status Karaganda LLP. With these firms, on a competitive basis, the university administration has concluded agreements in which the procedure, terms and quality of work are considered. The contracts themselves are university accounting.

In accordance with the requirements of production, the university annually processes RUE of all forms of training and catalogs of elective disciplines, which are coordinated with enterprises, including those that are part of the Corporate University. In special disciplines, innovative training courses in applied (technological) production have been developed. Leading specialists of enterprises are involved as part-time teachers in advanced specialized courses, as well as to guide professional practice and diploma projects.

The guarantee of taking into account opinions in the development and adjustment of the OP cluster is:

- for enterprises and scientific, design and research organizations, including Corporate University enterprises, among which Kazpromavtomatika LLP, Kazchermetavtomatika LLP, Ugleservis enterprise UD ArcelorMittal Temirtau JSC, discussion and coordination of passports and catalogs of elective disciplines, preliminary testing of educational disciplines related to the components of "optional";

- for students, participation of their representatives in collegial bodies (Academic Council of the University, Council of the Faculty of Energy, Automation and Telecommunications), communication with the adviser and curator of the group, questioning of students (Appendix 2.1);

- for graduates of the faculty specialties, participation in the Association of Alumni of the Department of APP and publication of materials in the Association's newsletter http://www.kstu.kz/ezhegodnaya-assotsiatsiya-vypusknikov-kafedry-app/, or the departments' websites on social networks. (described in more detail in the Public Information Standard).

The measurement of the results of educational activities related to meeting the needs of employers and the development of the personality of the student is carried out on the basis of the standard organization Processes related to consumers. DP KarSTU 26-2018.

For the analysis and implementation of innovative proposals, the EP management collects and analyzes statistics on the contingent of students and graduates, according to available resources, personnel, scientific and international activities, and other areas exist in the departments of the DOPE. The possibility of using such information is available when considering the issues of managing the processes of public relations.

The criterion for the effectiveness of changes in the EP can be the number of students enrolling in a new or modernized course. The mechanism for monitoring the changes being implemented is a survey of students who have listened to an innovative course, as well as a written description in the form of a small essay.

The interested person makes an innovative proposal and its purpose, which are considered by the relevant head of the EP and members of the department. If accepted, they go to the administration and then to the Academic Council of the university. It approves a plan for introducing innovations, partners and sources of financing. With successful preparatory work, the introduction of innovation consists in the acquisition, installation and commissioning, development of methodological support for training sessions using innovation, development of an assessment of the achieved goal.

An example is the introduction of one of the 3 centers open during the reporting period - the Authorized Training Center "KarSTU-Schneider-Electric", 2016-2018, based on KarSTU. This laboratory was conceived after receiving funds from the Ministry of Education and Science of the Republic of Kazakhstan as part of the preparation of undergraduates under the program SPIID-2. Part of the equipment was allocated by Schneider-Electric in the form of sponsorship, in addition, the same company set up laboratory stands and trained the academic staff of the department. Using verse stands, methodical laboratory works have been developed that are embedded in the educational process, as well as undergraduate doctoral students conduct research on them.

Analytical part

The strategic plan for 2017-2021 corresponds to the current legislation of the Republic of Kazakhstan in the field of education and science, strategic and program documents adopted at the national level. Experts note that teachers, staff and students are aware of the content of the University's Strategic Development Plan and are aware of their contribution to the implementation of the Strategy. The EEC confirms the availability of educational development plans, which allows for the simultaneous development of various educational programs in the context of the strategic development plan of the university. But the plans for the development of educational programs are developed by the general educational programs of the departments. For example, a general Plan for the development of educational programs for 2018-2023 has been developed at the Department of ITPS. (protocol of the ITPS department No. 1 dated 09/04/2018) for the following EP: 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology". This approach reduces the effectiveness of planning, implementation and monitoring of the activities specified in this document.

The experts were convinced of the consistency of the strategic goals of the university, the adequacy of the mission, vision, strategy and available resources: financial, information, personnel, material and technical base. The lack of individuality in the plans for the development of educational programs reduces the orientation of employers towards the final results of education.

The analysis of the MPE, the documentation of the department and the university demonstrated that when forming the goals of the EP, there is no emphasis on student-centered learning. In addition, based on interviews with target groups, it can be concluded that the development of accredited EPs is not transparent.

The EEC notes that, within the framework of accredited programs, EP management does not identify, manage and collect information on risks, existing or potential risks within the EP. In the course of the interview and documentary, the EP management did not demonstrate the systematic work carried out to assess the risks of developing educational programs.

The management of EP 5B071600 Instrumentation, 6M071600 Instrumentation, 6M075000 Metrology did not demonstrate the individuality, uniqueness of the EP and their consistency with the university's strategy and national development priorities. Also, the advantages of EPs have not been demonstrated compared to other OPs implemented in the region and in the Republic.

According to the EP 5B071600 " Instrumentation ", 6M071600 " Instrumentation " and 6M075000 "Metrology" there are no plans for the development of educational programs. According to the assurance of the management of the EP - data development plans, the OP replaces the Strategic Development Plan of the ITPS department for 2018-2023, which does not contain any goals, objectives, expected learning outcomes, resource analysis, MTB, EP resource supply, etc.

To educate in modern management methods and introduce innovations, the Center of Engineering Pedagogy was created at the university. In April 2018, 99 department heads, heads of academic staff and faculty passed the course “Planning the strategic development of a university” (http://www.kstu.kz/tsentr-inzhenernoj-pedagogiki/).

According to the results of the survey of academic staff:

- 10.6% of faculty members assess “relatively poorly” the possibility of combining teaching with scientific research;
- 9.6% of faculty members assess “relatively poorly” the possibility of combining teaching with applied activities.

According to the results of the questionnaire, the level of accessibility and responsiveness of the university management is “fully satisfied” - 66.1%, “partially satisfied” - 27.6% of students.

Strengths / Best Practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”,
5B071600 Instrumentation, 6M071600 Instrumentation:

- commitment to quality assurance refers to any activity performed by contractors and partners;
- participation of representatives of interested parties as part of the Corporate University association;
- innovation management in educational programs.

EEC recommendations for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”, 6M075000 “Metrology”:

- systematize the risk assessment of the development of educational programs and develop a mechanism for their reduction, including factors such as the development and improvement of EP, risk management, monitoring, decision-making based on facts;
- to develop separately according to the EP Development Plans in accordance with the current Development Strategy of KSTU and ensure its transparency;
- to determine the uniqueness and advantages of these EPs and their Development Plans in comparison with other EPs implemented in the region and in the Republic.

The conclusions of the EEC on the criteria:

According to the standard "Management of the educational program" 17 criteria are disclosed, of which:

- according to EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation” 3 have a strong position, 9 have a satisfactory position, 5 require improvement;
- according to EP 6M07500 "Metrology" 12 have a satisfactory position, 5 - require improvement.

6.2. Standard “Information Management and Reporting

Evidence part

In order to create conditions for the successful implementation of the process of managing information flows, KSTU introduced and operate systems for collecting, analyzing and managing information based on the use of modern information communication technologies and software. These include a corporate computer network, own domain name kstu.kz, corporate information management system for educational process "Univer 2.0", acquired from KazNU. al Farabi, the automated integrated library information system “Irbis”, the programs “1C Personnel” and “1C Accounting”. For the operational interaction of the structural units and departments of the university, there are groups in the WhatsApp messenger. All systems are licensed, documented, have built-in help, user support.

Responsibility for the functioning of information systems (IS) and the accuracy of the processed information is assigned to deans, head. departments, heads of departments. Access to information is carried out in accordance with a multi-role policy: dean, deputy. Dean, Stud. department, escort department, etc. Responsibility for the functioning of the software of IP systems is carried out by the programmers of the DRCU.

Information analysis of educational, scientific, educational processes is carried out in the monitoring section of the Univer 2.0 information system, in the KarSTU Rating system, and electronic forms in the Google Forms system. An analysis of the information received is presented to the rector, supervising vice-rectors, deans, heads of departments, chairmen of councils (NA, CSS, ES, NTS, UMS).

To manage information at the university, IS “Univer 2.0”, IS “Rating of KSTU”, cloud tool “Google Forms”, 1C, Zabbix, Zimbra are used.

For the safety of resources, the university uses ESET NOD 32 antivirus products with centralized management and administration. To protect the KSTU LAN from external threats, the Cisco ASA 5525X firewall with the Cisco FirePOWER software suite is used. To ensure the security of the university’s information resources, measures are taken to back up data by creating backups that provide the ability to restore information.

The following ICs work at KSTU: IRBIS electronic library system, web servers (Apache, NGINX), Zimbra mail server, DNS server (BIND), DHCP, ActiveDirectory, Linux-based proprietary Internet gateway, Zabbix monitoring system, network databases and Web servers of AIS "UNIVER", file servers of film studios and departments of the university, activation servers for licensed software (ETAP, ThermoCalc), RADIUS server (NPS), VPN server for communication with the military department and the 5th building of KSTU.

A data storage network based on Dell equipment was built in the data center of KSTU. The network allows you to store up to 90Tb of information on redundant disk arrays, as well as an unlimited amount of information on magnetic tapes. Work was done to upgrade the DSpace electronic repository to version 5.6 - as a result, the stability of this service was improved.

Analytical part

On the analysis of compliance with the criteria of the standard “Information Management and Reporting” for accredited EPs, the commission notes the following: the university has a system for collecting, analyzing and managing information and reporting based on the use of modern information and communication technologies and software. Data is stored in electronic and paper format in accordance with the nomenclature. The KSTU has defined the procedure and ensuring the protection of information, including responsible persons for the accuracy and timeliness of the analysis of information and the provision of data.

In the course of the conversation with the students, their ability to turn to the leadership with certain problems was noted. The information collected and analyzed by the

university takes into account: key performance indicators, the dynamics of the contingent of students in the context of forms and types, academic performance, student achievement and expulsion, the availability of educational resources and support systems for students, employment and career growth of graduates.

According to the results of the questionnaire, "very good" - 31.7%, "good" - 55.8%, "relatively bad" - 9.6%, and "poorly" – 1% to the question about assessing the involvement of academic staff in the process of making managerial and strategic decisions.

Strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Instrumentation", 6M075000 "Metrology":

- not identified by this standard

EEC recommendations for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Instrumentation", 6M075000 "Metrology":

- none according to this standard

The conclusions of the EEC on the criteria:

According to the standard "Information Management and Reporting" 17 criteria are disclosed, of which:

- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", OP 6M07500 "Metrology" 17 have a satisfactory position.

6.3. Standard "Development and approval of educational programs"

Evidence part

Implementation of the specialties EP 5B070200, 6M070200 "Automation and Control", EP 5B071600, 6M071600 "Instrumentation", 6M075000 "Metrology" is carried out in accordance with the requirements of the State generally binding standard for higher and postgraduate education, approved by the Government of the Republic of Kazakhstan No. 292 dated 05/13/2016, Model the rules of the activities of educational organizations implementing educational programs of higher and postgraduate education, approved by the Government of the Republic of Kazakhstan No. 181 04/07/2017, GOSO No. 604 dated 10/31/2018, the Rules for the organization of the educational process on credit training technology, approved by order of the Minister of Education and Science of the Republic of Kazakhstan dated 04/20/2011 No. 152, local documents of DP KSTU 13-2018 " General requirements for the construction, presentation and design of modular programs "and DP KSTU 12-2018" General requirements for the construction, presentation and design of work curricula in the European ECTS system "as well as guidelines for the development of Modular educational programs.

The development of the content and the formation of the structure of the educational programs of this cluster correspond to the requirements of the National Qualifications Framework and professional standards and take into account Dublin descriptors.

EP 5B070200, 6M070200 "Automation and control" is implemented at the Department of Automation of Production Processes (APP), training in EP 5B071600,

6M071600 “Instrumentation”, 6M075000 “Metrology” is carried out at the Department of Measuring Equipment and Instrumentation (ITPS).

EPs are developed and approved at the above departments of the University, subsequently recommended by the decision of the Academic Council of the University and approved by the Educational and Methodological Council of the University.

Educational-methodical complexes of specialties (UMKS) have been developed, which include modular educational programs (MOS), work curricula (RUE), catalogs of elective disciplines (QED), which describe disciplines of the optional component with an indication of the short content, pre- and post-requisites, educational methodological complexes of disciplines (syllabuses) (UMKD).

The production practice for accredited EPs is carried out in accordance with the documents “Rules for the organization and conduct of professional practice and the rules for determining organizations as bases of practice” (Approved by order of the Ministry of Education and Science of the Republic of Kazakhstan dated January 29, 2016 No. 107), as well as the “Regulation on Professional Practice”, which describes all processes and criteria for passing various types of practices.

Coordination of educational programs, in particular the content of elective disciplines, is carried out with large companies and enterprises of the Corporate University, the profile of which corresponds to the areas of training, specifically with members of the Corporate University of Kazchermetavtomatika JSC, Kazpromavtomatika LLP, Energy System LLP LLP, Association of Mechanical Engineering ALE and metalworking in Central Kazakhstan.”

In the implementation of the EP of this cluster, the participation of the manufacturing sector and employers is practiced in the form of creating branches and practice bases. In this direction, branches of the department at the enterprises of Kazpromavtomatika LLP, Energy System LLP LLP have been created and are functioning at the APP department, and NP Kayur LLP also operates on the basis of the ITPS department. Karaganda branch of NaTsEks JSC, Karaganda branch of RSE KazInMetr.

It should be noted that Corporate University is actively involved in the formation of EPs and updating their content, changing elective courses, which is formed as part of large companies and an enterprise for cooperation with the university.

The analysis showed that the APP department participates in the program SPIIR-2 (State Program for Industrial Innovative Development of the Karaganda Region), and therefore the work curriculum of EP 6M070200 “Automation and Management” is approved by the Academic Council and enterprises of the Corporate University, coordinated with foreign partner universities - Vienna University of Technology (Vienna, Austria) and BSTU (Voenmech, St. Petersburg).

Based on the implemented EPs of this cluster, the student’s training models have been formed on the basis of the competency-based approach, reflecting the learning objectives, expected results, training content, training methods and technologies, training quality assessment, resource support of the educational process on the basis of which goals have been formed in the field of ensuring the quality of education.

A graduate model is developed for the entire training period, where the professional, general and additional competencies that students acquire in the learning process are determined. The model is approved by the first vice-rector of the university, agreed with the head of the department and the dean of the faculty. For example, Model of a graduate of a bachelor of specialty 5B070200 "Automation and Control", 2017, 2018. (http://repository.kstu.kz/xmlui/handle/123456789/9758).

Model of the graduate of the bachelor of specialty 5B071600 "Instrumenation ", 2017, 2018 (http: // http://repository.kstu.kz/xmlui/handle/123456789/10096)

The development of EP involves employers from among the leaders of the practice bases, representatives of enterprises, including those included in the Corporate University.

So in the specialties 5B070200, 6M070200 “Automation and Control” and 5B071600, 6M071600 “Instrumentation” and 6M07500 “Metrology”, the president of JSC “Kazchermetavtomatika”, the technical director of “Kazpromavtomatika” LLP, the president of the Association of Mechanical Engineering and Metalworking of Kazakhstan participated), technical director of the research and production LLP "Kayur", director of the LLP "Karplaz".

Modular educational programs (MOS) undergo annual discussion at meetings of departments, at the faculty of the UMC, and approval at the Academic Council of the university with participation for discussion among faculty deans, department heads, students, as well as the chairman of the Association of Student and Youth Organizations Jas Orda.

MOS specialty 5B070200, 6M070200 "Automation and control" (discussed: at a meeting of the department Protocol No. 1 of 08/20/2015, Protocol No. 1 of 08/22/2016; at a meeting of the Faculty’s Educational and Methodical Council, protocol No. 1 of 08/28/2017 g.; reviewed and approved at a meeting of the Academic Council protocol of August 29, 2017 No. 1). Materials are posted on the university website http://repository.kstu.kz/xmlui/handle/123456789/61.

In the specialty 5B071600, 6M071600 "Instrumentation", 6M07500 "Metrology", MOS were discussed at a meeting of the department Protocol No. 1 of 08/20/2015, Protocol No. 1 of 08/22/2016; at a meeting of the Faculty’s Teaching and Methodological Council, protocol No. 1 of 08/28/2017; reviewed and approved at a meeting of the Academic Council, protocol No. 1 of 08/29/2017. Materials are posted on the university website http://repository.kstu.kz/xmlui/handle/123456789/161.

Educational programs undergo internal monitoring by experienced and highly qualified teachers, heads of structural units of the university, the results of which are considered at university meetings. So, at a meeting of the Academic Council (protocol No. 9 dated 05/29/2018), the question “On the training of specialists in IT specialties” was considered.

The qualifications awarded to graduates at the end of their studies, the EP corresponds to the following qualification levels: for undergraduate - level 6, for master's degree - level 7, for doctoral studies - level 8. Qualification levels are described in general and professional competencies using the European framework for higher education qualifications in the structure and content of curricula and programs.

In the specialties of the cluster, agreements are concluded with organizations / enterprises identified as bases of practice. Agreements are concluded with basic institutions and organizations for a period of 3-5 years. As of 2018, agreements have been concluded with the bases of practices indicating the type of practice, drawn up on the basis of the standard form of the contract for conducting professional practice of students. The bases of practice for EP 5B070200, 6M070200 “Automation and Control”, 5B071600, 6M071600 “Instrumentation”, 6M075000 “Metrology” are JSC “Kazchermetavtomatika”, LLP “Kazpromavtomatika”, LLP “EnergySystemLLP”, LLP “Elat”, enterprise “Ugleservis” UD ArcelorMittal Temirtau JSC, Karaganda Imstalkon Metal Structures Plant LLP, Kayur LLP, Karaganda branch of NaTsekS JSC, Karaganda branch of RSE KazInMetr, TREY-Karaganda LLP.

At the Department of Automation of Production Processes, students practice at two enterprises belonging to the Corporate University: Kazpromavtomatika LLP, Ugleservis UD ArcelorMittal Temirtau JSC. Students reinforce key competencies in field trip.

At the department of information-measuring equipment, students practice at the enterprises of Kazpromavtomatika LLP and the Karaganda branch of the RSE KazInMetr, which are also part of the Corporate University with a tripartite agreement concluded between the graduate student-university enterprise. The internship for undergraduates in

EP 6M070200 “Automation and Control” is held at the branches of the department of Kazpromavtomatika LLP, Elat LLP. Information on the practice bases is given in the table.

Base Information

Specialty code and name	The name of the practice base
5B070200 "Automation and control"	LLP "Kazpromavtomatika" LLP "Energy System LLP" JSC "Kazchermetavtomatika" LLP "Elat" "Ugleservis" Enterprise UD "ArcelorMittal Temirtau" JSC LLP "Kazakhmys Corporation"
5B071600 "Instrumentation" 6M071600 Instrumentation 6M07500 "Metrology"	LLP "Karaganda Plant of Metal Structures Imstalkon" NP LLP "Kayur" Karaganda branch of JSC "NACECS" Karaganda branch of RSE KazInMetr JSC "Kazchermetavtomatika" LLP "KazMedServiceGroup" Astana ChU "Certification center for non-destructive testing" LLP "TREI-Karaganda" LLP "Energy System LLP"

At the APP department, students of the specialty 5B070200 “Automation and Control” have opened courses “Operator of the control panel” in the amount of 80 hours on a paid basis with the issuance of a certificate and the possible issuance of a certificate with the assignment of a working profession. Practical training is conducted at the Mitsubishi ALpha PLC by leading specialist teachers of the APP department.

In 2019, for students of specialty 5B070200 “Automation and Control”, courses “Microprocessor-based electric drive systems” were opened on the basis of modern digital frequency converters controlled by industrial controllers for 40 hours on a paid basis with the issuance of a certificate of completion of courses.

In the centers of workers' professions (CRP), students receive the necessary qualifications in practical training after the 2nd year, which allows them to undergo further practical training in full-time jobs and adapt more quickly to the conditions of dual training at enterprises.

For the development of practical skills and the formation of production competencies on the basis of the enterprises of the Corporate University educational-scientific-production cluster, there are courses of additional professional education.

Working professions were appropriated at enterprises-bases of industrial practice. At the enterprise of JSC "Kazchermetavtomatika", 2nd year students of specialty 5B070200 "Automation and Control" received the working profession of a fitter of instrumentation and automation.

The APP department has the necessary infrastructure, including laboratory facilities, test benches, computer hardware, software and hardware, including SCADA systems, industrial controllers, microprocessor-controlled semiconductor drives, licensed application software, laboratory and industrial equipment from leading world manufacturers of electrical equipment and automation concerns Siemens, Mitsubishi,

Festo, Advantech. In educational laboratories multimedia boards, projection TVs, projectors are located, there is remote access to the Internet.

Specialties of the EP are provided with standard and working curricula, as well as standard and working programs of disciplines.

The general accessibility of the content of educational programs is ensured by posting on the GOSO University website, TUP, a guidebook, lesson schedules, the availability of training materials in the library, and issuing syllabuses, QEDs, IUPs to students.

The educational results of the graduate correspond not only to the National Qualifications Framework (NQF), the sectoral qualifications framework (NQF) and PS, but also provide ample opportunities for employment, further training and changes in the field of activity. All this is achieved thanks to the training of students, focused on specific areas of professional activity.

The content of the disciplines of the compulsory component meets the requirements of the standard curriculum of the disciplines, the number of hours allocated by occupation, topics of lectures, practical exercises and term papers.

Joint educational programs (SOPs) are being implemented with such foreign universities as:

1. St. Petersburg State Polytechnic University.
2. Tomsk Polytechnic University.
3. Kuzbass State Technical University named after T.F. Gorbachev.
4. Moscow Power Engineering Institute.
5. Sevastopol State University.
6. Baltic Technical University - BOEHMEX.

Under the educational programs, two-degree education is being implemented under the master's program, the international project SYNERGY, as well as participation in the framework of the University of the Shanghai Cooperation Organization (SCO).

In the period 2011-2018. 21 people underwent training under the SCO program, of them at the Moscow Power Engineering Institute, Moscow-15, at Ural Federal University named after B.N. Yeltsin, Yekaterinburg - 6. The project "SYNERGY" is implemented under the auspices of the concern "FESTO" (Austria, Germany).

Graduates of the Department of Measuring Engineering and Instrumentation were trained under the two-degree program of undergraduate and graduate programs. On the basis of an agreement on double-degree education of undergraduates with a degree in Instrumentation with Tomsk Polytechnic University at the Department of IIT on June 19, 2014 three master's theses were defended by undergraduates of PSM-12 group.

During a meeting with students of the cluster’s educational programs, model curricula and programs, it was found that not all students have a clear idea of the ways and forms of inclusion in the work on developing educational programs.

Analytical part

As a result of studying the standard “Development and approval of an educational program”, the commission came to the conclusion that the content and logic of constructing educational programs were disclosed in accredited areas, and the process of training students in the framework of the educational program was described. Curricula provide a logical sequence of study of disciplines, based on continuity, the rational distribution of disciplines throughout the semesters from the position of uniformity of student work; active use of personnel and material and technical potential of all departments. The participation of stakeholders in the development of educational programs is demonstrated, a graduate model is developed, the structure of the educational program based on the modular organization of educational content is disclosed. Various types of activities are

described, the content of which contributes to the formation of professional competence of students. The representativeness of attracting employers to participate in the design and implementation of EP is substantiated. The department has educational and methodical complexes of the specialty (UMKS), educational and methodical complexes of disciplines (UMKD), syllabuses and a catalog of elective disciplines. EP management determines the impact of disciplines and professional practices on the formation of learning outcomes.

It should be noted that in the development and implementation of the EP, a cathedral approach prevails, which impedes the implementation of the interdisciplinary and multidisciplinary principle in the framework of the EP. For example, the development of EP is carried out by one department, without the involvement of faculty of other departments with interrelated disciplines. This fact was confirmed by interviewing faculty.

The experts of the EEC noted the need to update the content of the disciplines, taking into account the ongoing changes in regulatory legal acts in industries related to the implementation of EP. For example, in the legislation on ensuring the uniformity of measurements and standardization, the following changes were made that are not reflected in the content of the basic and core disciplines of EP 6M075000 Metrology:

- Updating terminology and bringing it into line with the EAEU Agreement;
- Change in the structure of the system for ensuring the uniformity of measurements;
- Change in the norm for the application of documents to ensure the uniformity of measurements;
- Changing the model of state regulation through the Lists of measurements related to state regulation;
- The transition to the calibration of state standards and standards of subjects of accreditation.

Many taught disciplines require updating the content of the EP by using more modern sources of scientific and regulatory literature over the past 5-10 years. For example, the list of basic and additional literature of the discipline “Legal Metrology and Technical Regulation” contains inactive (old versions) of normative documents and scientific literature, the most recent of them dating back to 2003.

The Commission notes the existence of agreements with a number of Kazakhstani universities to harmonize the content of the EP, but indicates insufficient cooperation in this matter with the educational programs of foreign universities and the conduct of external examinations of the EP.

A survey of students conducted during the visit of the EEC IAAR showed that:

- the level of responsiveness to feedback from teachers regarding the educational process is fully satisfactory - 77.2%; partially - 17.3%; partially unsatisfied - 3.1%.

Strengths / best practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”, 6M075000 “Metrology”:

- the ability to prepare students for professional certification.

Additional strengths / best practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”:

- compliance of the developed EP with the established goals, including the expected learning outcomes;
- determination of the impact of disciplines and professional practices on the formation of learning outcomes;

- participation of students, faculty and other stakeholders in the development of educational programs and ensuring their quality;
- availability of joint public relations with foreign organizations.

Recommendations for EP 5B070200 "Automation and Controls", 6M070200 "Automation and Controls", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- In order to implement the interdisciplinary and multidisciplinary principle (within the framework of the EP), attract other departments of the university for development and implementation.

Additional recommendations for EP 6M075000 "Metrology":

- Update (make amendments and additions) to EP 6M075000 "Metrology", taking into account the provisions and norms of the Law of the Republic of Kazakhstan "On Amendments and Additions to Some Legislative Acts of the Republic of Kazakhstan on the Issues of Ensuring the Unity of Measurements and Standardization" dated 12.28.2018.
- Update the content of EP by introducing more modern scientific sources, literary texts, regulatory documents for the last 5-10 years.

The conclusions of the EEC on the criteria:

According to the standard "Development and approval of educational programs" 12 criteria are disclosed, of which:

- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation" 5 have a strong position, 7 - satisfactory;
- according to EP 6M07500 "Metrology" 1 has a strong position, 11- satisfactory.*6.4*

6.4 Standard "Continuous monitoring and periodic evaluation of educational programs"

Evidence part

In order to improve the EP, ensure the achievement of the goal of the EP and meet the needs of students and society, the university regularly monitors and periodically evaluates it. Ensuring and constantly improving the quality of educational programs is the most important task of the departments, faculty and the entire university as a whole. Continuous monitoring and periodic evaluation of EP 5B070200 - "Automation and Control" at the Department of Automatic Transmission and EP 5B071600 - "Instrumentation". 6M071600 - "Instrumentation", 6M075000 - "Metrology" at the Department of ITS is carried out by three methods: the method of questioning and interviewing, the method of systematic and direct tracking of results, the method of external expert evaluations.

Questionnaires are conducted at the departments of APP and ITPS to assess student satisfaction with EP 5B070200 - "Automation and Control" EP 5B071600 - "Instrumentation". The analysis of the results of the questionnaire shows a high score for the assessment of the studied disciplines related to automation, modern areas in the energy sector, information technology, modeling, etc.

EP 5B070200 - "Automation and Control" and EP 5B071600 - "Instrumentation", 6M071600 - "Instrumentation", 6M075000 - "Metrology" is updated through the introduction of new directions, elective courses and in accordance with the requests of employers and approved by the Academic Council of the university. Updating of EP

5B070200 - "Automation and Control" and EP 5B071600 - "Instrumentation", 6M071600 - "Instrumentation", 6M075000 - "Metrology" is carried out both structurally and in content, taking into account the requirements of the labor market and employers.

The head of the department and academic staff creates conditions for employers to attract them to the development of academic programs, coordination of QEDs, guidance of professional practices, methodological developments of academic staff, as well as reviewing graduation works and projects.

The university's leadership, together with the department, creates conditions for employers to attract them to the development of EP 5B070200 - "Automation and Control" and OP 5B071600 - "Instrumentation", 6M071600 - "Instrumentation", 6M075000 - "Metrology" for coordinating QEDs, guiding professional practices, methodological PPP developments, as well as reviewing graduation works and projects.

In order to assess the effectiveness of the implementation of EP 5B070200 - "Automation and Control" and EP 5B071600 - "Instrumentation". 6M071600 - "Instrumentation" and 6M075000– "Metrology" University takes into account the opinion of employers and consumers of educational services through questionnaires.

Changes in the goals of EP are carried out as a result of a dialogue with employers. They express their comments and suggestions for example: at the annual association of graduates of the department of APP http://www.kstu.kz/ezhegodnaya-assotsiatsiya-vypusknikov-kafedry-app/, in the reviews of employers about graduates of the department http://www.kstu.kz/otzyvy-rukovoditelej-o-vypusknikah-kafedry-2/. The revision of the curriculum at the moment is associated with a change in regulatory documents received from the ministry.

Analysis and monitoring of the use of innovative teaching methods takes place at the meetings of the department and during the discussion of classes attended by teachers. The application of the most successful methods is demonstrated by academic staff in open classes. The academic staff of the Department of APP and ITPS in the classroom widely use a wide variety of traditional, innovative technologies. Classes are held using interactive whiteboards, also using digital educational resources.

Achievements of EP goals and satisfaction results are identified in the process of questioning students and faculty, conducted in the Univer 2.0 information system on the website of KSTU - Questionnaire for students (http://www.kstu.kz/studentu/); PPP Satisfaction Questionnaire, UVP Satisfaction Questionnaire, (https://docs.google.com/forms/d/e/1FAIpQLSd4gDBLJCSA8C8kUsC6gdcW_0DVp-3E_AsJzVQ594wYHezZcA/viewform?usp=sf_link) , Teacher: http://www.kstu.kz/prepodavatelyu/). Employers are satisfied with the results of their achievement of the goals of the EP at the annual association of graduates of the department of APP http://www.kstu.kz/ezhegodnaya-assotsiatsiya-vypusknikov-kafedry-app/, in the reviews of employers about graduates of the department http://www.kstu.kz/otzyvy-rukovoditelej-o-vypusknikah-kafedry-2/.

The mechanism for the formation, regular review of the development plan of EP 5B070200 - "Automation and Control" and monitoring its implementation was developed by the Department of Academic Affairs (DAV). This mechanism involves regular monitoring, emergency adjustments when changing the regulatory framework of a higher controlling organization (MES RK). Informing about changes in EP 5B070200 - "Automation and Control", 6M071600 - "Instrumentation" and 6M075000– "Metrology" are held at field meetings held at enterprises, including those that are part of the Corporate University (http://repository.kstu.kz/xmlui/handle/123456789/748). In accordance with the requirements of production, the university annually processes RUEs (http://repository.kstu.kz/xmlui/handle/123456789/1959) and QEDs, which are coordinated with enterprises, including those that are part of the Corporate University. In

special disciplines, innovative training courses in applied (technological) production have been developed. Leading specialists of enterprises are involved as part-time teachers in advanced specialized courses, as well as to guide professional practice and diploma projects. The planning, development and continuous improvement mechanisms of EP 5B070200 - “Automation and Management” are regulated by the university management and a higher organization (MES RK) and contains processes related to the development of work syllabuses, plans for the publication of textbooks, ESD, teaching materials and other equipment of educational processes in in accordance with the DP KSTU 15-2018 "Requirements for the design of the training complex", DP KSTU 11-2018 "Rules for the preparation of educational documentation. General requirements for text documents. " In general, the department has a complete set to equip the educational process and has experience in improving the quality of educational programs.

Analytical part

Monitoring the passage of practice, monitoring the quality of its organization is carried out by the heads of practice from the department and the Career Center. Based on the results of all types of practices, reporting conferences are held, recommendations are developed to improve the organization of internships, and a consolidated report is formed, which includes sections: organization of practices; topics of research conducted by students during the period of practice; analysis of the implementation of practice programs, conclusions and suggestions. After passing a certain type of practice, students are questioned in order to identify students 'satisfaction with places and organization of internships, as well as questionnaires for managers of practice bases are conducted to assess students' satisfaction with the level of training.

To assess the satisfaction of EP among students, a survey is conducted on the website of KSTU in AIS Univer. The subject of the questionnaire is “Satisfaction with the quality of the organization of the educational process”, “Satisfaction with the academic staff”, “Satisfaction of students of 2-4 courses”, “Satisfaction of students of 1 year”.

The survey results are processed by the Center for Quality Management and Accreditation and sent to the department to develop corrective actions.

However, the EEC Commission noted the lack of feedback on the analysis of recommendations in the context of accredited EP, the development of corrective actions in the context of EP, in particular, according to the results of the survey “Satisfaction with the faculty”.

The EEC also revealed that the syllabuses of EP 6M075000 “Metrology” do not spell out criteria for assessing the knowledge of students, undergraduates taking into account the characteristics of specific subjects, which reduces the objective assessment of students and does not take into account the complexity and weight of individual sections and topics of subjects taught. For example, in the discipline "Methods for assessing the metrological characteristics of measuring instruments", the criteria for assessing students' knowledge are limited only by the examination assessment in the discipline.

The teaching of certain disciplines in the framework of EP 6M075000 “Metrology” is questionable by experts. For example, the discipline “Legal Metrology and Technical Regulation” is more appropriately called “Standardization and Legal Metrology”, excluding the concept of “technical regulation”, because technical regulation is aimed only at mandatory minimum standards for safety requirements.

As for the discipline "International bodies of metrology and ISO", implemented in the framework of EP 6M075000 "Metrology", a revision of the name of the discipline is required. Firstly, the abbreviation "ISO" in the name of the discipline should be deciphered as "International Organization for Standardization." Secondly, the need to teach this discipline at the master's level raises certain doubts.

In connection with the foregoing, EEC experts recommend revising the name and content of the following elective disciplines: “International Metrology and ISO Bodies”, “Legal Metrology and Technical Regulation”.

According to the results of the survey, the level of accessibility of leadership to students rated 41.3% as "very good", 53.8% of students as "good". The availability of leadership for teachers was rated as “very good” by 47.1%, “good” - 47.1% of academic staff.

Strengths / Best Practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”:

- monitoring and periodic assessment of the EP to ensure achievement of the goal and compliance with the needs of students and society;
- monitoring and periodic evaluation of the content of programs in the light of the latest achievements of science in specific disciplines;
- revision of the content and structure of EP taking into account changes in the labor market, requirements of employers and the social request of the company.

Recommendations for EP 5B070200 “Automation and Controls”, 6M070200 “Automation and Controls”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”, 6M075000 “Metrology”:

- To the supervising structural unit to develop a mechanism for conducting regular questionnaires (at least 2 times a year) in the context of the EP and develop procedures for analyzing the results of the survey with the development of a plan of corrective actions in the context of the EP and ensuring control over their implementation.

Additional recommendations for EP 6M075000 "Metrology":

- Review the names and contents of the following elective disciplines: “International Metrology and ISO Bodies”, “Legal Metrology and Technical Regulation”.

The conclusions of the EEC on the criteria:

According to the standard "Continuous monitoring and periodic evaluation of educational programs" 10 criteria are disclosed, of which:

according to EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation” 3 have a strong position, 6 - satisfactory, 1 - suggests improvement;

according to EP 6M07500 "Metrology" 9 have a satisfactory position, 1- suggests improvement

6.5. Standard "Student-centered Learning, Teaching and Assessment"

Evidence part

The management of accredited EP provides students with opportunities, regardless of the language of instruction, to form an individual educational path. Accounting for individual characteristics, needs and cultural experience of students is carried out in various aspects of scientific and educational activities: when choosing elective courses; when choosing a base of practice; with the participation of students in research work.

The individual educational trajectory is reflected in modular educational programs, working curricula and individual curricula, where, along with general educational, basic

disciplines of the compulsory component, there are elective courses and various types of practices that are aimed at ensuring professional competencies.

The organization of the student's independent work is being carried out. The results of tests, control and calculation and graphic works, written answers to the exam are worked out and evaluated.

Students are promptly presented with knowledge assessment results using the UNIVER-2.0 system (KSTU).

The Center for Quality Management and Accreditation conducts annual questionnaires of students and undergraduates of all courses, in which, among other questions, it is proposed to evaluate the status of student support services.

The policy for the formation of the contingent of students is focused on constant career guidance with schools and colleges, including the reception of persons with disabilities. For students of various groups, regardless of the language of instruction and distance learning, annually updated catalogs of elective disciplines and modular reference books are available that allow students to realize the conditions for the choice of a teacher and an individual learning path. In the specialty 5B070200 - Automation and control in the group AiU-15-1kaz, a student with a disability of the 3rd group is trained.

Students with disabilities with disabilities are provided with an individual differentiated approach to all types of classes. Through the UNIVER system, individual student learning plans, class schedules, RUE disciplines are available, as well as all the necessary educational and methodological support http://repository.kstu.kz/xmlui/handle/123456789/10005. All of these methods allow students with disabilities to fully study the required disciplines. The student with the help of an adviser forms his own individual curriculum for each academic period. Such a technique allows the student to better navigate during the period of writing on the disciplines of the next academic year, see the sequence of study, know the prerequisites and postrequisites.

EP "Automation and Control", "Instrumentation", "Metrology" provide equal opportunities for all students regardless of the language of instruction in the formation of an individual educational program aimed at the formation of professional competencies. Gifted students and undergraduates to meet their needs for in-depth study of a number of disciplines are involved in scientific activities. They can show their individuality by choosing the scientific topics of interest to them to plunge into the research work together with the supervisor. Personal and professional growth is manifested in the ability to self-organize, cooperate with other classmates, control their academic achievements, the ability to work in a team with other undergraduate students, including in groups and subgroups in laboratory and practical classes, when working in projects, writing term papers and calculating and graphic work according to the schedule of the educational process, together with teachers of the relevant disciplines.

In accordance with the QMS-2018, KarSTU regularly assesses and adjusts the forms of training and pedagogical methods http://www.kstu.kz/norm/. If the internal audit identifies deficiencies and inconsistencies, corrective and preventive actions are applied to identify and eliminate their causes. During the implementation of the tripartite agreement, the core professional magistracy provides for the implementation of the course project on the cycle of disciplines during the entire learning process, which is part of the master's project, and the undergraduate practices internships at the enterprise with which an agreement has been concluded on the topic of an agreed master's project.

Between 2014 and 2019 The following innovation centers were opened and implemented jointly with leading industrial enterprises of Kazakhstan and the Department of APP in the educational process at the KSTU Authorized Training Center - Schneider Electric, Republican Scientific and Educational Center Festo-Synergy, and "Educational

Center of KSTU - Mitsubishi Electric-Kazpromavtomatika", "Innovative lecture audience Digital Industry". Students and undergraduates of this EP get the opportunity to improve their education level, gain experience in real industrial facilities. NIRS, NIRM is carried out systematically, starting with junior courses. In senior courses, they are given the opportunity to express themselves individually by participating in work on projects and making presentations at scientific and theoretical conferences. The proportion of students participating in research of the total number of students in the program is 20-30%. The responsibility for ensuring and systematic development, implementation and effectiveness of innovative teaching methods lies with the department. Monitoring the effectiveness and efficiency of the application of innovations and the use of active teaching methods is carried out during the midterm, final and current control of students' knowledge.

According to the EP "Automation and Control", "Instrumentation", a mechanism has been developed for implementing external and internal mobility. In the learning process, the most gifted students and undergraduates are identified who are able to solve certain problems and have a high level of responsibility. There is also a support system for gifted students who get the opportunity to participate in various national and international competitions. There is experience of cooperation with 4 leading universities of Russia in the international scientific and educational project of distance technical education "Synergy" in the direction "Automation and Control", which is implemented under the auspices of the concern "FESTO" and aims to unite university mechatronics laboratories via the Internet, creating an integrated educational complex, equipped with equipment from leading manufacturers of automation systems "MITSUBISHI", "SIEMENS". Within the framework of this project, the following provisions of the Bologna process on academic mobility based on network technologies are implemented:

- academic mobility and academic exchange of students and undergraduates during one or more academic periods;
- academic mobility and academic exchange of teachers;
- modular training for several academic periods at partner universities;
- free choice by students of modules of other universities;
- ensuring the principles of free entry on the module (discipline);
- advanced training of teachers in the best universities.

A mechanism has been developed to recognize the results of academic mobility of students. In the process of preparing agreements on academic exchange, educational programs for the corresponding semester are agreed:

1) Upon departure to foreign universities, the approval of the individual plan of undergraduates is provided. Since in the master's degree programs of academic mobility are implemented in the second year, when compulsory disciplines have already been studied, then due to the large share of elective disciplines the coordination procedure is simplified.

2) As part of the network mobility process, the project (Synergy) at the partner universities in the RUE introduced the appropriate trajectories, and students choose one discipline per semester.

3) In the bachelor's degree, internal mobility is implemented in conjunction with KGIU, in which student's study one compulsory discipline (lectures, practical and laboratory work) with a visit to the partner university once a week.

After studying the disciplines at the partner university, the student presents a transcript that is entered into the main transcript. For students abroad, within the framework of the project, the SCO University has developed a methodology for the mutual recognition and conformity of assessments. Prospects for the development of academic mobility are associated with the development and implementation of the Kazakhstan model for transferring credit units (Appendix 5.7).

For the period 2014-2019 internships for undergraduates at SPbPU (St. Petersburg) were organized. Planned summer practice in 2019. to Vienna Technical University. Students and undergraduates have the opportunity to choose disciplines subject to prerequisites, and undergo integrated training in the framework of the SCO program (MPEI, Ural Federal University). According to the Erasmus Mundus program during 2018/2019. training for undergraduates and students in Romania was organized. Together with the Research Institute of TPU (Tomsk) and ITMO (St. Petersburg), a double-degree education program was implemented (Appendix 5.8).

Thesis defense at NRU ITMO will take place in St. Petersburg (in the online on-line mode for the members of the State Administrative Commission of the Department of ATP using the equipment of the international educational program "SYNERGY").

Number of academic staff, undergraduates, students sent as part of the external mobility program by the Department of APP

Year	AS	Undergraduates	Students
2013-2014	-	33	15
2014-2015	-	18	14
2015-2016	12	64	13
2017-2018	10	90	3
2018-2019	1	39	3

Number of academic staff, undergraduates, students sent as part of the external mobility program

Year	AS	Undergraduates	Students
2013-2014	-	2	-
2014-2015	-	4	
2015-2016	-	-	
2017-2018	-	2	1
2018-2019	-	-	2

In terms of education, the effectiveness and efficiency of introducing innovations of students and academic staff, using various teaching methods and assessing learning outcomes is evaluated by the Center for Management and Quality, which conducts annual (2 times a year) questionnaires of students and undergraduates, doctoral students of all courses in which they are evaluated, and the satisfaction of students and academic staff with methodological innovations and the educational process is monitored. (https://docs.google.com/forms/d/1P_7aGzmIaH3Zmzl6JYOv0gIKGJtlFCjo3msNDQdIWkc/closedform)

In order to maintain feedback with employers, a questionnaire, periodic contact (at least once a semester) through telephone conversation, facsimile and electronic messages, mailing are provided. Surveys of employers are conducted at the annual Alumni Fair held by universities.

The autonomy of students in EP is supported by appropriate conditions: in all educational buildings there are reading rooms, a schedule of SRSP is formed. The educational process is carried out in accordance with the working curriculum of the EP “Automation and Control”, “Instrumentation”, “Metrology”, the academic calendar, the schedule of classroom studies and the schedule of independent work of undergraduates, students in the presence of teachers (SRMP, SRSP) (Appendix 5.11). With credit training technology, the amount of independent work performed by students increases. According to the provisions of credit technology, 2/3 of the educational material in each discipline is required for the student to master independently. CPM, CDS provides for the work of the

student outside the audience, with the aim of supplementing and expanding the knowledge of the material passed in class. Organization of SRM, SRS is carried out in accordance with the basic regulatory documents of the university, including the educational program, materials for independent study of sections of the course. Materials of the CDS are developed by the leading specialists of the department and include the main regulatory documents allowing the effective implementation of the research / experimental research work of a graduate student. The independent work of a student under the guidance of a teacher is an extracurricular type of work that is carried out by him in contact with the teacher according to a separate schedule, which is not included in the general schedule of training sessions. For students who do not cope with academic requirements, in accordance with the current rules for the organization of the educational process on credit technology, an additional (summer) semester of 4 weeks is provided during which they receive academic support in preparing for exams by organizing classes, as on a paid basis without payment. During the school year, the schedule contains schedules of consultations of academic staff, additional information is provided in syllabuses for disciplines, the student can also contact the teacher by e-mail.

Learning accomplishments (knowledge, skills, competencies) of students are assessed according to the ball rating system. The student is allowed to take the exam by the teacher, provided that the course program is fully implemented, course, laboratory work, RGR, semester assignments and other mandatory types of control are completed. If a student does not show up for an exam without a good reason (lack of admission to the exam due to the untimely or incomplete completion of the discipline program), the registration sector makes an unsatisfactory assessment of the discipline. The regulatory framework for the organization of the educational process is freely available in the UNIVER system http://www.kstu.kz/baz/. The results of academic performance are shown in the table.

Specialty, indicator	**2015-2016**	**2016-2017**	**2017-2018**
5B070200 "Automation and control"			
Quality of knowledge, %	88,72	81,41	85,4
School performance based on the results of semester sessions, %	100	100	100
5B071600 "Instrumentation"			
Quality of knowledge, %	82	80	77
School performance based on the results of semester sessions, %	89	94	85

The dean's office for working with complaints and suggestions of students uses special boxes installed in certain places to receive information from consumers. Conflict situations are openly discussed in study groups with the curator, the head of the department, and if the conflict is not resolved, they are communicated to the dean's staff.

Analytical part

Analyzing the standard "Student-centered learning, teaching and performance assessment" in accredited areas, the commission came to the conclusion that, within the framework of the implemented educational programs, the use of modern pedagogical technologies, methods and techniques for using such technologies as teaching in

cooperation, the use of new multimedia technologies, Internet- resources, which helps to implement a personality-oriented approach to learning, provides individualization and differentiation of learning, taking into account the way students awns. There are feedback systems on the use of various teaching methods and assessment of learning outcomes. The university ensures the consistency, transparency and objectivity of the mechanism for assessing learning outcomes for each academic degree, as well as an appeal.

The results of a survey of employers, in turn, indicate a good theoretical training of graduates of an accredited EP, the ability to apply the acquired knowledge and skills in practice. This is the basis for the growing demand for specialty graduates in the republican and regional labor market.

From interviewing students, it became known that they did not participate in the development of QEDs for the study program. Some students expressed the idea that "university teachers are professionals in their field and they better know which disciplines should be included in QED", which indicates the absence of some elements of student-centered learning. Under current practice, academic staff develops QED based on specialization, and not the needs of students.

Strengths / Best Practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- the presence of a feedback system on the use of various teaching methods and assessment of learning outcomes;
- Support for the autonomy of students with simultaneous leadership and assistance from the teacher;
- The mechanisms for ensuring the development of learning outcomes by each graduate of the educational program are determined and the completeness of their formation is ensured.

Recommendations for EP 5B070200 "Automation and Controls", 6M070200 "Automation and Controls", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- QEDs should be developed based on the needs of students, undergraduates, and not on the specialization and interests of faculty.

The conclusions of the EEC on the criteria:

According to the standard "Student-centered training, teaching and performance assessment" 10 criteria are disclosed, of which:

- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation" 3 have a strong position, 7 - satisfactory;
- according to the EP 6M07500 "Metrology" 10 have a satisfactory position.

6.6. Standard "Students"

Evidence part

The policies and procedures for admitting applicants to a state university are consistent with the mission, vision, strategic goals of the university and are officially published on the university website (http://www.kstu.kz/priemnaya-123komissiya-2/). Students are admitted to the University on the basis of the Model Rules for admission to study in educational institutions implementing educational programs of higher education

(approved by the Government of the Republic of Kazakhstan dated January 19, 2012 No. 111, amendments and additions were made by the Government of the Republic of Kazakhstan dated June 08, 2018 No. 334) and the Rules for awarding an educational grant to pay for higher education (approved by the Decree of the Government of the Republic of Kazakhstan dated January 23, 2008 N 58).

For admission of documents, conducting comprehensive testing and forming a contingent of students of all forms of training at the university, a selection committee operates. All regulatory legal acts on the admission of applicants to the number of students are available on the university website and information boards of the admissions committee. In addition, the EP carries out career guidance on pages on popular social networks Instagram, Facebook, Vkontakte, YouTube, where information is posted as they become available.

The policy for the formation of the contingent of students consists in admitting to the number of students those who are most prepared for studying at a university, who consciously chose the direction of preparation and scored the required number of points according to the results of UNT or CT. The university determines the order of formation of the contingent of students based on such criteria as: social order, the implementation of the needs of the region and the country in the profile of specialists with higher and postgraduate education; placing a state educational order for training specialists; the number of students using their own funds and other sources. Accounting and movement of students is carried out in accordance with the requirements of GOSO RK 5.03.008-2009 "Education system of the Republic of Kazakhstan. The contingent of students. Key Points".

The contingent of students at the EP 5B070200-Automation and Control, 5B071600-Instrumentation is distributed according to the following forms of training: full-time full-time undergraduate (4 years), full-time shortened undergraduate (3 years.), Part-time undergraduate ACT (3.5 years), part-time undergraduate-based IN (2.5 years).

5B070200-Automation and control		**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Reception	**total**	**79**	**87**	**99**	**88**	**177**
	full-time	53	58	68	67	122
	part-time	26	29	31	21	55
	DL	-	-	-	-	-
Expelled	**total**		**1**			**1**
	full-time					
	part-time		1			1
	DL					
Release	**total**	**128**	**61**	**59**	**76**	**89**
	full-time	85	50	47	53	59
	part-time	39	7	12	23	30
	DL	4	4	-	-	-
Number of educational grant holders / tuition for a fee	**total**	**128**	**61**	**59**	**76**	**89**
	full-time	28/57	26/24	26/21	15/38	5/54
	part-time	-/39	-/7	-/12	-/23	-/30
	DL	-/4	-/4	-	-	-
Foreign students	**total**	**2**	**6**	**7**	**7**	**5**
	full-time	-	1	2	2	3
	part-time	2	3	5	5	5
	DL	-	-	-	-	-

5B071600-Instrumentation		**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Reception	**total**	**25**	**14**	**26**	**46**	**36**
	full-time	25	14	26	43	32
	part-time	-	-	-	3	4
	DL	-	-	-	-	-
Expelled	**total**	**0**	**0**	**0**	**1**	**0**
	full-time	0	0	0	1	0
	part-time	-	-	-	-	-
	DL	-	-	-	-	-
Release	**total**	**25**	**29**	**46**	**27**	**14**
	full-time	25	29	46	27	14
	part-time	-	-	-	-	0
	DL					
Number of educational grant holders / tuition for a fee	**total**	**24/1**	**14/0**	**24/2**	**38/8**	**32/4**
	full-time	24/1	14/0	24/2	38/5	32/0
	part-time	-	-	-	0/3	0/4
	DL	-	-	-	-	-
Foreign students	**total**	**0**	**0**	**0**	**2**	**1**
	full-time	-	-	-	-	-
	part-time	-	-	-	2	1
	DL	-	-	-	-	-

6M070200-Automation and control		**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Reception	total	**11**	**67**	**65**	**71**	**38**
	1,5	5	-	-	-	4
	SPID (1.5y)	-	64	65	63	-
	2y	6	3	-	8	34
Expelled	total	**-**	**1**	**3**	**3**	**-**
	1,5	-	-	-	-	-
	SPID (1.5y)	-	-	1/2	3/-	-
	2y	-	1	-	-	-
Release	total	**11**	**66**	**62**	**59**	**-**
	1,5	5	-	-	-	-
	SPID (1.5y)	-	64	62	59	-
	2y	6	2	-	-	-
Number of educational grant holders / tuition for a fee	total	**4/7**	**64/3**	**60/5**	**70/1**	**34/4**
	1,5	-/5	-/-	-	-	-/4
	SPID (1.5y)		62/2	60/5	62/1	-
	2y	4/2	2/1	-	8/-	34/-
Foreign students	total	**-**	**-**	**-**	**-**	**-**

6M071600-Instrumentation		**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Reception	total	6	9	6	-	10
Expelled	total	-	-	-	-	-
Release	total	8	6	9	6	-

Number of educational grant holders / tuition for a fee	total	6/0	9/0	6/0	0	9/1
Foreign students	total	0	0	0	0	0

6M075000-Metrology		**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Reception	total	2	1	1	0	6
Expelled	total	-	-	-	-	-
Release	total	4	2	1	1	-
Number of educational grant holders / tuition for a fee	total	2/0	1/0	1/0	-	6/0
Foreign students	total	-	-	-	-	-

From the first day of their stay in KSTU for adaptation with students, meetings are held with the dean of the faculty, curators, during which they receive a guidebook. A guidebook for each academic year is available both on paper, which was received by each university student, and in electronic form, which is available on the official website (www.kstu.kz).

The guidebook serves as a guide for students and contains general information about the university, its organizational structure, the rules of the credit system of education, as well as a glossary. The information in the Guidebook is intended to help the student and introduces students to the features of the academic life of the university, describes the organization of the educational process, rating, intermediate and final control of knowledge, the conditions for transferring from course to course, as well as their rights and obligations.

All first-year students on curatorial hours are required to familiarize themselves with the regulations of the educational process, the Charter of the University, the Internal Rules, the Code of Honor of Students, the Rules of academic honesty of teachers, students and university staff, the Rules of living in a hostel, as well as in hostels of KSTU AS duty.

The university implements its activities in accordance with the Lisbon Convention on the Recognition of Qualifications Related to Higher Education in the European Region (ETS No. 165) dated April 11, 1997 (Lisbon Convention).

EP applies the procedures and mechanisms for recognizing the results of academic mobility of students, faculty, as well as additional education. Cluster graduates undergo a nostrification procedure for further studies in a master's program in the countries of near and far abroad.

Graduates of EP Safronova N., Pedanova E., Golubeva M., in the period from 2015-2017 academic year We studied according to the double-degree program in the magistracy of KSTU in the specialty 6M070200 "Automation and Control", the specialized educational program "Robotics. Control Systems" in the framework of the SPIIIR-2 and in the master's program of the Department of ETiPEMS (Department of Electrical Engineering and Precision Electromechanical Systems) NRU ITMOG. St. Petersburg) under the program of scientific and pedagogical training (2 years) direction "Electrical Engineering and Electric Power". Graduate students defended dissertations at KSTU (January 2017, Karaganda), and NRU ITMO (June 2017, St. Petersburg).

On the basis of an agreement on double-degree education of undergraduates with a degree in Instrumentation with the Tomsk Polytechnic University at the Department of IIT TPU for the period 2015-2018, at the ITPS department 8 master's theses are defended by undergraduates.

EP collaborates 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, and is also guided by other intergovernmental agreements to ensure the recognition and nostrification of foreign diplomas, degrees and other qualifications.

In the period 2014-2019 Under the program of external academic mobility, 24 students were trained for one semester in universities in Europe and Asia. At the moment, 2 students are studying in academic mobility in Poland and the Czech Republic. (http://www.kstu.kz/mezhdunarodnoe-sotrudnichestvo-22/)

13 undergraduates were sent for academic mobility under the program of the University of the Shanghai Cooperation Organization. (http://www.kstu.kz/mezhdunarodnoe-sotrudnichestvo-22/). Master student gr. AUM-16-3 Ohapova Sh. 2016-2017 academic year studied as part of a science grant from Sweden at the University of Lileu, Sweden.

Students of KSIU specializing in "Automation and Management" are trained in internal academic mobility, with the issuance of a transcript, according to the agreement on mutual cooperation in the provision of educational services between KSTU and KSIU from 03/14/2011

Outgoing academic mobility indicators from KSTU and KSIU

Specialty	**FULL NAME**	**Host university**	**Period of study**	**Number of students**
2016-2017 academic year				
5B070200-Automation and control	Auzhanov D.T., Galimzhanov T.G., Gataev D.R., Zinnatov I.D., Kandratiev S.R., Mazitov V.N., Mambetova A.A., Malyshev A.S., Tulebaev B.D., Aytkhozhin U.K., Baskakov P.V., Dodonov O.A., Zhumataeva J.M., Kulzhanbekov T., Kusainov A.E., Oshkov N.A., Sarzhanuly A., Ulykpan T.E., Havdalkhan D., Shaforostova E.I.	Karaganda State Industrial University (KSIU)	23.01.2017-13.05.2017	20
2017-2018 academic year				

5B070200-Automation and control	Abdikarimova S. Zh., Abdrakhmanova A.D., Adieva A.D., Alpanov K.K., Bimagambetova A.E., Dosbolov E.D., Erkinbekuly A. Esenbekov B. B., Zhabyrbaev A.T., Zhusupova S.E., Kabibola D.A., Kali M.N., Karimov R. K., Kosherbay M. B., Kurmangalieva A.E., Kylyshbaeva N.T., Nakyp A. J., Nurkeshov M.M., Reimkhanov M.T., Tileuhan M. A., Shaideken N. O., Shaikhov K. S.,	KSIU	02.10.2017-29.12.2017	22
5B070200-Automation and control	Kapbar E.M., Armanbek J. Esengabulova E.K., Mansurov E.E., Nurmagambetova A.E., Rymbek A.D., Suleimenova S. M., Sainov E.S., Tairova G.A., Tishbekov E.S., Umirzakov Zh.O. Usenov B.K., Khabalkhan L., Babazhanov K.R., Bychek M.V., Kauanov A.S., Musaev M. Zh., Sultan B.N., Serikbaeva Z. T., Sopikhanova A.K., Tarlykov M.V., Tsai A.S., Shintemirova K. E.	KSIU	12.02.2018-05.05.2018	23
5B071600 - Instrumentation	Amirbekov B.A. Almurzaev M.B. Daribayeva A.M. Ysbergenova A.A.	The Karaganda state university is the academician EA	03.09.2017-14.12.2017	13

	Kaldybaev N.B. Mukash A.S. Mamyrbayev D.T. Muratova A.B. Orazalina A.B. Rahim Zh.T. Smagulov D.T. Toleugali A.G. Toleutai A.S.	Buketov		
2018-2019 academic year				
5B070200-Automation and control	Amanbaeva G.I., Bakytbekuly A., Begzhanov M.E., Abenova Zh. B., Bespaev A.A., Abilaev R.K., Elubaev M.E., Kabdyrash D.S., Korabay R. B., Kurmangaliev M.M., Kylysh N. A., Kystaubay K. E., Myrzakhmet J. B., Nurushev A.T., Tastybay R.T., Tetay S.E., Təleuov A. Ө., Turgunbaev R.M., Tynybekov N.T., Shoken N.S., Shəmshieva G.M., Shotbai A.M.	KSIU	28.01.2019г.-6.05.2019г	22
5B071600 - Instrumentation	Anasov Ə.D. Sadvakasov Zh.A. Mamatov N.A. Қosmagambet S.B. Қoyshybaev Қ.Zh. Omar A.A. Kurakbai Zh.T. Octyabr B.A. Bazarkhanova A.S. Abeuova Sh.T. Shildebaeva A. Abdikarimovna A. Kunshuak E. Musagalieva A.A. Alibek A.A. Musagul O.B.	Karaganda State University named after Academician E.A. Buketov	03.09.2018-14.12.2018	16

The practical training is carried out in accordance with the curriculum in the 4th semester, the duration is 7.5 weeks. The purpose of the practice is for students to obtain a

working specialty in the professions “Locksmith of Instrumentation and Automation” or “Installer of RA and P.”, “Electrician of REA of the 2nd category”, as well as consolidating the knowledge gained for I and II training courses, familiarization with integrated development environments software tools used in further training. A certificate is issued with the assignment of a working specialty in the professions “RA&P installer” or “Instrumentation and automation fitter”, as well as production characteristics (Appendix 6.2).

After passing a certain type of practice, students are questioned in order to identify students 'satisfaction with places and organization of internships, as well as questionnaires for managers of practice bases are conducted to assess students' satisfaction with the level of training. As a result of monitoring, the graduating departments form recommendations for improving the organization of practical training.

Since 2000, the annual fair of graduates has been held at the Karaganda State Technical University. Representatives of enterprises and institutions of the region take part in the job fair. Among them are employers from Arcelor Mittal Temirtau JSC, Ugleservis JSC Shubarkul Kumir JSC, Kazakhtelecom JSC, Kazpromavtomatika LLP, Energy System LLP LLP, Kazakhmys Corporation LLP, JSC NaTsEkS , KF RSE "KazInMetr".

During the academic year, the EP regularly organizes meetings of 3, 4-year students with employers. The result of these meetings is an invitation to industrial, undergraduate practice with subsequent employment.

To promote the graduates of the department, the Career Center together with the faculties conduct a series of events for senior students. Particular attention is paid to coaching for students. So, for example, in 2017, trainings were held on such topics as: “How to create an effective resume”, master class “Rules for an ideal interview with the employer”.

Employment of graduates in accredited EPs for 2016-2018 5B070200 “Automation and Management”

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	47	50	47	53
On a budget basis	8	26	26	17
On a commercial basis	39	24	21	36
Employed, %	100	88	81	74

6M070200 “Automation and control”

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	10	64	63	68
On a budget basis	5	62	59	68
On a commercial basis	5	2	4	-
Employed, %	100	100	97	87

5B071600 – «Instrumentation»

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	25	29	46	27
On a budget basis	24	29	46	27
On a commercial basis	1	0	0	0
Employed, %	81	82	86	85

6M071600 – «Instrumentation»

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	8	6	9	7
On a budget basis	8	6	8	7
On a commercial basis	0	0	1	0

Employed, %	100	100	100	100

6M071600 – «Metrology»

Indicator	2014-2015	2015-2016	2016-2017	2017-2018
Number of graduates	6	5	4	1
On a budget basis	6	5	4	1
On a commercial basis	0	0	0	0
Employed, %	100	100	100	100

In 1999 The Association of Alumni and Employees of the Department of Automation of Production Processes named after Professor V.F. Byrki KSTU (Association of APP), which is a public professional non-profit organization, structurally part of the Association of graduates and employees of KSTU. (http://www.kstu.kz/ezhegodnaya-assotsiatsiya-vypusknikov-kafedry-app/). EECs were presented with the protocol of the Alumni Association.

Analytical part

The current policy for the formation of the contingent in the university complies with the legislation of the Republic of Kazakhstan. To popularize accredited programs, the university carries out career guidance, attracts graduates (open day, round tables). EP management conducts special adaptation and support programs for incoming and foreign students.

The University provides graduates of EP with documents confirming the qualifications obtained; regular monitoring of the employment and professional activities of graduates of the EP.

There are no documented procedures for supporting gifted students within the framework of the EP. Support for gifted students is provided by the leadership of the university, EP, members of the corporate university consortium, but experts noted the absence of a single document that spells out all the mechanisms and ways to support gifted students.

Within the framework of EP 6M075000 Metrology, there are problems with the recruitment of students and postgraduate support of graduates of the EP. Despite the lack of demand for graduates of EP 6M075000 Metrology, only 6 undergraduates are currently studying at EP. In the Karaganda branches of the RSE "KazInMetr", JSC "NACECS" and large industrial companies, graduates of the university "Instrumentation" work as metrology-testers.

In the framework of EP 6M075000 “Metrology” there is no intelligible program or plan for the formation of a contingent at the EP. The format of career guidance work with schools, colleges and universities in the region needs to be improved; there is insufficient work to popularize the program through the media.

Strengths / Best Practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”:

- providing opportunities for internal and external mobility, as well as assistance in obtaining external grants for training;
- providing students with places of practice and promoting the employment of graduates;
- monitoring of employment and professional activities of graduates of EP;
- stimulating students to self-education and extracurricular activities;
- the presence of the current Alumni Association.

Recommendations for EP 6M075000 "Metrology":

- Develop a plan for the formation of a contingent at the EP, strengthen career guidance work with schools, colleges and universities in the region, promote the program through the media.

The conclusions of the EEC on the criteria:

According to the standard "Learners" 12 criteria are disclosed, of which:

- according to EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation” 5 have a strong position, 7 - satisfactory;
- according to EP 6M07500 "Metrology" 12 have a satisfactory position.

6.7. Standard "Academic staff"

Evidence part

The university has developed and is implementing a personnel policy that ensures the formation of a high-quality academic staff, its effective work in accordance with the “Regulation on Personnel Policy”, approved by the Academic Council of KSTU (protocol No. 1 dated 03/28/2018) (see: http: // www. kstu.kz/dup/).

Amendments to the Regulation on the personnel policy of KSTU are carried out according to the results of monitoring the personnel, the results of the University and its management system.

The main directions of the personnel policy of KSTU and departments in the EP cluster “Automation and Control”, “Instrumentation”, “Metrology” are as follows: University staff management (see: http://www.kstu.kz/dup/); personnel selection and placement; formation and training of personnel reserve for promotion to leading positions; competition, assessment and certification of personnel (see: http://www.kstu.kz/dup/); training; motivation and stimulation.

The process of selecting staff, determining the qualifications of employees, arranging their admission, moving and dismissing, preparing documents for approval in the positions of employees is managed by the University’s Human Resources Department (DKV) together with the heads of structural units, guided by the staffing table.

Management and regulation of the employment of academic staff is carried out on the basis of a contract-competitive form, the procedure for which is governed by the Regulation on competitive elections of the RFP, job descriptions. They are approved by the rector of the university.

The staff of the EP is staffed in accordance with the legislation of the Republic of Kazakhstan and the "Rules for competitive replacement of the posts of scientific and pedagogical personnel of higher educational institutions."

An employment contract for each academic year is concluded with teachers who have passed competitive elections. Typical qualification characteristics for posts are taken into account in the formation and approval of the department staff.

The qualitative composition of academic staff, the basic education of teachers of the department "Technical Disciplines", their qualification level, experience in scientific and educational and practical work is appropriate for the implementation of EP 5B070200, 6M070200 "Automation and Control", EP 5B071600, 6M071600 "Instrumentation", 6M075000 "Metrology"

Personal information about faculty is available on the university portal, website: kstu.kz (see: http: //person.kstu.kz/category/fakultet-energetiki-i-

telekommunikatsij/kafedra-avtomatizatsiiproizvodstvennyh-protsessov/).

The table shows the numerical characteristics of the composition of the faculty in the EP for the period 2014-2019. In 2018, the degree of graduation from the Automation and Management EP in the undergraduate program was 56.2%, and in the master program - 85%. In 2018, there are 32 full-time teachers and 6 part-time staff at the EP staff. The share of practicing teachers in 2018 is 18.4%. Of the full-time employees prof. Breido I.V., Assoc. Kaverin V.V., Art. teacher Daich L.I., Art. teacher Sichkarenko A.V., Ivanov V.A., Em G.A. have practical experience in the department "Electric" IGD them. A.A. Skochinsky.

The degree of academic staff of the Department of ITPS in the EP “Instrumentation”, “Metrology” in 2018 was 50% for undergraduate studies and 100% for master's programs. In 2018, the staff of the EP has 14 full-time teachers and 3 part-time workers.

Qualitative and quantitative composition of faculty 2016-2018

Indicator	Academic year		
	2015–2016	2016–2017	2017–2018
Department "Automation of production processes"			
Total AS, including:	36	40	40
Full-time AS, people of them:	26	30	31
with a doctoral degree	3	4	4
with Ph.D.	1	3	5
with the degree of candidate of sciences	8	9	8
with an academic master's degree	10	10	11
The degree of Academic staff, %	46,6%	53,3%	56,7%
The share of full-time Academic staff, %	72,2 %	75,0 %	77,5%
Department of Measuring Equipment and Instrumentation			
Total AS, including:	19	19	17
Full-time AS, people of them:	16	16	15
with a doctoral degree	1	1	-
with Ph.D.	-	-	-
with the degree of candidate of sciences	7	8	7
with an academic master's degree	3	3	4
The degree of Academic staff, %	43,7	56,2	41,1
The share of full-time Academic staff, %	84,2	84,2	88,2

The share of practicing teachers in the EP “Instrumentation”, “Metrology” in 2018 is 17%. Of the full-time employees, associate professor Esenbaev S.Kh. has practical experience in mine No. 22, senior lecturer. Yurchenko V.V., senior lecturer Belik M.N. have practical experience in the Karaganda research coal institute.

Assessment of the competence of teachers to establish compliance with the academic staff of the occupied position is carried out by all staff members of the department in accordance with quality assessment procedures and the Regulation on the point-rating system for assessing the academic staff.

Analysis of a quality indicator of staffing showed that the percentage of graduation corresponds to the norm established by the license. The qualitative composition of the academic staff of the department with a scientific rank and academic degree is 50% and

51% in 2016-2017 and 2017-2018 academic years. years respectively.

For teachers who are actively working in the framework of “student-centered learning”, the system of material encouragement and social support for academic staff developed by the rector of KSTU is used according to the results of differentiated wages in accordance with the Regulation on the rating of the faculty of the RSE at the Karaganda State Technical University (see) : http://difoplata.kstu.kz/web/).

A fundamentally new and important achievement of the Department of APP is participation in the international project of distance networking "SYNERGY". This project includes advanced methods and means of information and communication technology for teaching students of the specialty "Automation and Control" of the Department of APT KarSTU and 5 leading universities of the Russian Federation. The project is actively attended by teachers of the department of APP Breido I.V., Feshin B.N., Kochkin A.M., and others. Supporting documents for the SYNERGY project are provided.

Leading specialists of the enterprise and practical trainers take part in the development of RUEs, QEDs, guidelines and teaching aids, lecturing in elective disciplines “Modern means and technologies of industrial automation”, “Automation of electrical complexes of mining and metallurgical production”, etc. for students and undergraduates

The university offers continuing education courses for young teachers and staff in various areas of educational programs. EP teachers with less than 5 years of experience undergo training at the Center for Engineering Pedagogy, where they study innovative teaching methods and technologies with a certificate of completion of advanced training courses. Free English language courses at KSTU were passed by 4 employees of the EP departments.

The competitions "Best Young Scientist", "Best Young Innovator" are held annually, in which young scientists under 35 take parts.

The academic staff of the graduating departments of the EP, in order to introduce innovative technologies, organize and participate: in the production of teaching materials; training workshops for faculty; online lectures of leading teachers of departments and joint international EP; lectures of professors from near and far abroad invited to KSTU; lectures, consultations and seminars of the leaders of the International training programs (“Synergy”, SCO, TEMPUS, Erasmus +, etc.).

There were 6 circles at the APP department in accordance with the department’s decision (protocol of the department meeting No. 1 dated 09/11/2018). Two circles in the state language and one circle in English. The research work is carried out under the guidance of experienced teachers. At the department of ITPS there are 3 student scientific circles.

As part of academic mobility, a number of teachers have participated and are participating in various academic mobility programs. To improve the qualifications of teachers it is carried out through courses, seminars, individual internships, trainings, master classes. In 2015-2016 one of the significant steps in continuing education was participating in an internship under the “Program for the Training and Continuing Education of Heads of Higher Education of the Republic of Kazakhstan” in three areas: “Entrepreneurial University”, “Research Activities of a Higher Education Institution” and “Academic Activities of a Higher Education Institution” organized by the Ministry of Education and Science of the Republic of Kazakhstan on the basis of Nazarbayev University . Under this program, 5 teachers were trained.

The number of teachers who attended continuing education courses for 3 academic years

The name of the	Academic year

department	2015–2016		2016–2017		2017–2018	
	RK	Near and far abroad	RK	Near and far abroad	RK	Near and far abroad
Department "Automation of manufacturing processes"	48	11	35	2	36	7
Department "Measuring Equipment and Instrumentation"	14	4	5	0	8	1

Teachers participate in the implementation of international educational programs. During 2014-2019 for lectures and consultations on the EP "Automation and Control" were invited: Professor of the Technical University of Berlin, Berlin, Germany Lucas V. (2014, 2015); Doctor of Technical Sciences, prof. Technical University of Vienna, Katalinich B. (2014, 2015, 2018), Doctor PhD, prof. Technical University (Sofia, Bulgaria) Nakov Ohanyan (2014), prof. Baltic State Technical University (St. Petersburg) S. Stazhkov (2015, 2016, 2018), prof. Tomsk Polytechnic Institute (Tomsk) Yurchenko A.V. (2015); prof. Khomchenko V.G. (RF, OmSTU, Omsk, 2015); prof. Ipatov O.S. (RF, St. Petersburg, St. Petersburg Polytechnic University of Peter the Great, 2015); Professor L. Ostoich (Mastar, Bosnia and Herzegovina, 2018); Professor A. Uglesić (Zadar University, Croatia, 2018). In 2017, Associate Professor K.K. Smagulova, and in 2015, A.M. Kochkin, Associate Professor V.V. Kaverin, Associate Professor S.V. Voitkevich Art. teacher Lapina L.M., Art. teacher Potemkina E.B., Art. teacher Telbaeva Sh.Z., Art. teacher Nurmaganbetova G.S., Art. teacher Nurnaganbetova G.S., teacher Tokhmetova K.M., Art. teacher Zhumagulova J.K., Art. teacher G. Shoshymbekova underwent a foreign scientific internship at the Federal State 109 Autonomous Educational Institution of Higher Education "Peter the Great St. Petersburg Polytechnic University", included in the TOP-500 according to the results of QS World University Rankings.

One of the forms of involvement in the scientific sphere is the participation of the academic staff of the APP department as experts attracted by ministries, departments, and other organizations, which indicates a high degree of trust in the University, recognition of its expert potential both from the national governing bodies and the public. So, for the period from 2016 to 2018. attracted as experts 8 people from the academic staff.

The conditions have been created for full-fledged research activities of academic staff, participation in funded scientific projects, research projects, publication of the results of their research under contracts with Kazakhstan and foreign organizations. Planning and evaluation of the academic activities of academic staff is carried out according to individual plans and is reflected in the annual reports of teachers (Table 3, Table 4).

One of the important areas of international and educational activity is the academic mobility of academic staff, which is carried out on the basis of agreements with foreign and Kazakhstani organizations. In this direction, teachers use the opportunity to study foreign experience in training personnel by listening to lectures and seminars on copyright programs of invited foreign scientists and specialists.

The above departments are actively conducting research work, the results of which are published in collections of various conferences and other scientific events. To carry out work by qualified faculty of the above departments involved undergraduates, graduate students and students. The number of works published and published in recent years are given in the table.

Publication activity of Academic staff by cluster

Types of jobs	**2015**	**2016**	**2017**	**2018**
Monographs	3	2	8	7
Textbooks	1	1	-	1
Educational methodical schoolbook	16	31	25	17
E-books	46	33	13	14
AS Articles	90	88	100	143
Of them: Articles, abstracts in collections of conferences and other scientific events (foreign publications)	36	26	24	18
Articles, abstracts in collections of conferences and other scientific events (republican publications)	42	44	45	91
High Impact Magazine Articles, Thomson Reuters, Scopus	11	8	20	15
Articles in journals with a high impact factor, RSCI	17	10	11	19
Student Articles	31	58	61	62

It should be noted that in the above departments, research work is carried out in the form of grant work by order of the Ministry of Education and Science of the Republic of Kazakhstan, initiative work and contract work on orders of the manufacturing sector. Analysis by year and amount of funding by source is given in the table.

The volume of financing research in the cluster, tenge

Research funding	**2014**	**2015**	**2016**	**2017**	**2018**
Founder's funds	-	-	-	-	-
International projects	-	-	-	-	-
Household contracts	7 196 000	10470 000	12 262 000	9 551 159	5 677 000
By order of MES RK	29 000 000	27 000 000	16 000 000	11 000 000	-

Analytical part

Analyzing the standard "Academic staff" in accredited areas, the commission came to the conclusion that the university has an objective and transparent personnel policy, including hiring, professional growth and staff development, ensuring the professional competence of the entire staff. EP management has demonstrated awareness of responsibility for its employees and ensuring favorable working conditions for them. At KSTU, the contribution of academic staff to the implementation of the university development strategy is determined.

The EP leadership attracts practitioners from relevant sectors to teaching and provides targeted action for the development of young teachers. The leadership of the EP of KSU demonstrated the motivation for the professional and personal development of teachers of the EP, including the promotion of both the integration of scientific activity and education, and the use of innovative teaching methods.

The cluster has a low level of external and internal academic mobility and the involvement of the best foreign and domestic teachers.

In this regard, the management of accredited EPs needs to intensify the participation of teachers in academic mobility programs, expand the opportunities for international cooperation and exchange of experience with foreign and domestic colleagues.

In the framework of EP 6M075000 “Metrology”, the introduction of the results of scientific studies of academic staff in the educational process is not carried out, which reduces the relevance and practicability of the formed competencies of students.

In the strategic plan for the development of the Department of ITPS for 2018-2023. for EP 6M075000 “Metrology” there is no indicator on the receipt by the academic staff of the status of expert auditors to confirm the conformity of products and processes. Teaching core disciplines of EP certified by expert auditors to confirm the conformity of products and processes in the areas (metallurgical; radio engineering, electrical and cable; electronic; communications and telecommunications; software and databases; building materials, structures and products) would improve the quality and practical orientation majors, as certified expert auditors are active participants in the National System of Standardization and Unity Measurements.

Strengths / Best Practice for EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation”:

- providing career opportunities and professional development of academic staff;
- involvement in teaching practitioners of relevant industries;
- ensuring targeted action to develop young teachers;
- the development of academic mobility within the framework of EP, the attraction of foreign and domestic teachers.

Recommendations for EP 6M075000 "Metrology":

- Implement a set of measures aimed at introducing the results of research work of the academic staff in the educational process.
- Assist academic staff in obtaining a certificate of expert auditors to confirm the conformity of products, processes (metallurgical; radio engineering, electrical and cable; electronic; communications and telecommunications; software and databases; building materials, structures and products).

The conclusions of the EEC on the criteria:

According to the standard "Academic staff" 12 criteria are disclosed, of which:

- according to EP 5B070200 “Automation and Control”, 6M070200 “Automation and Control”, 5B071600 “Instrumentation”, 6M071600 “Instrumentation” 4 have a strong position, 8– satisfactory;
- according to EP 6M07500 "Metrology" 12 have a satisfactory position.

6.8. Standard “Educational Resources and Student Support Systems”

Evidence part

An important factor in ensuring the quality of education and guaranteeing the sustainable development of KSTU is the continuous improvement of material, technical and information resources. The university has all the conditions for teaching students, conducting scientific research, publishing the results of research work of academic staff, staff and students.

The University has the material and technical base, providing all kinds of practical training and research work for students, provided for by the university curriculum and in accordance with the current sanitary-epidemiological and fire safety standards and rules.

The university has structural units, student support services that assist students in the development of educational programs in which the necessary assistance is provided by qualified advisers, curators, and a psychologist works for psychological assistance.

In extracurricular times, students have the opportunity of individual work with teachers.

A system of measures is in place to assist students with problems.

Technological support is provided for students and faculty in accordance with the software used. In the international master's program in the specialty "Automation and Control", online training has been implemented as part of the Synergy project.

Students are provided with academic support, including a guidebook, academic calendar, QED, RUE, syllabuses, work programs, teaching materials and other teaching materials.

All laboratories are certified, provided with fire extinguishing means, personal protective equipment.

Training under accredited EP is conducted in accordance with the State Compulsory Standard of Higher Education, approved by order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604. It is registered in the Ministry of Justice of the Republic of Kazakhstan on November 1, 2018 No. 17669 with standard and working curricula of specialties, typical and working curricula of disciplines and educational complexes.

The analysis of the sufficiency and modernity of the resources available to educational programs - classrooms, laboratories, computer equipment and software, financial resources is carried out regularly in the process of developing the annual development program of the University, when discussing the annual plan of the department and the results of its implementation in the minutes of the meeting of the department (protocol No. 3 dated September 12, 2016, protocol No. 10 dated January 22, 2019).

The total classroom fund of the department is 980 m2. The total area of the laboratory base is 515 m2, and scientific and methodological laboratories - 240 m2. In addition to training laboratories, the implementation of the EP uses scientific and testing laboratories (04, 05, 07, 105, 107, 414, 419 in the 4th building), and a bench test site (09 and 010 in the 4th building).

The existing laboratory base is based on the software and hardware of leading manufacturers of automation equipment Siemens, Festo, Advantech, Mitsubishi Electric, Schneider Electric, Owen and is similar to those used in the relevant industry

The training process uses specialized software for automation systems, also widely used in industry: Simatic Step 7 Lite; LOGO! SoftComfort 6.0; SCADA WinCC V6; MatLab V10; Visual C ++; PC "MVTU" V3; AutoCAD Electric V16; Compass 3D V16; Trace Mode V6 (demo version); Genesis V7; VisualBasic 6.0; MiltiSim V 13; Cosimir; CodeSys 2.3, Proteus 7, GX Developer V7.04 IEC, Citect Scada V7.40, Mitsubishi Alpha Programming 2.7, MPLAB 8_92.

When implementing the EP “Automation and Control”, Internet-based learning technologies are used as part of the Synergy International University Network Project. At the same time, the disciplines are divided into modules, lectures on which are delivered on the Internet by the best teachers of partner universities (NRU MEI (Moscow), NRU SPbU Peter the Great (St. Petersburg), BSTU (St. Petersburg), Omsk State Technical University (Omsk) and KSTU) . Lectures are simultaneously attended by undergraduates of the above universities. Also on the Internet is the presentation of the best master's projects.

In the EP during 2014-2018. there is a positive trend in the development of material and technical resources. The equipment of the Schneider Electric company, in the amount of 30 million tenge, the equipment of the Festo company was purchased by the administration, and also at the expense of economic agreements in the amount of 30 million tenge, and new equipment and software from Mitsubishi Electric were transferred as sponsorship to the amount of 6 million tenge as well as personal computers and laptops.

The department has 100 personal computers, including 25 laptops, 12 printers and 3 MFPs. All PCs are connected to the Intranet network with Internet access. 10 classrooms are equipped with projectors, interactive whiteboards and a projection television. For the implementation of the EP, computer classes are used (rooms 210 a and 210 b, 212a, 015, 408, main building; Computers are also located in educational laboratories (rooms 128, 133 room and 107 and 108, building 4). In these same computer labs and laboratories, VLPK are placed to carry out laboratory and practical work in the basic and core disciplines of the study program.

Accessibility to the WI-FI network in the territory of KSTU is at a high level, the information network of the institute has an Internet access speed of 600 Mb \ s. The buildings contain the necessary number of access points for high-quality network coverage. In interviews with students, they also received confirmation of the complete coverage of the broadcast area of the WI-FI network in the university and student dormitories. This confirms the provision of high-speed Internet to all students, teachers and employees of the university.

In the period 2014-2018. The faculty of the department developed 348 new SDMs and 75 teaching aids. The availability of educational and methodical literature on electronic media is 100%.

Analytical part

EEC confirms the availability of student support systems, including support through the university website. During meetings with students and faculty, it was revealed that most do not have financial opportunities for undergoing training, internships, and advanced training at leading universities in the world, therefore it is advisable to involve students and faculty more widely in the best online courses.

As a result of a visual inspection of the facilities of the material base, the members of the EEC were convinced that the university possesses the necessary educational and material assets to ensure the educational process of accredited educational programs. At the same time, experts of the EEC note the need to modernize the material and technical base for EP 6M075000 Metrology with modern measuring instruments with a high degree of accuracy. It should be noted the presence in the laboratory of the Department of ITPI of morally and physically obsolete instrumentation.

During a meeting with the head of the ITPS department at the request for a schedule for the verification of measuring instruments available at the department and university, this document was not submitted to the members of the EEC.

University buildings and facilities comply with applicable sanitary standards and fire safety requirements. But the EEC notes that during the operation of educational equipment the safety requirements established in TR CU 010/2011 “On the safety of machinery and equipment” are not taken into account, the risks for the operation of educational equipment are not identified (identified).

The ramps available at the entrance to the educational buildings do not always meet the safety requirements. For example, the permissible ramp slope should not be steeper than 1:20 (5%). This requirement is not always maintained. In addition, the university buildings lack guiding markings and colorographic signs and signs for visually impaired students and staff.

According to the results of the survey, 87.4% were fully satisfied with the availability of library resources, 11% of students were “partially satisfied”; classrooms, classrooms for large groups - 78% (18.9%); cabinets for small groups - 79.5% (16.5%); lounges for students - 39.4% (18.9%); computer classes and Internet resources - 78% (15%) of students; available computer classes - 73.2% (18.1%); by scientific laboratories - 70.1% (22%). Full satisfaction of students with providing a hostel is - 65.4% (9.4%).

Strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Instrumentation", 6M075000 "Metrology":

- the functioning of WI-FI on the territory of the university;

Additionally, strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- high technological support for students and faculty in accordance with the EP;
- training equipment and software used to master the educational program are similar to those used in production.

Recommendations for EP 6M075000 "Automation and Control":

- Due to the saturation of modern software and hardware of leading world manufacturers, it is recommended to expand the area of the department to accommodate constantly updated educational and laboratory equipment.

Recommendations for EP 6M075000 "Metrology":

- Continue work to improve the material and technical base by equipping educational laboratories with modern measuring instruments with a high degree of accuracy;
- To establish the safety requirements for the operation of educational equipment in accordance with the provisions, standards and requirements of TR TS 010/2011.

The conclusions of the EEC on the criteria:

- According to the standard "Educational resources and student support systems" 10 criteria are disclosed, of which:
- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation" 3 have a strong position, 7– satisfactory;
- according to EP 6M07500 "Metrology" 1 has a strong position, 7 - satisfactory, 2 - I suggest improvement.

6.9. Standard "Public awareness"

Evidence part

The organization of the educational process, the implementation of educational tasks, the presence of a vocational guidance system requires the continuous development and functioning of information services. Based on this, the university introduced various information services, each of which is designed to implement the tasks of the above activities. Successful public information is achieved by choosing such tools and information tools that use the maximum level of trust, allow you to get feedback from the informed, analyze the results.

The purpose of informing the public is to create a positive image of the university in the external environment, to establish and maintain cooperation with all interested parties by informing the general public about the various activities of the university.

Implemented educational programs are presented on the corporate website of KSTU in the field of specialties with instructional results.

Each department has its own section on the website of KSTU and publishes information about specialties, EP, qualifications assigned at the end of the EP.

In the section "Applicant" provides information on passing grades and training opportunities.

The university has defined the procedure for publishing news on the main page and in sections. News about the university's activities is posted on a memo at the Center for Foreign Relations. Information in the site development center is provided in the form of a text document with photos. If the news does not meet the requirements, then the material is sent for revision. To assess satisfaction with information about the activities of the university, a survey was conducted on Google Forms. Analysis and weekly monitoring of work in this area is carried out by the Site Development Center. Link to publications: http://www.kstu.kz/category/novosti/ Information on the implementation of the EP is available on the departments' websites.

On the pages of popular social networks, information is published on the results of the educational and educational activities of the university, public events are reported, and online contests and promotions are organized. For example, in the Internet space KSTU is represented by the following accounts in:

- Vkontakte https://vk.com/kstu_life more than 3000 subscribers
- Facebook https://www.facebook.com/KSTUpoliteh/ - more than 400
- Instagram https://www.instagram.com/kstu.kz/ - more than 3000
- YouTube https://www.youtube.com/channel/UCtfFfZ8_AOxrqnrT0yHGYxA - 1200
- Twitter https://twitter.com/KSTUpoliteh - 300.

Field events are practiced in the regions, every year the department hosts an association of APP graduates to organize and maintain information exchange between members of the association and the public about the achievements of the department and its graduates. The Association Newsletter is published annually http://www.kstu.kz/ezhegodnaya-assotsiatsiya-vypusknikov-kafedry-app/, the newspaper "For Polytechnical Knowledge" http://www.kstu.kz/gazeta-za-politeh-znaniya/, scientific and technical journal "Automation and Informatics". http://www.kstu.kz/zhurnal-avtomatika-informatika/, journal "University Proceedings" http://www.kstu.kz/zhurnal-trudy-universiteta/ and other printed materials of scientific, popular science, technical, literary and advertising character.

Open door days are held on an ongoing basis, when applicants have the opportunity to personally take an interest in educational programs, the activities of the department, to get acquainted with its material and technical support.

KSTU determines its contribution to supporting the implementation of national development programs of the country by developing and implementing the Strategic Development Plan of the Karaganda State Technical University for 2014-2023, which states that the University created and implements a model of patriotic education of students on the example of the First President of the Republic Kazakhstan N.A. Nazarbayev, which was twice discussed in Parliament and recommended for distribution in universities of the country. In 2014, in accordance with the national idea of "Migilik El", it was transformed into the Model "Formation of New Kazakhstan Patriotism".

Also, the University has developed and is implementing a Comprehensive Development Program for the Karaganda State Technical University for 2019 in the light of the strategic objectives of the Messages of the President of the Republic of Kazakhstan - Leader of the Nation N.A. Nazarbayev to the people of Kazakhstan "New Development Opportunities under the Fourth Industrial Revolution", "Five Social Initiatives of the President" and "Growing Welfare of Kazakhstan People: Raising Incomes and Quality of Life".

In the context of the implementation of the state program "Digital Kazakhstan", the Academic Council of KSTU adopted the Concept of the transition of KSTU to the Digital KSTU model. In support of the state program "Digital Kazakhstan" and the national project

"Intellectual Nation - 2020", proclaimed by the President of the Republic of Kazakhstan Nursultan Nazarbayev, work is underway on the functioning of the Cisco Academy.

Public information on this criterion is envisaged by posting all documents on the university's website in the public domain and discussing it on the advice of collegial management bodies with the participation of interested parties.

Analytical part

The university constantly publishes up-to-date and objective information on the implemented EPs, indicating the expected learning outcomes, on assignment

qualifications at the end of accredited EP; about teaching, training, assessment procedures.

An analysis of the information presented in the media showed a sufficient level of informing the public about the implemented EPs, which provides support and clarification of the country's national development programs and the system of higher and postgraduate education.

Assessment of satisfaction with information on the activities of the university, the specifics and progress of the implementation of the EP is carried out annually by means of questionnaires, surveys, feedback, and also through the rector's blog.

A survey of students conducted during the visit of the EEC IAAR showed that satisfaction with students' knowledge of courses, academic degrees, and academic degrees was completely satisfied – 83.9%, partially satisfied – 14%, partially unsatisfied – 2.2% of students.

Strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Instrumentation", 6M075000 "Metrology":

- public information provides support and clarification of national development programs of the country, the system of higher and postgraduate education.

EEC recommendations

- none according to this standard

The conclusions of the EEC on the criteria:

According to the standard "Public awareness" 13 criteria are disclosed, of which:

- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M07500 "Metrology" 1 has a strong position, 12 – satisfactory.

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

Evidence part

To obtain practical skills in the specialty within the framework of the bachelor's program "Automation and Control", of the 22 basic disciplines, 17 carry out laboratory work, and from 11 core disciplines, 10 carry out laboratory work. In these disciplines, industrial and educational equipment of the leading manufacturers of automation systems Mitsubishi-Electric, Schneier-Electric, Siemens, Festo, Aries and others is used to obtain practical skills.

(http://repository.kstu.kz/xmlui/handle/123456789/18126;
http://repository.kstu.kz/xmlui/handle/123456789/9646;
http://repository.kstu.kz/xmlui/handle / 123456789/3519;

http://repository.kstu.kz/xmlui/handle/123456789/18126).

To obtain practical skills in the specialty within the framework of the bachelor's program “Instrumentation”, of the 20 basic disciplines, 18 carry out laboratory work, of 10 core disciplines, 9 carry out laboratory work. Laboratory work in core and basic disciplines is carried out on the educational equipment of the department and branch of NP Kayur LLP.

Similarly, in the magistracy in the specialty "Automation and Control" practical skills are acquired in the study of 8 disciplines.

According to the educational program of the magistracy "Instrumentation", practical skills are also acquired when studying 8 disciplines. According to the Master's program “Metrology”, practical skills are acquired when studying 7 disciplines.

A modern laboratory base based on software and hardware allows it to be used simultaneously for practical skills in the study of undergraduate and graduate disciplines.

A distinctive feature of accredited EPs is their focus on industrial automation and electric power. So, according to the EP “Automation and Control” they are located in the Industry-4.0 scientific and educational complex, opened in 2018: (http://lib.kstu.kz:8300/tb/fulltext/temat/Spetsialisty%20novoy%20formatsii .pdf)

The complex includes the Republican Center of KSTU - Festo: Synergy (opened in 2015) (http://www.kstu.kz/novosti-45/), Authorized Training Center of KSTU - Schneider - Electric (opened in 2016) (https://www.elec.ru/news/2015/10/13/schneider-electric-otkryvaet-uchebnyj-centr-na-baz.html), Joint Training Center KSTU-Mitsubishi-Electric - Kazpromavtomatika (opened in 2017 g.) (http://vestikip.kz/2017/06/16/opening of the educational- center- kargtu-mitsubishi-electric/) and the Innovative Audience “Digital Industry” (opened in 2018) (https: // pandia.ru/text/80/559/228.php).

A feature of the EP “Automation and Control” is that in the process of its implementation a system interaction is established with the company Kazproavtomatika, which is a branch of the APP department: https://elibrary.ru/item.asp?id=28112975.

Implementation of master's programs is carried out in the framework of the international scientific and educational project Synergy http://repository.kstu.kz/xmlui/handle/ 123456789/1300; http://repository.kstu.kz/xmlui/handle/123456789/580). The project involves leading technical universities in Russia (NI SPbPU Peter the Great, NIU MPEI (Moscow,) BSTU (Voenmekh, St. Petersburg), Omsk State Technical University (Omsk) and KSTU (department of APP) with online lectures by leading teachers of participating universities.

The following automation teachers are involved in the EP “Automation and Management”, with long experience working in enterprises and research institutes in the profile of accredited EPs.

1) Doctor of Engineering prof. Breido I.V., work experience of 14 years in the electric drive department of the IGD named after A. A. Skochinsky and KNIUI; engineer, senior engineer, senior researcher, head. the laboratory; Candidate dissertation in the specialty 05.09.03 - "Electrical equipment of the mining industry" is protected while working in the IHD them. A.A. Skochinsky, a specialist in the field of automation of electric drive systems of the mining and metallurgical complex. The scientific rank of senior researcher was received there in the same specialty.

2) Ph.D., associate professor Kaverin V.V. work experience of 14 years in the electric drive department of the IGD named after A. A. Skochinsky and KNIUI; Senior Assistant; engineer, senior engineer, junior researcher, specialist in the field of automation of electric drive systems of the mining and metallurgical complex.

3) Senior Lecturer Leich 10 years work experience in the electric drive department of the IGD named after A. A. Skochinsky and KNIUI; Specialist in the field of automation of electric drive systems of the mining and metallurgical complex.

4) Senior teacher Ivanov V.A. 12 years work experience in the electric drive department of the IGD named after A. A. Skochinsky and KNIUI; Specialist in the field of automation of electric drive systems of the mining and metallurgical complex.

5) Senior Lecturer Sichkarenko A.V. 8 years work experience in the electric drive department of the IGD named after A. A. Skochinsky and KNIUI; Specialist in the field of automation of electric drive systems of the mining and metallurgical complex.

6) Associate Professor Avdeev L.A., work experience 48 years at KNIUI and Ugleservis.

7) Senior Lecturer Kritsky AB, work experience of 9 years in innovative structures; specialist in the development of application software for automation of heat supply systems.

Internships for undergraduates and teachers at SPbPU, NI TPU, NI TSU, to Vilnius, France, and the Czech Republic were organized at the Instrumentation and Metrology EP.

The following instructors are involved in the EP Instrumentation, who have long-term experience working in enterprises and research institutes in the profile of accredited EPs.

1) Ph.D. Associate Professor Esenbaev S.Kh. 6 years work experience at mine No. 37 of the Karagandaugol plant, engineer.

2) Ph.D., associate professor Sergeyev V. Ya. 2 years of experience in the trust "Karuglestroy", engineer.

3) Ph.D., senior lecturer Iskakov MB 12 years of experience in the Karaganda Regional Directorate of Telecommunications, programmer, chief specialist, software engineer at DIS Kazakhtelecom.

4) Senior teacher Belik M.N. 20 years work experience at the Karaganda Coal Research Institute, engineer, Ph.D., researcher at the Laboratory for Automation of Treatment and Preparatory Works, Ch. Designer of the research and production LLP "KAYUR".

5) Senior Lecturer Yurchenko V.V. 18 years of experience at the Karaganda Coal Research Institute, engineer, Ph.D., researcher, head of the electric drive and automation KO sector, head. laboratory (department) of industrial control system of mining enterprises, technical director of the research and production LLP "KAYUR".

Analytical part

Based on the results of the analysis, the members of the EEC came to the following conclusion.

Students during the interview as a wish confirmed the active use of interactive teaching methods.

An analysis of the feedback of employers and heads of training and production practices on accredited educational programs indicates that there is a pronounced practical orientation of the majors.

In the framework of EP 6M075000 “Metrology” there is no professionally oriented tradition of holding specialized conferences, thematic seminars on problematic issues of metrology and metrological support of production, and round tables dedicated to the Day of the Metrologist, the Day of Standardization, and the Day of Quality.

On the basis of the ITPS graduating department, there are several professional circles that contribute to the formation and development of educational, scientific and practical activities of students, aimed at expanding the scientific potential, in-depth study of the chosen discipline and the formation of the professional skills of students in their free time.

In an interview with students and graduates of EP 6M075000 “Metrology”, no one confirmed the functioning of the scientific circles “Fundamentals of Information and Measuring Technologies”, “Measuring Devices and Measuring Signals”, and “Microprocessor Circuitry”. It should be noted that on the part of the management of the EP commission of

the EEC, all formally confirming documents are presented: work plans of the above scientific circles for the current academic year, analysis of the composition and activities of scientific circles of the ITPS department in the 2017-2018 academic year. year, reports of the leaders of scientific circles and the list of participants.

Strengths / Best Practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- The academic staff includes full-time teachers with long experience as a full-time employee in enterprises;
- providing measures to strengthen practical training in the field of specialization;
- providing training for students in the application of modern information technologies.

Recommendations for EP 6M075000 "Metrology":

- Put into practice the holding of specialized conferences, thematic seminars and round tables dedicated to professional holidays.

The conclusions of the EEC on the criteria:

According to the standard "Standards in the context of individual specialties" 5 criteria are disclosed, of which:

- according to EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentaton", 6M071600 "Instrumentation" 3 have a strong position, 2 is satisfactory;
- according to EP 6M07500 "Metrology" 5 have a satisfactory position.

(VII) REVIEW OF STRENGTHS / BEST PRACTICE BY EACH STANDARD

According to the standard "Management of the educational program"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- commitment to quality assurance refers to any activity performed by contractors and partners;
- participation of representatives of stakeholders in the collegial governing bodies of EP;
- innovation management in educational programs.

According to the standard "Information Management and Reporting

- not identified by this standard

According to the standard "Development and approval of educational programs"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- the ability to prepare students for professional certification.

Additional strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- compliance of the developed EP with the established goals, including the expected learning outcomes;
- determination of the impact of disciplines and professional practices on the formation of learning outcomes;
- the ability to prepare students for professional certification;
- participation of students, faculty and other stakeholders in the development of educational programs and ensuring their quality;
- the presence of joint public relations with foreign organizations.

According to the standard "Continuous monitoring and periodic evaluation of educational programs"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- monitoring and periodic assessment of the EP to ensure achievement of the goal and compliance with the needs of students and society;
- monitoring and periodic evaluation of the content of programs in the light of the latest achievements of science in specific disciplines;
- revision of the content and structure of EP taking into account changes in the labor market, requirements of employers and the social request of the company.

According to the standard "Student-centered learning, teaching and performance assessment"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- the presence of a feedback system on the use of various teaching methods and assessment of learning outcomes;
- Support for the autonomy of students with simultaneous leadership and assistance from the teacher;

- The mechanisms for ensuring the development of learning outcomes by each graduate of the educational program are determined and the completeness of their formation is ensured.

According to the standard "Students"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- providing opportunities for internal and external mobility, as well as assistance in obtaining external grants for training;
- Provision of practical training for students and promotion of graduate employment;
- Monitoring of employment and professional activities of graduates of the EP;
- stimulating students to self-education and extracurricular activities;
- the presence of the current Alumni Association.

According to the standard "Academic staff"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- providing career opportunities and professional development of academic staff;
- Involvement in teaching practitioners of relevant industries;
- ensuring targeted action to develop young teachers;
- the development of academic mobility within the framework of EP, the attraction of foreign and domestic teachers.

According to the standard "Educational resources and student support systems"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- the functioning of WI-FI on the territory of the university;

Additional strengths / best practice for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- high technological support for students and faculty in accordance with the EP;
- training equipment and software used to master the educational program are similar to those used in production.

According to the standard "Public awareness"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Instrumentation", 6M075000 "Metrology":

- public information provides support and clarification of national development programs of the country, the system of higher and postgraduate education.

According to the standard "Standards in the context of individual specialties"

for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation":

- The academic staff includes full-time teachers with long experience as a full-time employee in enterprises;
- providing measures to strengthen practical training in the field of specialization;
- providing training for students in the application of modern information technologies.

(VIII) REVIEW OF QUALITY IMPROVEMENT RECOMMENDATIONS FOR EACH STANDARD

According to the standard "Management of the educational program"

EEC recommendations for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- Systematize the risk assessment of the development of educational programs and develop a mechanism for their reduction, including factors such as the development and improvement of EP, risk management, monitoring, decision-making based on facts.
- Develop development plans separately for the EP in accordance with the current Development Strategy of KSTU and ensure its transparency.
- To determine the uniqueness and advantages of these EPs and their Development Plans compared to other EPs implemented in the region and in the Republic.

According to the standard "Information Management and Reporting"

- none according to this standard

According to the standard "Development and approval of educational programs"

EEC recommendations for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- In order to implement the interdisciplinary and multidisciplinary principle (within the framework of the EP), attract other departments of the university for development and implementation.

Additional recommendations for EP 6M075000 "Metrology":

- Update (make changes and additions) to EP 6M075000 "Metrology", taking into account the provisions and norms of the Law of the Republic of Kazakhstan "On Amendments and Additions to Some Legislative Acts of the Republic of Kazakhstan on Ensuring the Unity of Measurements and Standardization" dated 12/28/2018.
- Update the content of EP by introducing more modern scientific sources, literary texts, regulatory documents for the last 5-10 years.

According to the standard "Continuous monitoring and periodic evaluation of educational programs"

EEC recommendations for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- To the supervising structural unit to develop a mechanism for conducting regular questionnaires (at least 2 times a year) in the context of the EP and develop procedures for analyzing the results of the survey with the development of a corrective action plan in the context of the EP and ensuring control over their implementation.

Additional recommendations for EP 6M075000 "Metrology":

- revise the names and contents of the following elective disciplines: "International Metrology Authorities and ISO", "Legal Metrology and Technical Regulation".

According to the standard "Student-centered learning, teaching and performance assessment"

EEC recommendations for EP 5B070200 "Automation and Control", 6M070200 "Automation and Control", 5B071600 "Instrumentation", 6M071600 "Instrumentation", 6M075000 "Metrology":

- QEDs should be developed based on the needs of students, undergraduates, and not on the specialization and interests of faculty.

According to the standard "Students"

EEC recommendations for EP 6M075000 "Metrology":

- Develop a plan for the formation of a contingent at the EP, strengthen career guidance work with schools, colleges and universities in the region, promote the program through the media.

According to the standard "Academic staff"

EEC recommendations for EP 6M075000 "Metrology":

- Implement a set of measures aimed at introducing the results of research work of the academic staff in the educational process.

- Assist academic staff in obtaining a certificate of expert auditors to confirm the conformity of products, processes (metallurgical; radio engineering, electrical and cable; electronic; communications and telecommunications; software and databases; building materials, structures and products).

According to the standard "Educational resources and student support systems"

EEC recommendations for EP 5B070200 "Automation and control", 6M070200 "Automation and control":

- Due to the saturation of modern software and hardware of leading world manufacturers, it is recommended to expand the area of the department to accommodate constantly updated educational and laboratory equipment.

Recommendations for EP 6M075000 "Metrology":

- Continue work to improve the material and technical base by equipping educational laboratories with modern measuring instruments with a high degree of accuracy;

- To establish the safety requirements for the operation of educational equipment in accordance with the provisions, standards and requirements of TR TS 010/2011.

According to the standard "Public awareness"

- none according to this standard

According to the standard "Standards in the context of individual specialties"

EEC recommendations for EP 6M075000 "Metrology":

- Put into practice the holding of specialized conferences, thematic seminars and round tables dedicated to professional holidays.

Appendix 1. Evaluation table "EVALUATION PARAMETERS OF THE SPECIALIZED PROFILE" (5B070200-Automation, 6M070200-Automation, 5B071600-Instrumentation, 6M071600-Instrumentation).

№	№	Criteria for evaluation	Education Organization Position			
			Strong	Satisfactory	Suggests improvement	Unsatisfactory
Standard "Management of the educational program"						
1	1.	The university must have a published quality assurance policy.		+		
2	2.	Quality assurance policies should reflect the link between research, teaching and learning.		+		
3	3.	The university should demonstrate the development of a culture of quality assurance, including in the context of EP.		+		
4	4.	A commitment to quality assurance should apply to any activity carried out by contractors and partners (outsourcing), including in the implementation of joint / double degree education and academic mobility.	+			
5	5.	The EP management ensures transparency in the development of the EP development plan based on an analysis of its functioning, the actual positioning of the university and its focus on meeting the needs of the state, employers, interested individuals and students.			+	
6	6.	EP management demonstrates the functioning of the mechanisms for forming and regularly reviewing 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 continual improvement of EP.			+	
7	7.	EP management should involve representatives of stakeholder groups, including employers, students and faculty members, in the formation of the EP development plan.			+	
8	8.	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 should demonstrate a clear definition of those responsible for business processes within the framework of the EP, an unambiguous distribution of the duties of the staff, and delimitation of the functions of collegial bodies.		+		
10	10.	EP management must provide evidence of the transparency of the educational program management		+		

		system.				
11	11.	EP management must demonstrate the successful functioning of the internal quality assurance system of the EP, including its design, management and monitoring, their improvement, and decision-making based on facts.		+		
12	12.	EP management must manage risk.			+	
13	13.	EP management should ensure the participation of representatives of interested parties (employers, academic staff, students) in the collegial bodies of the educational program management, as well as their representativeness in making decisions on educational program management.	+			
14	14.	The university should demonstrate innovation management in the framework of the EP, including the analysis and implementation of innovative proposals.	+			
15	15.	EP management should demonstrate evidence of openness and accessibility for students, faculty, employers and other interested parties.		+		
16	16.	EP management must be trained in education management programs.		+		
17	17.	EP management should strive to ensure that progress made since the last external quality assurance procedure was taken into account in preparation for the next procedure.		+		
		Total by standard	**3**	**9**	**5**	**0**
Standard "Information Management and Reporting"						
18	1.	The university should ensure the functioning of a 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 framework of 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 departments and departments, and scientific research.		+		
21	4.	The university should establish the frequency, forms and methods of evaluating the management of EP, the activities of collegial bodies and structural divisions, senior management, and the implementation of scientific projects.		+		
22	5.	The university should demonstrate the definition of the order and ensuring the protection of information, including the definition of responsible persons 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, workers and academic staff in the processes of collecting		+		

		and analyzing information, as well as making decisions based on them.				
24	7.	EP management should demonstrate the existence of a communication mechanism with students, employees and other interested parties, including the existence of conflict resolution mechanisms.		+		
25	8.	The university should provide a measure of the degree of satisfaction of the needs of faculty, staff and students in the framework of the EP and demonstrate evidence of elimination of the discovered deficiencies.		+		
26	9.	The university should evaluate the effectiveness and efficiency of activities, including in the context of EP.		+		
		Information collected and analyzed by the university should take into account:				
27	10.	key performance indicators;		+		
28	11.	the dynamics of the contingent of students in the context of forms and types;		+		
29	12.	level of academic achievement, student achievement and expulsion;		+		
30	13.	students' satisfaction with the implementation of the academic program and the quality of education at the university;		+		
31	14.	the availability of educational resources and support systems for students;		+		
32	15.	employment and career growth of graduates.		+		
33	16.	Students, employees and faculty must document their consent to the processing of personal data.		+		
34	17.	EP management should facilitate the provision of all necessary information in relevant fields of science.		+		
		Total by standard	**0**	**17**	**0**	**0**
Standard "Development and approval of educational programs"						
35	1.	The university should determine and document the procedures for the development of EP and their approval at the institutional level.		+		
36	2.	EP management should ensure that developed EPs are consistent with established goals, including intended learning outcomes.	+			
37	3.	EP management should ensure the availability of developed models of the graduate of the EP that describe the learning outcomes and personal qualities.		+		
38	4.	EP management must demonstrate the conduct of external expert reviews.		+		
39	5.	The qualifications obtained upon completion of the EP must be clearly defined, explained and consistent with a certain level of NSC.		+		
40	6.	EP management should determine the impact 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, faculty and other stakeholders in the development of EP, ensuring their quality.	+			
43	9.	The complexity of the EP should be clearly defined in Kazakhstan loans and ECTS.		+		
44	10.	EP management should ensure the content of academic disciplines and learning outcomes for the level of training (bachelor's, master's, doctoral).		+		
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 educational institutions with foreign educational organizations.	+			
		Total by standard	**5**	**7**	**0**	**0**
Standard "Continuous monitoring and periodic evaluation of educational programs"						
47	1.	The university should conduct monitoring and periodic assessment of 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 assessment of EP should consider:				
48	2.	the content of the programs in the light of the latest achievements of science in a particular discipline to ensure the relevance of the taught discipline;	+			
49	3.	changes in the needs of society and the professional environment;		+		
50	4.	load, academic performance and graduation of students;		+		
51	5.	the effectiveness of student assessment procedures;		+		
52	6.	students' expectations, needs, and satisfaction with learning in EP;			+	
53	7.	educational environment and support services and their compliance with the goals of the EP.		+		
54	8.	The university and the EP management must provide evidence of the participation of students, employers and other stakeholders in the revision of the EP.		+		
55	9.	All interested parties should be informed of any planned or taken actions regarding the EP. All changes made to the EP should be published.		+		
56	10.	EP management should ensure that the content and structure of the EP are reviewed taking into account changes in the labor market, requirements of employers and the social request of the company.	+			
		Total by standard	**3**	**6**	**1**	**0**
Standard "Student-centered Learning, Teaching and Assessment"						

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 should ensure the use of various forms and methods of teaching and learning.		+		
59	3.	An important factor is the availability of our own research in the field of teaching methods of educational disciplines of EP.		+		
60	4.	EP management should demonstrate the existence of a feedback system for the use of various teaching methods and assessment of learning outcomes.	+			
61	5.	EP management should demonstrate support for students' autonomy while guiding and assisting the teacher.	+			
62	6.	EP management should demonstrate the existence of a procedure for responding to student complaints.		+		
63	7.	The university should ensure the consistency, transparency and objectivity of the mechanism for assessing learning outcomes for each EP, including the appeal.		+		
64	8.	The university should ensure that the procedures for evaluating the learning outcomes of students of EP study are in line with the planned learning outcomes and program objectives. Evaluation criteria and methods within the framework of the EP should be published in advance.		+		
65	9.	The university should determine the mechanisms for ensuring the mastery of each learning outcome by each graduate of the study program and ensure the completeness of their formation.	+			
66	10.	Evaluators must be proficient in modern methods of assessing learning outcomes and regularly improve their skills in this area.		+		
		Total by standard	**3**	**7**	**0**	**0**
Standard "Students"						
67	1.	The university should demonstrate a policy for the formation of the contingent of students from admission to graduation and ensure the transparency of its procedures. Procedures governing the life cycle of students (from admission to completion) must be defined, approved, published.		+		
68	2.	EP management should demonstrate the implementation of special adaptation and support programs for newly arrived and foreign students.		+		
69	3.	The university must demonstrate the conformity of its actions to 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 should 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 learning.		+		
72	6.	The university should provide an opportunity for external and internal mobility of students of EP, as well as assist them in obtaining external grants for training.	+			
73	7.	EP management should make every effort to provide students with places of practice, facilitate the employment of graduates, and maintain contact with them.	+			
74	8.	The university should provide graduates of the study program with documents confirming the qualifications obtained, including the results of training, as well as the context, content and status of the education and evidence of completion.		+		
75	9.	An important factor is the monitoring of employment and professional activities of graduates of EP.	+			
76	10.	EP management should actively encourage students to self-education and development outside the main program (extracurricular activities).	+			
77	11.	An important factor is the existence of an existing alumni / association.	+			
78	12.	An important factor is the availability of a support mechanism for gifted students.		+		
		Total by standard	**5**	**7**	**0**	**0**
Standard "Academic staff"						
79	1.	The university should have an objective and transparent personnel policy, including hiring, professional growth and staff development, ensuring the professional competence of the entire staff.		+		
80	2.	The university should demonstrate the compliance of the staff potential of the academic staff with the development strategy of the university and the specifics of the academic program.		+		
81	3.	EP management should demonstrate awareness of responsibility for its employees and ensure favorable working conditions for them.		+		
82	4.	EP management should demonstrate a change in the role of the teacher in connection with the transition to student-centered learning.		+		
83	5.	The university should determine the contribution of faculty staff 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 faculty staff.	+			
85	7.	EP management should involve practitioners in relevant industries in teaching.	+			
86	8.	EP management should provide targeted action to develop young teachers.	+			

87	9.	The university should demonstrate the motivation for the professional and personal development of teachers of EP, including encouraging the integration of scientific activity and education, as well as the use of innovative teaching methods.		+		
88	10.	An important factor is the active use of academic staff of information and communication technologies in the educational process (for example, on-line training, e-portfolio, MEP, etc.).		+		
89	11.	An important factor is the development of academic mobility in the framework of EP, the involvement of the best foreign and domestic teachers.	+			
90	12.	An important factor is the involvement of academic staff in public life (the role of academic staff in the education system, in the development of science, the region, the creation of a cultural environment, participation in exhibitions, creative contests, charity programs, etc.).		+		
		Total by standard	**4**	**8**	**0**	**0**
Standard "Educational Resources and Student Support Systems"						
91	1.	EP management must demonstrate the adequacy of material and technical resources and infrastructure.		+		
92	2.	EP management should demonstrate the existence of support procedures for various groups of students, including information and counseling.		+		
		EP management must demonstrate compliance of information resources with EP specifics, including compliance with:				
93	3.	technological support for students and faculty in accordance with educational programs (for example, online training, modeling, databases, data analysis programs);	+			
94	4.	library resources, including a fund of educational, methodological and scientific literature on general education, basic and majors in paper and electronic media, periodicals, access to scientific databases;		+		
95	5.	access to educational Internet resources;		+		
96	6.	examination of the results of research, final works, dissertations on plagiarism;		+		
97	7.	WI-FI functioning in the territory of the educational organization.	+			
98	8.	The university should strive to ensure that the educational equipment and software used to master the educational program are similar to those used in the relevant 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, workers, foreign students, as well as students with		+		

		disabilities).				
		Total by standard	**3**	**7**	**0**	**0**
Standard "Public awareness"						
		Information published by the university within the framework of the EP should be accurate, objective, relevant and should include:				
101	1.	ongoing programs indicating expected learning outcomes;		+		
102	2.	information about the possibility of qualification at the end of the EP;		+		
103	3.	information on teaching, training, assessment procedures;		+		
104	4.	information about passing grades and educational opportunities provided to students;		+		
105	5.	information on graduate employment opportunities.		+		
106	6.	EP management should use a variety of methods of disseminating information (including media, web resources, information networks, etc.) to inform the general public and interested parties.		+		
107	7.	Public awareness should include support and clarification of national development programs of the country and the system of higher and postgraduate education.	+			
108	8.	The university should publish audited financial statements on its own web resource.		+		
109	9.	The university should demonstrate the reflection on the web resource of information characterizing the university as a whole and in the context of EP.		+		
110	10.	An important factor is the availability of adequate and objective information about the faculty of education, in terms of personalities.		+		
111	11.	An important factor is informing the public about cooperation and interaction with partners within the framework of EP, including with scientific / consulting organizations, business partners, social partners and educational organizations.		+		
112	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 implemented EPs in various external assessment procedures.		+		
		Total by standard	**1**	**12**	**0**	**0**
Standards in the context of individual specialties						
TECHNICAL SCIENCES AND TECHNOLOGIES						
		*Educational programs in the areas of "Technical Sciences and Technologies", such as **"Automation and Control", "Instrumentation",** etc., must meet the following requirements:*				
114	1.	In order to familiarize students with the professional environment and relevant issues in the field of		+		

		specialization, as well as to acquire skills based on theoretical training, the education program should include disciplines and activities aimed at gaining practical experience and skills in the specialty as a whole and majors in particular, in t .h .:				
115	2.	- excursions to enterprises in the field of specialization (factories,	+			
116	3.	workshops, research institutes, laboratories, educational experimental farms, etc.),		+		
117	4.	- conducting individual classes or entire disciplines at the enterprise of specialization,	+			
118	5.	- conducting seminars to solve practical problems relevant for enterprises in the field of specialization, etc.	+			
Total by standard			**3**	**2**	**0**	**0**
TOTAL			**30**	**82**	**6**	**0**

Appendix 2. Evaluation table "EVALUATION PARAMETERS OF THE SPECIALIZED PROFILE" (6M075000-Metrology)

№	№	Criteria for evaluation	Education Organization Position			
			Strong	Satisfactory	Suggests improvement	Unsatisfactory
Standard "Management of the educational program"						
1	18.	The university must have a published quality assurance policy.		+		
2	19.	Quality assurance policies should reflect the link between research, teaching and learning.		+		
3	20.	The university should demonstrate the development of a culture of quality assurance, including in the context of EP.		+		
4	21.	A commitment to quality assurance should apply to any activity carried out by contractors and partners (outsourcing), including in the implementation of joint / double degree education and academic mobility.		+		
5	22.	The EP management ensures transparency in the development of the EP development plan based on an analysis of its functioning, the actual positioning of the university and its focus on meeting the needs of the state, employers, interested individuals and students.			+	
6	23.	EP management demonstrates the functioning of the mechanisms for forming and regularly reviewing 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 continual improvement of EP.			+	
7	24.	EP management should involve representatives of stakeholder groups, including employers, students and faculty members, in the formation of the EP development plan.			+	
8	25.	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	26.	The university should demonstrate a clear definition of those responsible for business processes within the framework of the EP, an unambiguous distribution of the duties of the staff, and delimitation of the functions of collegial bodies.		+		
10	27.	EP management must provide evidence of the		+		

		transparency of the educational program management system.				
11	28.	EP management must demonstrate the successful functioning of the internal quality assurance system of the EP, including its design, management and monitoring, their improvement, and decision-making based on facts.		**+**		
12	29.	EP management must manage risk.		**+**		
13	30.	EP management should ensure the participation of representatives of interested parties (employers, academic staff, students) in the collegial bodies of the educational program management, as well as their representativeness in making decisions on educational program management.		**+**		
14	31.	The university should demonstrate innovation management in the framework of the EP, including the analysis and implementation of innovative proposals.		**+**		
15	32.	EP management should demonstrate evidence of openness and accessibility for students, faculty, employers and other interested parties.		**+**		
16	33.	EP management must be trained in education management programs.		**+**		
17	34.	EP management should strive to ensure that progress made since the last external quality assurance procedure was taken into account in preparation for the next procedure.		**+**		
		Total by standard	**0**	**13**	**4**	**0**
Standard "Information Management and Reporting"						
18	18.	The university should ensure the functioning of a system for collecting, analyzing and managing information based on the use of modern information and communication technologies and software.		+		
19	19.	EP management must demonstrate the systematic use of processed, adequate information to improve the internal quality assurance system.		+		
20	20.	Within the framework of 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 departments and departments, and scientific research.		+		
21	21.	The university should establish the frequency, forms and methods of evaluating the management of EP, the activities of collegial bodies and structural divisions, senior management, and the implementation of scientific projects.		+		
22	22.	The university should demonstrate the definition of the order and ensuring the protection of information, including the definition of responsible persons for the accuracy and timeliness of the analysis of information and the provision of data.		+		

23	23.	An important factor is the involvement of students, workers and academic staff in the processes of collecting and analyzing information, as well as making decisions based on them.		+		
24	24.	EP management should demonstrate the existence of a communication mechanism with students, employees and other interested parties, including the existence of conflict resolution mechanisms.		+		
25	25.	The university should provide a measure of the degree of satisfaction of the needs of faculty, staff and students in the framework of the EP and demonstrate evidence of elimination of the discovered deficiencies.		+		
26	26.	The university should evaluate the effectiveness and efficiency of activities, including in the context of EP.		+		
		Information collected and analyzed by the university should take into account:				
27	27.	key performance indicators;		+		
28	28.	the dynamics of the contingent of students in the context of forms and types;		+		
29	29.	level of academic achievement, student achievement and expulsion;		+		
30	30.	students' satisfaction with the implementation of the academic program and the quality of education at the university;		+		
31	31.	the availability of educational resources and support systems for students;		+		
32	32.	employment and career growth of graduates.		+		
33	33.	Students, employees and faculty must document their consent to the processing of personal data.		+		
34	34.	EP management should facilitate the provision of all necessary information in relevant fields of science.		+		
		Total by standard	**0**	**17**	**0**	**0**
Standard "Development and approval of educational programs"						
35	13.	The university should determine and document the procedures for the development of EP and their approval at the institutional level.		+		
36	14.	EP management should ensure that developed EPs are consistent with established goals, including intended learning outcomes.		+		
37	15.	EP management should ensure the availability of developed models of the graduate of the EP that describe the learning outcomes and personal qualities.		+		
38	16.	EP management must demonstrate the conduct of external expert reviews.		+		

39	17.	The qualifications obtained upon completion of the EP must be clearly defined, explained and consistent with a certain level of NSC.		+		
40	18.	EP management should determine the impact of disciplines and professional practices on the formation of learning outcomes.		+		
41	19.	An important factor is the ability to prepare students for professional certification.	+			
42	20.	EP management must provide evidence of the participation of students, faculty and other stakeholders in the development of EP, ensuring their quality.		+		
43	21.	The complexity of the EP should be clearly defined in Kazakhstan loans and ECTS.		+		
44	22.	EP management should ensure the content of academic disciplines and learning outcomes for the level of training (bachelor's, master's, doctoral).		+		
45	23.	The structure of the EP should provide for various types of activities corresponding to the learning outcomes.		+		
46	24.	An important factor is the presence of joint educational institutions with foreign educational organizations.		+		
		Total by standard	**1**	**11**	**0**	**0**
Standard "Continuous monitoring and periodic evaluation of educational programs"						
47	11.	The university should conduct monitoring and periodic assessment of 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 assessment of EP should consider:				
48	12.	the content of the programs in the light of the latest achievements of science in a particular discipline to ensure the relevance of the taught discipline;			+	
49	13.	changes in the needs of society and the professional environment;		+		
50	14.	load, academic performance and graduation of students;		+		
51	15.	the effectiveness of student assessment procedures;		+		
52	16.	students' expectations, needs, and satisfaction with learning in EP;		+		
53	17.	educational environment and support services and their compliance with the goals of the EP.		+		
54	18.	The university and the EP management must provide evidence of the participation of students, employers and other stakeholders in the revision of the EP.		+		
55	19.	All interested parties should be informed of any planned or taken actions regarding the EP. All changes made to the EP should be published.		+		

56	20.	EP management should ensure that the content and structure of the EP are reviewed taking into account changes in the labor market, requirements of employers and the social request of the company.		+		
		Total by standard	**0**	**9**	**1**	**0**
Standard "Student-centered Learning, Teaching and Assessment"						
57	11.	EP management should ensure respect and attention to various groups of students and their needs, providing them with flexible learning paths.		+		
58	12.	EP management should ensure the use of various forms and methods of teaching and learning.		+		
59	13.	An important factor is the availability of our own research in the field of teaching methods of educational disciplines of EP.		+		
60	14.	EP management should demonstrate the existence of a feedback system for the use of various teaching methods and assessment of learning outcomes.		+		
61	15.	EP management should demonstrate support for students' autonomy while guiding and assisting the teacher.		+		
62	16.	EP management should demonstrate the existence of a procedure for responding to student complaints.		+		
63	17.	The university should ensure the consistency, transparency and objectivity of the mechanism for assessing learning outcomes for each EP, including the appeal.		+		
64	18.	The university should ensure that the procedures for evaluating the learning outcomes of students of EP study are in line with the planned learning outcomes and program objectives. Evaluation criteria and methods within the framework of the EP should be published in advance.		+		
65	19.	The university should determine the mechanisms for ensuring the mastery of each learning outcome by each graduate of the study program and ensure the completeness of their formation.		+		
66	20.	Evaluators must be proficient in modern methods of assessing learning outcomes and regularly improve their skills in this area.		+		
		Total by standard	**0**	**10**	**0**	**0**
Standard "Students"						
67	13.	The university should demonstrate a policy for the formation of the contingent of students from admission to graduation and ensure the transparency of its procedures. Procedures governing the life cycle of students (from admission to completion) must be defined, approved, published.		+		
68	14.	EP management should demonstrate the implementation of special adaptation and support		+		

		programs for newly arrived and foreign students.				
69	15.	The university must demonstrate the conformity of its actions to the Lisbon Recognition Convention.		+		
70	16.	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	17.	EP management should 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 learning.		+		
72	18.	The university should provide an opportunity for external and internal mobility of students of EP, as well as assist them in obtaining external grants for training.		+		
73	19.	EP management should make every effort to provide students with places of practice, facilitate the employment of graduates, and maintain contact with them.		+		
74	20.	The university should provide graduates of the study program with documents confirming the qualifications obtained, including the results of training, as well as the context, content and status of the education and evidence of completion.		+		
75	21.	An important factor is the monitoring of employment and professional activities of graduates of EP.		+		
76	22.	EP management should actively encourage students to self-education and development outside the main program (extracurricular activities).		+		
77	23.	An important factor is the existence of an existing alumni / association.		+		
78	24.	An important factor is the availability of a support mechanism for gifted students.		+		
		Total by standard	**0**	**12**	**0**	**0**
Standard "Academic staff"						
79	13.	The university should have an objective and transparent personnel policy, including hiring, professional growth and staff development, ensuring the professional competence of the entire staff.		+		
80	14.	The university should demonstrate the compliance of the staff potential of the academic staff with the development strategy of the university and the specifics of the academic program.		+		
81	15.	EP management should demonstrate awareness of responsibility for its employees and ensure favorable working conditions for them.		+		
82	16.	EP management should demonstrate a change in the role of the teacher in connection with the transition to student-centered learning.		+		

83	17.	The university should determine the contribution of faculty staff to the implementation of the development strategy of the university, and other strategic documents.		+		
84	18.	The university should provide opportunities for career growth and professional development of faculty staff.		+		
85	19.	EP management should involve practitioners in relevant industries in teaching.		+		
86	20.	EP management should provide targeted action to develop young teachers.		+		
87	21.	The university should demonstrate the motivation for the professional and personal development of teachers of EP, including encouraging the integration of scientific activity and education, as well as the use of innovative teaching methods.		+		
88	22.	An important factor is the active use of academic staff of information and communication technologies in the educational process (for example, on-line training, e-portfolio, MEP, etc.).		+		
89	23.	An important factor is the development of academic mobility in the framework of EP, the involvement of the best foreign and domestic teachers.		+		
90	24.	An important factor is the involvement of academic staff in public life (the role of academic staff in the education system, in the development of science, the region, the creation of a cultural environment, participation in exhibitions, creative contests, charity programs, etc.).		+		
		Total by standard	**0**	**12**	**0**	**0**
Standard "Educational Resources and Student Support Systems"						
91	1.	EP management must demonstrate the adequacy of material and technical resources and infrastructure.			+	
92	2.	EP management should demonstrate the existence of support procedures for various groups of students, including information and counseling.		+		
		EP management must demonstrate compliance of information resources with EP specifics, including compliance with:				
93	3.	technological support for students and faculty in accordance with educational programs (for example, online training, modeling, databases, data analysis programs);		+		
94	4.	library resources, including a fund of educational, methodological and scientific literature on general education, basic and majors in paper and electronic media, periodicals, access to scientific databases;		+		
95	5.	access to educational Internet resources;		+		
96	6.	examination of the results of research, final works, dissertations on plagiarism;		+		

97	7.	WI-FI functioning in the territory of the educational organization.	+			
98	8.	The university should strive to ensure that the educational equipment and software used to master the educational program are similar to those used in the relevant 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, workers, foreign students, as well as students with disabilities).		+		
		Total by standard	**1**	**7**	**2**	**0**
Standard "Public awareness"						
		Information published by the university within the framework of the EP should be accurate, objective, relevant and should include:				
101	1.	ongoing programs indicating expected learning outcomes;		+		
102	2.	information about the possibility of qualification at the end of the EP;		+		
103	3.	information on teaching, training, assessment procedures;		+		
104	4.	information about passing grades and educational opportunities provided to students;		+		
105	5.	information on graduate employment opportunities.		+		
106	6.	EP management should use a variety of methods of disseminating information (including media, web resources, information networks, etc.) to inform the general public and interested parties.		+		
107	7.	Public awareness should include support and clarification of national development programs of the country and the system of higher and postgraduate education.	+			
108	8.	The university should publish audited financial statements on its own web resource.		+		
109	9.	The university should demonstrate the reflection on the web resource of information characterizing the university as a whole and in the context of EP.		+		
110	10.	An important factor is the availability of adequate and objective information about the faculty of education, in terms of personalities.		+		
111	11.	An important factor is informing the public about cooperation and interaction with partners within the framework of EP, including with scientific / consulting organizations, business partners, social partners and educational organizations.		+		
112	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 implemented EPs in various external assessment procedures.		+		
		Total by standard	**1**	**12**	**0**	**0**
Standards in the context of individual specialties						
NATURAL SCIENCES, TECHNICAL SCIENCES AND TECHNOLOGIES						
		Educational programs in the areas of "TECHNICAL SCIENCES AND TECHNOLOGIES", "NATURAL SCIENCES", for example, such as ***"Ecology", "Electric Power", "Life Safety and Environmental Protection",*** *etc., must meet the following requirements:*				
114	1.	In order to familiarize students with the professional environment and relevant issues in the field of specialization, as well as to acquire skills based on theoretical training, the education program should include disciplines and activities aimed at gaining practical experience and skills in the specialty as a whole and majors in particular, in t .h .:		+		
115	2.	- excursions to enterprises in the field of specialization (factories,		+		
116	3.	workshops, research institutes, laboratories, educational experimental farms, etc.),		+		
117	4.	- conducting individual classes or entire disciplines at the enterprise of specialization,		+		
118	5.	- conducting seminars to solve practical problems relevant for enterprises in the field of specialization, etc.		+		
		Total by standard	**0**	**5**	**0**	**0**
		TOTAL	**3**	**108**	**7**	**0**