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APPROVED by
First Vice Rector
_____ **G.S. Zhetessova**
_____, **2020**

REGULATION

**ON PLANNING SCIENTIFIC-RESEARCH ACTIVITIES OF KARAGANDA
TECHNICAL UNIVERSITY**

KTU IDR IV-01-2020

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Effective date _____

1 Scope

1.1. This Regulation establishes general requirements for organizing, conducting and appropriate planning of research activities (hereinafter RA) of the faculties, departments and the teaching staff with involvement of students, master and doctoral students.

1.2. The term of this Regulation is from 2020 to 2025.

2. Regulatory references

In this Regulation, references to the following legislative and regulatory documents are used:

- the Law of the Republic of Kazakhstan dated July 27, 2007 No. 319-III LRK **"On Education"** (with amendments and additions as of 07/07/2020);
- the Law of the Republic of Kazakhstan dated February 18, 2011 No. 407-IV LRK **"On Science"** (with amendments and additions of 28/10/2019);
- the Law of the Republic of Kazakhstan dated October 31, 2015 No. 381-V LRK **"On commercialization of the results of scientific and (or) scientific and technical activities"** (with amendment of 25/06/2020);
- Standard rules for the activities of educational organizations implementing educational programs of higher and (or) postgraduate education approved by the Minister of Education and Science of the Republic of Kazakhstan order dated October 30, 2018 No. 595 (with amendments and additions of 25/09.2020);
- State compulsory standard of postgraduate education (**Doctoral studies**) approved by the Minister of Education and Science of the Republic of Kazakhstan order No. 604 dated October 31, 2018 (with amendments and additions of 05/05/2020);
- State compulsory standard of postgraduate education (**Master's degree**) approved by the Minister of Education and Science of the Republic of Kazakhstan order No. 604 dated October 31, 2018 (with amendments and additions of 05/05/2020);
- State compulsory standard of higher education (**Bachelor's degree**) approved by the Minister of Education and Science of the Republic of Kazakhstan order No. 604 dated October 31, 2018 (with amendments and additions as of 05/05/2020);
- Rules of awarding degrees approved by the Minister of Education and Science of the Republic of Kazakhstan order dated March 31, 2011 No. 127 (with amendments and additions as of April 30, 2020);
- Standard regulation on the dissertation council approved by the Minister of Education and Science of the Republic of Kazakhstan order dated March 31, 2011

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No. 126 (with amendments and additions as of 30/04/2020);

- the Civil Code of the Republic of Kazakhstan. Adopted by the Supreme Council of the Republic of Kazakhstan Resolution dated December 27, 1994 No. 269-XII (with amendments and additions of 03/07/2020);

- the Labor Code of the Republic of Kazakhstan dated November 23, 2015 No. 414-V LRK (with amendments and additions of 07/07/2020);

- State program of development of education and science of the Republic of Kazakhstan for 2020-2025 approved by the Government of the Republic of Kazakhstan Decree dated December 27, 2019 No. 988;

- State program of industrial and innovative development of the Republic of Kazakhstan for 2020-2025 approved by the Government of the Republic of Kazakhstan Decree dated December 31, 2019 No. 1050;

- GOST 7.32-2017. Interstate standard. System of standards on information, library science and publishing. Report on research. Structure and design rules;

- Rules for state accounting of scientific, scientific-technical projects and programs financed from the state budget, and reports of their implementation approved by the Minister of Education and Science of the Republic of Kazakhstan order dated March 31, 2015 No. 149;

- Strategic plan for the development of Karaganda State Technical University for 2014-2023.

3. Terms, definitions and abbreviations

4.1. In this Regulation "On planning of research activities of the faculties, departments and the teaching staff" the following terms are used with appropriate definitions and abbreviations:

Science is a sphere of human activity, the function of which is studying the laws of nature, society and thinking, the development and theoretical systematization of objective knowledge about reality for the rational use of natural resources and effective management of society;

Scientific activity is an activity aimed at studying the surrounding reality in order to identify properties, features and patterns inherent in the studied objects, phenomena (processes), and the use of knowledge gained in practice;

Scientific-technical activities are activities aimed at obtaining and applying new knowledge in all the areas of science, technology and production to solve technological, design, economic and socio-political and other problems, ensuring the functioning of science, technology and production as a single system including the development of the regulatory and technical documentation required for these studies;

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Research activity is a type of activity associated with studying the surrounding reality in order to identify features, patterns and laws inherent in the studied objects, phenomena (processes), and the use of knowledge gained in practice;

Innovation activity is activities aimed at introducing new ideas, scientific knowledge, technologies of determining the level of validity of decisions made on the most important issues of scientific and technological progress;

Research work is the work related to scientific research, experiments in order to expand existing and obtain new knowledge, to test scientific hypotheses, to establish patterns of development of nature and society, scientific generalization, scientific substantiation of projects;

Development work is a set of operations performed when developing or modernizing products, developing the design and technological documentation for prototypes, production and testing the prototypes and utility models;

Fundamental research is theoretical and (or) experimental research aimed at obtaining new scientific knowledge about the basic laws of the development of nature, society, man and their relationship;

Applied research is an activity aimed at obtaining and applying new knowledge to achieve practical goals and to solve specific problems;

Strategic research is fundamental or applied research aimed at solving strategic problems;

Scientific research is applied, fundamental, strategic scientific research carried out by subjects of scientific and (or) scientific-technical activities in the framework of scientific research, experimental design and technological work, by appropriate scientific methods and means in order to achieve scientific and (or) scientific-technical activity results;

Scientific and methodological work is a type of activity based on the achievements of science and advanced pedagogical experience and aimed at improving the functioning and development of the continuous education system;

Experimental developments are based on the knowledge acquired as a result of scientific research or on the basis of practical experience, and are aimed at preserving human life and health, developing new materials, products, processes, devices, services, systems or methods and their further improvement;

Pilot production is a structural subdivision of scientific organizations, higher education institutions or a legal entity, the main activity of which is producing and testing prototypes and utility models, new products and technological processes;

The result of scientific and (or) scientific-technical activities are as follows:

- new knowledge or solutions obtained in the course of scientific and (or) scientific-technical activities and recorded on any information medium, the introduction of scientific developments and technologies into production, as well as models, mock-ups, samples of new products, materials and substances;

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- an objectified result of scientific and (or) scientific-technical activity containing new knowledge or new solutions, recorded on any media and intended for use;

The result of intellectual activity in the field of commercialization of the results of scientific and (or) scientific and technical activities: inventions, utility models, industrial designs, selection achievements, topology of integrated circuits, programs for electronic computers and databases and other results of intellectual activity obtained as a result of scientific and (or) scientific-technical activities;

Commercialization of the results of scientific and (or) scientific and technical activities is an activity related to the practical use of the results of scientific and (or) scientific-technical activities including the results of intellectual activities, in order to bring new or improved goods, processes and services to the market, aimed at generating income;

Introduction (use) of the results of scientific and (or) scientific-technical activities is an activity aimed at implementing the final stage of the scientific and production cycle of developing new products or introducing new technology;

Intellectual property is the exclusive right of a citizen or legal entity for the results of intellectual creative activity obtained as a result of research, development and technological work, and means of individualization of participants in civil circulation, goods, works or services;

Report of scientific and (or) scientific-technical activities:

- a document containing the information of implementing scientific and technical work, scientific, scientific-technical, experimental design, marketing research, as well as the information of feasibility of further carrying out the planned work or of the result of a completed scientific, scientific-technical project and program;

- a scientific-technical document that contains systematized data of research work, describes the state of a scientific and technical problem, the process and/or results of scientific research;

Scientific-technical information is the information obtained in the course of scientific, scientific-technical, innovation and production activities containing the data of national and foreign achievements of science and technology;

State policy in the field of science and scientific-technical activities is an integral part of socio-economic policy expressing the attitude of the state to scientific and (or) scientific-technical activities, determining the main priorities, goals, trends, principles, forms and methods of activities of various organizations in the field of science and technology, implementation of scientific and technological achievements, development of new technologies including those for ensuring national security;

The sectoral authorized body is a state body that implements state policy in the field of science and scientific-technical activities and coordinates scientific research in the relevant industry;

State order is an order of an authorized body and (or) sectoral authorized bodies to a subject of scientific and (or) scientific-technical activities on the basis of an

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agreement for the performance of research work financed from the state budget in the form of basic, grant and program-targeted funding;

University is an organization of higher and (or) postgraduate education carrying out scientific and pedagogical activities in various fields, personnel training, fundamental and (or) applied scientific research and is the leading scientific and methodological center;

Research University is a university that implements a five-year development program approved by the Government of the Republic of Kazakhstan and uses the results of its activities to integrate education and science, to generate and transfer new knowledge and technologies;

An innovation and educational consortium is a voluntary equal association on the basis of an agreement on joint activities, in which higher educational institutions, scientific organizations and other legal entities involved in production combine intellectual, financial and other resources to train highly qualified specialists on the basis of fundamental, applied scientific research and technological innovation;

Scientific and educational consortium is a temporary voluntary equal-right association on the basis of an agreement on joint economic and scientific activities, in which scientific organizations, higher education institutions and other legal entities, including those employed in the production sector, combine intellectual, financial and other resources to carry out fundamental, applied research, development of technological innovations and training highly qualified specialists;

Scientific infrastructure is scientific laboratory and engineering equipment, experimental industrial production, unique objects, as well as other movable and immovable property on the balance sheet of a scientific organization;

Startup company is an individual entrepreneur or legal entity registered in the territory of the Republic of Kazakhstan, related to small or medium-sized businesses and meeting one of the requirements presented:

- developed with the participation of organizations of higher and (or) postgraduate education, scientific organizations whose activities are aimed at commercializing the results of scientific and (or) scientific-technical activities;

- developing innovations;

Endowment fund of higher and (or) postgraduate education organizations is a financial fund formed at the expense of charitable assistance, gratuitous contributions, donations, grants, contributions of the founders (participants) of educational organizations, the investment income from which is directed to finance scientific and (or) educational activities;

Center (office) of commercialization of the results of scientific and (or) scientific-technical activities is a legal entity, structural or separate subdivision of a scientific organization, higher education institution, autonomous or other education organization that commercializes the results of scientific and (or) scientific-technical activities;

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Grant for commercialization of the results of scientific and (or) scientific-technical activities is a budgetary and (or) extra-budgetary fund provided on a gratuitous and irrevocable basis for implementation of projects for the commercialization of the results of scientific and (or) scientific-technical activities within the priority sectors of the economy;

Scientific, scientific-technical project and program is a document that includes the content of the proposed scientific and technical work, representing scientific, scientific-technical, experimental design, marketing research with justification of the goal and objectives, relevance, novelty, scientific and practical significance and feasibility of carrying out the planned work;

Scientist is an individual who carries out scientific research and obtains the results of scientific and (or) scientific-technical activities;

Researcher is an individual working at a scientific organization, a higher education institution or a scientific division of an organization, having higher education, obtaining and realizing the result of scientific and (or) scientific-technical activities;

Engineering and technical worker is an individual working at a scientific organization or higher education institution, having secondary vocational or higher education, contributing to the obtaining the result of scientific and (or) scientific-technical activities and its implementation;

Specialist is a qualification awarded to individuals after mastering the educational program of higher education;

Higher education is acquired by citizens with general secondary or technical and vocational or post-secondary education. A citizen has the right to receive free higher education on a competitive basis;

Higher special education (specialist program) is the level of higher education aimed at training personnel with the assignment of specialist qualifications for the relevant educational program with the obligatory development of at least 300 academic credits;

Postgraduate education is acquired by citizens with higher education;

Vocational education is a type of education aimed at acquiring knowledge, abilities, skills and competences by students that allow carrying out professional activities in a certain area and (or) performing work in a specific profession or specialty;

Technical and vocational education is education aimed at training qualified workers and mid-level specialists;

An educational program is a single complex of the main characteristics of education including goals, results and content of education, organization of the educational process, methods and ways of their implementation, criteria for assessing learning outcomes;

Individual work plan is a student's curriculum independently formed by him for each academic year with the help of an adviser based on the educational program and the catalog of elective disciplines;

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Bachelor's degree is a level of higher education aimed at training personnel with the award of a "bachelor's degree" in the corresponding educational program with the obligatory development of at least 240 academic credits;

Student is a person studying at an educational organization that implements educational programs for technical and vocational, post-secondary and higher education;

Diploma work is a graduation work, which presents generalization of the results of the student's independent studying of an actual problem corresponding to the profile of the educational program;

Diploma project is a student's graduation work, which is an independent solution of applied problems corresponding to the profile of the educational program carried out using project approaches and (or) in the form of preparing business projects, models, as well as projects of the creative nature and other projects;

Bachelor is a degree awarded to persons who have mastered educational programs of higher education;

Master's degree program is postgraduate education, the educational programs of which are aimed at training personnel with the award of a Master's degree;

Master student is a person studying for a master's degree;

Master's thesis is a graduation work of a master student of a scientific and pedagogical master's degree, which is an independent scientific research containing theoretical and (or) practical development of an urgent problem in the field of the selected educational program based on modern theoretical, methodological and technological achievements of science and technology;

Master's project is a graduation work of a master student of a specialized master's program, which is an independent scientific research containing theoretical and (or) experimental results that allow solving an applied problem of the selected educational program;

Master is a degree awarded to persons who have mastered the educational programs of the master's degree;

Doctoral studies is postgraduate education, the educational programs of which are aimed at training personnel for scientific, pedagogical and (or) professional activities, with the award of the degree of Doctor of Philosophy (PhD), doctor in the profile;

Doctoral student is a person studying in doctoral studies;

Doctor of Philosophy (PhD) is a degree awarded to persons who have mastered the doctoral program in the scientific and pedagogical trajectory and defended a thesis in the Republic of Kazakhstan or abroad recognized in the manner prescribed by the legislation of the Republic of Kazakhstan;

Doctor in profile is a degree awarded to persons who have mastered the doctoral program in the relevant field of professional activity and defended a thesis in the

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Republic of Kazakhstan or abroad recognized in the manner prescribed by the legislation of the Republic of Kazakhstan;

Doctoral dissertation is a scientific work of a doctoral student, an independent study, in which theoretical provisions are developed, the totality of which can be qualified as a new scientific achievement, or there is solved a problem, or scientifically grounded technical, economic or technological solutions are presented;

Scientific substantiation of the dissertation research (research proposal) is a document prepared by a doctoral student and approved by the University within the first or second years of study. It includes the goal, objectives and methodology of the research, a review of the literature and the expected results of the research.

Dissertation councils are collegial bodies at organizations of higher and (or) postgraduate education that conduct defending doctoral students' dissertations.

- NLC "KTU" - Non-profit Limited Company “Karaganda Technical University”;

- RA – research activities;
- RW – research work;
- NPD – new projects development;
- R&D – research and development (activities);
- SSRP – student scientific research projects;
- SERW – student educational and research work;
- MSRW – master scientific research work;
- MERW – master experimental research work;
- DSRW – doctor scientific research work;
- DERW – doctor experimental research work;
- SRI – scientific research institute;
- SRL – scientific research laboratory;
- SE – scientific center;
- REC – research and educational complex;
- EREC – training and scientific educational complex;
- IEP – individual educational plan;
- faculty – teaching staff;
- AC – Academic Council of the University;
- RTC – Research and Technology Council of the University;
- UCSP – University coefficient of scientific potential;
- DCSP – Department coefficient of scientific potential;
- RTIU – ratio of target indicators/scientific activity indicators of the University;
- RTID - ratio of target indicators/scientific activity indicators of the department (division);
- CU – Corporate University;
- RK MES CQASES – RK MES Committee for Quality Assurance in the Sphere of Education and Science;

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- QMS – quality management system;
- IDB – international databases.

4. General provisions

2.1. **Research activities** of the University include:

- direct implementing research and development work (hereinafter R&D) with publication of its results in the form of articles in scientific journals, monographs and reports at conferences; patenting and registration of rights to objects of intellectual property;
- implementing the results of research and development work (hereinafter R&D) in production and educational process;
- organizing and holding of conferences at various levels;
- establishing international cooperation in the field of science;
- participating in republican and international competitions for the allocation of funding for R&D;
- participating in competitions for prizes and awards;
- reviewing of scientific works;
- participating in the work of editorial boards of scientific journals, councils and commissions related to scientific activities;
- performing other works of a scientific nature.

2.2. **Research work** includes fundamental and applied research, experimental design, survey and expert work, promotional and innovative activities, scientific and methodological support of production and educational process, provision of scientific and technical services including engineering, as well as implementation of rights to objects of intellectual property.

2.3. Research work is a mandatory and most important component of the multifaceted activities of the University.

2.4. Research work at the University is carried out by the faculty and full-time researchers with the involvement of doctoral, master students and students within the main and additional working hours, to carry out funded R&D under economic contracts and government orders.

2.5. Organization of research work is carried out in close connection with the educational process.

2.6. To ensure consistency in the development of research activities, departments develop appropriate long-term plans for 5 years, as a rule, with their subsequent concretization in the form of current plans for each next academic/calendar year including individual plans of the teaching staff.

2.7. The basis for planning research activities of the University/departments are the State Programs of the Development of Education and Science of the Republic of Kazakhstan (hereinafter referred to as the SPDES), as well as the State Programs of

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Industrial and Innovative Development of the Republic of Kazakhstan (hereinafter referred to as the SPIID) approved by the Government of the Republic of Kazakhstan.

2.8. The requirements for research activities have been developed in accordance with the Laws of the Republic of Kazakhstan "On Education", "On Science" and "On Commercialization of the Results of Scientific and (or) Scientific-technical Activities", the Standard Rules of Activities of Educational Organizations implementing educational programs of higher and (or) postgraduate education, the Charter of NLC "KTU" and a number of other normative legal acts in the system of higher and postgraduate education that regulate educational and scientific activities.

5. Goals and tasks of research activities

5.1. The main goal of the research activities of the University is to ensure the progressive development of the University and a corresponding contribution to the industrial and innovative development of the Republic of Kazakhstan.

5.2. To achieve the goal of research activities, the University staff is obliged to carry out relevant research work of the fundamental and applied nature in priority areas approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan as the main component. At the same time, the most in demand will be R&D related to energy conservation, "Smart" technologies and digitalization in all the sectors of the economy.

5.3. The main functions and tasks of the University in research activities are as follows:

- direct implementing research and development projects on proactive topics, funded contracts and scientific research in the framework of international cooperation;
- studying and developing theoretical and methodological foundations for the development of higher education;
- developing and implementing the own technologies and methods of preparation, organization and conducting of the educational process using modern educational technologies;
- introducing research results into production and educational process;
- organizing applied research and practical development aimed at commercial implementation;
- organizing the transferring of science-intensive and competitive equipment and technologies;
- organizing and involving students in the implementation of R&D and innovative activities;

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- organizing and developing research laboratories, centers, small enterprises, start-up companies and other specialized scientific, scientific and technical, scientific and educational structures;
- organizing scientific research and training of scientific and pedagogical personnel through master degree programs, doctoral, postdoctoral studies, advanced training of the teaching staff;
- developing international cooperation in the field of research and innovation;
- organizing and developing scientific schools;
- developing public-private partnerships within the Corporate University.
- developing interdisciplinary and interdepartmental scientific ties on the basis of joint implementation of projects and research;
- expanding the financial base of NID through sponsorship;
- protecting intellectual property and copyrights of researchers and developers.

5.4. The most important task facing the University is full disclosure of the scientific potential of the teaching staff and students through their rational involvement in research activities, taking into account the capabilities and inclinations, the use of motivational incentives.

6. Basic principles of research activities organization

6.1. The research activities of the University are aimed at ensuring the integration of science, education, production and business, the development on this basis of the scientific and educational process, competitive research and innovation.

6.2. Organization of research activities at the University should correspond to international experience and be carried out in cooperation with organizations of various orientations including as the main ones organizations that are a part of the innovation and educational consortium "Corporate University".

6.3. The international activities of the University are carried out within the framework of cooperation programs with leading foreign universities, implementation of international educational programs and projects, implementation of joint research activities, organization of scientific and practical seminars and conferences, exchange of the teaching staff and development of student mobility.

The University has the right to establish direct links with foreign educational, scientific and cultural organizations, international organizations and foundations, to conclude bilateral and multilateral agreements on cooperation, to participate in international exchange programs for students, pedagogical and scientific workers, to train personnel from among foreign citizens, to join international non-governmental organizations (associations) in the field of education.

6.4. Organization and conducting of research activities is carried out in the structural divisions of the University by the teaching staff and scientists with involvement of students. The main scientific activity is carried out at the departments.

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6.5. The teaching staff performs research as an obligatory component of their activities within the main working hours in accordance with the individual work plan.

6.6. The unity of the educational process and research activities is ensured by

- attracting students to participate in research work;
- introducing research results into the educational process;
- carrying out various forms of active educational work, diploma and course design, educational and industrial practice, targeted training of students and other forms of training on the basis of scientific and research and production units;
- computerizing educational and scientific processes;
- developing the unified information environment and mastering modern teaching methods and means of informatics.

6.7. General coordination of research activities is carried out by the vice-rector for scientific work, direct coordination by the director of the Department of Science and Innovation.

6.8. In order to increase the efficiency of scientific research, to reduce the time for the development and implementation of R&D, as well as to solve problems relevant to the educational process, flexible organizational forms can be formed at the University in the prescribed manner by the order of the rector: problem and industry laboratories, engineering and scientific and technical centers, scientific-production associations, student creativity centers and other research teams.

6.9. To advertise the results of R&D, the University organizes

- participating in international, republican, branch scientific and technical, industrial, commercial and other exhibitions;
- producing and distributing thematic collections, information sheets, special advertising publications;
- participating in conferences, seminars, symposia, etc.

7. Executors of research projects

7.1. Research work at the University is performed by

- the teaching staff of the University in accordance with individual plans, scientific, engineering-technical and scientific departments of the University **within the main working hours**;
- the teaching staff of the University to perform contractual and state budgetary R&D under contract contracts in their **free time from their main work**;
- scientists, leading specialists and employees of the third-party organizations involved in the implementation of economic and state budget research and development of the University under contracts;
- doctoral and master students when implementing their dissertation work;

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- students when implementing their coursework, diploma projects, other research work stipulated by the curriculum, in student scientific circles, laboratories, in working groups of scientific research;

- doctoral and master students and students involved in implementing economic and state budget research and development of the University under contracts in their free time for an additional fee.

7.2. In case of non-fulfillment of the planned tasks for the main work, persons from among the staff of the University are not permitted to perform the funded research projects under contracts in their free time from the main work (permission is given by the head of the department/head of the division).

7.3. Doctoral and master students are involved in implementing funded research projects under contracts in their free time with the consent of their supervisors and subject to the successful implementation of their individual plan.

7.4. In case of academic failure, students are not permitted to perform funded research projects under contracts in their free time (permission is given by the dean of the faculty).

8. Basic principles and general approaches to planning research activities

8.1. The main goal of planning is to increase the efficiency of the University's research activities through the rational use of the material and technical base and the scientific potential of the team: the teaching staff, researchers and students.

8.2. The planning system must ensure mobilization of all the resources of the University including material, financial and personnel ones.

8.3. The planning of research activities is a process of selecting relevant areas and topics of research and development, on the basis of which implementation the main target indicators of the RA approved by the State Program of Development of Education and Science of the Republic of Kazakhstan for 2020-2025, will be achieved (Table 1), as well as the optimal and rational distribution of the workload between R&D participants. At the same time, the entire teaching staff, all doctoral and master students, as well as the most talented and successful students, must participate in R&D.

Table 1 – Target indicators of the State Program of Development of Education and Science of the Republic of Kazakhstan for 2020-2025 in research activities

| No | Target indicator | Unit | 2018 actual | Implementation year | | | | | |
|--|--|------|-------------|---------------------|------|------|------|------|------|
| | | | | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| Target 2. Increasing the science contribution in the social-economic development of the country | | | | | | | | | |
| 1 | Increasing the number of Kazakhstan publications in rating editions of the total number of publications in 2018 (4873 units) according to information resources on the Web of Science (Clarivate Analytics) and Scopus (Elsevier) platform | % | - | 25.1 | 37.7 | 50.3 | 62.9 | 75.5 | 88 |
| Target 1. Strengthening the intellectual potential of science | | | | | | | | | |
| 2 | Increasing the number of researchers among the total number of researchers in 2018 (17 454 prs.) | % | - | 2.8 | 3.3 | 3.8 | 4.3 | 4.8 | 5.2 |
| 3 | Increasing the number of young scientists up to 35 years old inclusive of the total number of researchers in 2018 (6 566 prs.) | % | - | 2 | 3.6 | 5.1 | 6.6 | 8.1 | 9.6 |
| Target 2. Modernizing and digitalization of the scientific infrastructure | | | | | | | | | |
| 4 | The share of updated certified scientific equipment of state universities, research institutes implementing R&D | % | 13 | 13.5 | 13.7 | 14 | 14.3 | 14.5 | 15 |
| Target 3. Increasing the efficiency of scientific research and ensuring the integration to the world scientific space | | | | | | | | | |
| 5 | Increasing the number of titles of protection and copyright certificates (from the total number for 2018 - 3,200 units) | % | - | 7.8 | 9.4 | 12.5 | 15.6 | 18.7 | 21.9 |
| 6 | The share of expenditures of the business sector in total expenditures on R&D | % | 32,3 | 48.8 | 50.6 | 52.4 | 54.2 | 55.8 | 57.4 |
| 7 | The share of commercialized projects in the total number of completed applied research projects | % | 23,5 | 25 | 26 | 27 | 28 | 29 | 30 |

8.4. The principle of formation of SPDES "from achieved", taking into account competitive advantages and real opportunities, was transformed into the Strategic Development Plan of the University with subsequent concretization in the Comprehensive Development Programs of the University, in the form of standards for target indicators of scientific activity (hereinafter STI) and approved by the Academic Council of the University for each calendar year.

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The Comprehensive Program of the University Development for 2020 has established the following standards for target indicators of scientific activity of the University (RA):

- increasing the number of international and national patents by 7.8 % of their number in 2018: to submit at least 72 patent applications;
- increasing the number of CIPs by 7.8 % of their number in 2018: to obtain at least 220 certificates;
- developing and implementing monographs in the educational process: to publish at least 70 monographs;
- securing at least 15 % of co-financing business projects for commercialization in the total volume of grant financing: attracting third-party organizations to co-finance state budget projects in the amount of at least 40 million tenges;
- participating in competitions for R&D grants: to submit at least 125 applications;
- ensuring the growth of the teaching staff number involved in research and innovation activities: to attract at least 330 people from among the teaching staff to carry out funded R&D;
- ensuring participation in research and innovation activities of doctoral and master students: to involve at least 135 doctoral students and 650 master students in implementing funded R&D;
- ensuring the growth of students participating in research and innovation activities: to attract at least 2,500 students to carry out R&D;
- ensuring an increase in the preparation of teaching staff publications on the basis of Clarivate Analytics: to prepare and send at least 55 articles;
- ensuring an increase in preparation of the teaching staff publications on the basis of Scopus: to prepare and to submit at least 145 articles to the editorial offices of journals;
- increasing the number of prepared publications for the RK MES CCES: to publish at least 420 articles;
- the level of citation of publications in the Web of Science Core Collection (Clarivate Analytics) base of the total number of publications per year: to ensure citation of at least 30 articles;
- increasing the University's income due to economic contractual activities: to conclude economic contracts for the performance of research and development in the amount of at least 325 million tenges;
- participating in international research projects: to take part in at least 7 projects.

8.5. To achieve the approved target indicators of the research activity of the University, the Department of Science and Innovation establishes the appropriate standards for each department and scientific unit depending on their scientific potential.

8.6. The scientific potential of the department is determined by the qualification level of the teaching staff and students adopted at the University in the form of an appropriate coefficient (Table 2):

$$SPCd = \sum SPCi,$$

where $SPCi$ is the coefficient of the scientific potential of each teacher, doctoral and master student.

8.7. The University scientific potential is determined by the sum of scientific potentials of the departments:

$$NICu = \sum SPC d.$$

8.8. The ratios of the target indicators for each department are calculated by the formula:

$$TIRd = TIRu/SPCu*SPCd.$$

8.9. In Appendices A and B there are presented calculated coefficients of the scientific potential of each department of the University and corresponding target indicators ratios.

Table 2 – Scientific potential coefficients of the teaching staff and students

| Academic degree, position | Scientific potential coefficient $SPCi$ |
|--------------------------------|---|
| Doctor of Science | 4 |
| Doctor of Philosophy (PhD) | 3 |
| Candidate of Science | 2 |
| Master | 1 |
| Sn. teacher (without a degree) | 1 |
| Teacher (without a degree) | 0.5 |
| Assistant (without a degree) | 0.5 |
| Doctoral (PhD) student | 1.5 |
| Master student | 0.5 |

8.10. Based on the approved target indicators of scientific activity and relevant standards, the departments develop long-term and current plans for scientific activities, as well as individual plans for the teaching staff and work plans of departments for implementation of the agreement on the Innovative and Educational Consortium "Corporate University".

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8.11. In general, the development of all the department plans is a single interconnected complex of planning research activities aimed at activating the teaching staff and students to solve the assigned tasks.

8.12. Department plans, taking into account the specifics, should contain such types of work as

- implementing research, development and innovative work on proactive, contractual and state budget topics including filing applications for R&D funding;
- participating in scientific and educational international projects including filing applications for an international grant;
- attracting heads and leading specialists of organizations including organizations of the Corporate University, in the joint implementation of R&D;
- organizing implementation of R&D results into production and educational process;
- providing co-financing of business projects for commercialization within the framework of grant funding;
- increasing the income of the University due to economic contractual activities;
- ensuring the growth of the teaching staff, doctoral and master students, and students participating in funded R&D;
- ensuring the growth of students involved in various forms of research activities of the departments;
- writing and preparing for publication monographs based on the results of R&D;
- writing scientific articles for publication in republican and foreign journals including the most significant, indexed journals included in the international information databases Web of Science Core Collection (Clarivate Analytics) and Scopus, as well as RSCI, KazBC and CCES;
- ensuring an increase in the filing of applications for patenting and registration of rights to objects of copyright; obtaining titles of protection for intellectual property;
- increasing the level of citation of publications in the IDB Web of Science Core Collection (Clarivate Analytics) and Scopus, as well as RSCI;
- organizing and participating in conferences at various levels;
- reviewing monographs, scientific articles, reports, dissertations, competition, etc. materials;
- writing reviews for author's abstracts;
- participating in the editorial boards of scientific journals, editorial boards of collected works and other bodies;
- participating in sections of scientific-technical and scientific-methodological councils, seminars and commissions under the Ministry of Education and Science of the Republic of Kazakhstan and other departments;
- participating in the work of specialized councils, boards of the University, faculty, scientific and technical commissions;
- organizing and managing students' research work;

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- training in scientific internship;
- other types of research and scientific-methodical work, consultations of workers in industry, universities, etc.

8.13. The current plans of the research work of the department are drawn up according to the model.

8.14 Long-term plans and work plans of the department for implementing the Agreement on Corporate University (as an appendix to the main plans) are in the form of current plans.

8.15. Long-term, current and individual plans of the teaching staff are considered and approved at the meeting of the department. The department plans approved by the head of the department (on paper), individual plans of the teaching staff (in electronic form by mail) are submitted to the Department of Science and Innovation.

8.16. Based on the plans of the departments, the Department of Science and Innovation develops long-term and current plans for the scientific activities of the University.

**Approved by
Head of the Department**

(signature) (Name)
_____, 20__

**Plan
of research work
of the _____ Department
for 20__ - 20__ academic year**

| No | Type of work | Schedule time | Executor |
|----|--------------|---------------|----------|
| 1. | | | |

Responsible for the Department RW _____
(signature) (Name)

9. Individual work plan of the teaching staff

9.1. The individual work plan of the teaching staff contains all the types of the teacher's activities at the University (teaching, educational, methodological and research).

9.2. The amount of each activity in hours is determined based on the **40-hour working week** (established for the teaching staff of universities at the legislative level), which in total amounts to an average 1650 hours of working time per year for

execution of the entire scope of work stipulated by the functional responsibilities of the teaching staff (without part-time jobs).

The annual amount of the teaching load of the teaching staff is established within the limits of the annual norm of working time and is approved by the Rector of the University on the basis of the decision of the Academic Council. On average, 45-50 % of time is allocated to the teaching load for classroom and extracurricular activities. The remaining 50-55 % of time, which makes 825-908 hours per year, are used for implementing teaching-and-methodological, research and educational work

The annual amount of research activities of the teaching staff is established by the head of the department for each teacher individually based on the optimal and rational distribution of all the types of workload between the teaching staff of the department and the department plans of research activities, as well as taking into account individual capabilities of the teacher and the most effective implementation of this or that type works.

9.3. The planning of individual research activities of the teaching staff, which is drawn up in the form of a separate section of the Individual teacher's work plan for each academic year, is performed on the basis of distributing the total scientific workload of the department established by the target complex programs of the University, as well as taking into account long-term scientific and scientific-technical programs and contracts for implementing research and development works, in which the department and the teacher participate directly.

9.4. An individual teacher's work plan (section Research work) has in general the following form and content:

| No | Type of work | Schedule time | Labor costs, hours | Note of execution |
|----|---|---------------|--------------------|-------------------|
| 1 | Executing research and development works including: 1.1 On initiative topics _____; <i>(topic and stages names)</i> 1.2 On economic contract topics _____; <i>(topic and stages names)</i> 1.3 On state budget topics _____; <i>(topic and stages names)</i> | | | |
| 2 | Participating in research projects within the frames of international cooperation <i>(including filing applications for the international grant)</i> _____ <i>(project topic and stages names)</i> | | | |

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|---|---|--|--|--|
| 3 | Implementing the R&D results in production and educational process <i>(name of the development, where it is introduced, obtaining the act of introduction)</i> | | | |
| 4 | Research work with organizations including the enterprises of Corporate University <i>(participating in the meetings, presenting projects, concluding economic contracts, executing joint projects, publishing scientific articles, patenting, etc.)</i> | | | |
| 5 | Submitting proposals for participating in the competitions for conferring state budget funding for executing R&D <i>(project name)</i> | | | |
| 6 | Publishing a monograph: <i>(preparatory title, authors, publishing house)</i> | | | |
| 7 | Preparing scientific articles in the rating journals contained in the databases of: - Clarivate Analytics - ___(pcs.) - Scopus - ___(pcs.) - CCES - ___(pcs.) - RSCI - ___(pcs.) - KazBC - ___(pcs.) | | | |
| 8 | Preparing applications for: - patenting ___(pcs.) - registering rights for the copyright objects ___(pcs.) | | | |
| 9 | Preparing reports and participating in scientific-practical conferences: - far abroad ___(pcs.) - near abroad ___(pcs.); - Republic of Kazakhstan ___(pcs.) | | | |
| 10 | Supervising student, master and doctoral student scientific-research <i>(including preparing articles, reports for conferences, submitting applications for patenting, etc.)</i> | | | |
| 11 | Other types of work _____ <i>(participating in the work of the Scientific-technical Board, Dissertation Board, Young Scientist Board of the University)</i> | | | |
| The total scope of research work in addition to executing funded R&D according to the contracts is _____ hours | | | | |

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- Notes:*
- 1) The funded economic contractual and state budgetary R&D are carried out in free time from the main work and are not included in the general budget of the teaching staff working time.
 - 2) If one or another type of RA is not planned, it is not included in the Individual plan.

10. Organizing and planning student research work

10.1 The main goal of SSRW at the University is to improve the quality of training specialists with higher education, ensuring their relevance in the market economy.

10.2. Organization of student research work at the University should meet the requirements of ensuring the unity of educational, scientific and innovative processes with forming and developing creative abilities, improving the professional training of students.

10.3. The main tasks of scientific research work are as follows:

- students getting acquainted with scientific research methods, experimental techniques and decision-making theory;
- acquiring skills for independent solution of scientific and practical problems;
- fostering at students the need for creativity, for self-education, for the constant improvement of their knowledge, in-depth and creative mastering of educational material;
- forming skills and the need for constant work with domestic and foreign literature, the ability to work with the patent stock;
- forming a scientific approach to assessing the relevance of scientific trends (works), providing real economic, social or spiritual progress of society.

10.4. An important place in the development, improvement of organization and summing up the results of student scientific research work is occupied by competitions of student scientific works, student scientific conferences, exhibitions of scientific and scientific-technical creativity of students, Olympiads.

10.5. SSRW is organized directly at the departments and scientific subdivisions of the University (scientific research institute, research laboratory, scientific center, etc.).

10.6. The scientific leadership of the SSRW is carried out by the teaching staff, as well as by researchers, master and doctoral students.

10.7. General management of SSRW at the department is carried out by the person responsible for SSRW appointed by the head of the department from among the full-time teachers of the department.

10.8. Organizational and methodological guidance and direct control over the student research work is carried out by the DS&I.

10.9. Student research work is subdivided into educational research work (hereinafter ERW) included in the educational process, and research work performed outside the classroom.

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10.10. Student research work included in the educational process (ERW), provides for:

- in-depth studying individual sections of the curriculum with preparing abstracts by students;
- fulfilling assignments, laboratory works, term and diploma projects (works) containing elements of scientific research;
- fulfilling tasks of the research nature within the period of industrial or educational practice;
- studying the theoretical foundations of methodology, formulation, organization and implementation of scientific research, planning and organization of a scientific experiment, processing scientific data, etc. in the course "Fundamentals of Scientific Research".

10.11. Student research work performed outside of classroom hours is organized in the form of

- working in research groups;
- participating in implementation of state budgetary or economic contractual R&D, work in the creative community carried out at the departments and in the scientific subdivisions of the University;
- working in student design, economic, technological, scientific information, translation and other bureaus, in creative workshops and studios;
- participating in conferences, seminars and round tables;
- preparing scientific articles for publication in journals and reports at conferences;
- participating in competitions of various levels.

10.12. Attraction of students to implementing funded R&D works is carried out on the basis of contracts with appropriate remuneration.

10.13. The plan of student research work is an Appendix to the general plan of the department for research activities for the academic year and is drawn up according to the model.

Approved by
Head of department

(signature) (name.)
_____, 20__

PLAN
of student research work
at the _____ department for 20__ - 20__ academic year

| No | Activity | Schedule time | Executor |
|----|--|---------------|----------|
| 1. | Circle work (name of the circle, name of the supervisor, work plan) | | |
| 2. | Attracting students to the department research work including work in economic contracts and state budget projects | | |
| 3. | Participating in the republican competition of scientific research work | | |
| 4. | Conducting department scientific seminars and conferences | | |
| 5. | Publishing scientific articles | | |
| 6. | Participating in international, republican and regional student conferences | | |
| 7. | Participating in Olympiads, exhibitions | | |
| 8. | Preparing applications for inventions | | |
| 9. | Implementing term papers and theses on scientific topics | | |

Responsible for SSRW at the department _____
(signature) (name)

10.14. Student research work is included in the individual work plans of the teachers and general plans of the educational and scientific work of the department. The results of students research work are highlighted in the annual report of the University (faculties, departments) in the section "Student research work".

11. Organizing and planning research work of master students

11.1. The training of personnel in the master's degree program is carried out on the basis of educational programs of postgraduate education in two areas:

- scientific and pedagogical, with the training period of at least two years;
- profile, with the training period of at least one year.

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11.2. The master's degree in scientific and pedagogical trajectory implements educational programs of postgraduate education of training scientific and scientific-pedagogical personnel for universities and scientific organizations with in-depth scientific, pedagogical and research education.

11.3. The master's degree in the profile trajectory implements educational programs of postgraduate education of training management personnel for the sectors of the economy, medicine, law, education, art, services and business, defense and national security, law enforcement, with in-depth professional education.

11.4. Master's degree educational programs in each area of training contain as the most important and mandatory component, implementation of research work for the scientific and pedagogical master's degree program (hereinafter MRPW), or experimental research work, for a specialized master's degree program (hereinafter MERW).

11.5. The final stage of research /experimental research work is preparing, writing and defending a master's thesis/master's project.

11.6. To guide research/experimental research work, each master student within two months after enrollment, is assigned a scientific supervisor.

11.7. The scientific supervisor and the research topic of the master student are approved by the decision of the Academic Council.

11.8. The supervisor of the master student must satisfy the following requirements:

- have the academic degree of "Candidate of Science", or "Doctor of Science", or the degree of "Doctor of Philosophy (PhD)", or "Doctor in Profile";
- match the profile of the requested trajectory;
- have at least three years of experience in scientific and pedagogical work;
- have 5 scientific articles published over the past five years in journals included in the List of Scientific Publications Recommended for Publication of the Main Results of Scientific Activity approved by CCES and 1 scientific article in an international peer-reviewed scientific journal with an impact factor according to JCR data or indexed in one of the Science Citation Index Expanded, Social Science Citation Index or Arts and Humanities Citation Index in the Web of Science Core Collection or a CiteScore percentile of at least 25 in the Scopus database.

11.9. A master student is trained on the basis of the individual work plan, which is drawn up under the guidance of the scientific supervisor.

11.10. The individual work plan of a master student is drawn up for the entire period of study and includes the following sections:

- an individual curriculum (if necessary, it is updated annually);
- research/experimental research work (indicating the topic, field of research, terms and forms of reporting);
- practice (with application of the program that indicates the base, terms and forms of reporting);

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- topic of the master's thesis (master's project) with justification and structure;
- plan of implementing the master's thesis (master's project);
- plan of scientific publications, internships.

11.11. Within the framework of research/experimental research work, an individual plan, in order to get acquainted with innovative technologies and new types of production, provides for a mandatory master student's scientific internship at scientific organizations and (or) organizations of the relevant industries or fields of activity.

11.12. MRPW/ MERW is planned in parallel with other types of educational work or in a separate period.

11.13. Requirements for research work of a master student in a scientific and pedagogical master's degree program:

- to correspond to the profile of the master's educational program, according to which the master's thesis is performed out and defended;
- to have relevance, scientific novelty and practical significance;
- to be based on updated theoretical, methodological and technological achievements of science and practice;
- to be carried out using updated methods of scientific research;
- to contain research (methodological, practical) sections on the main defended provisions;
- to be based on advanced international experience in the relevant field of knowledge.

11.14. Requirements for the experimental research work of a master student in a specialized master's degree program:

- to correspond to the profile of the master's educational program, according to which the master's project is performed and defended;
- to be based on updated achievements of science, technology and production and to contain specific practical recommendations, independent solutions to management problems;
- to be carried out using advanced information technologies;
- to contain experimental and research (methodological, practical) sections on the main defended provisions.

11.15. The results of research or experimental research work at the end of each period are drawn up by a master student in the form of a report.

11.16. Every year, at the end of the academic year, a master student undergoes academic certification for implementing the individual work plan. The procedure of conducting academic certification of a master student is determined by the University independently.

11.17 The main results of the master's thesis must be presented in at least one publication and (or) one presentation at a scientific-practical conference.

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11.18. The master's thesis/project must be checked for plagiarism, the rules and procedure for which are determined by the University independently.

11.19. The procedure for defending the master's thesis (project) is determined by the University independently.

11.20. Repeated defense of the master's thesis (project) in order to improve the positive mark is not permitted.

11.21. Repeated defense of the master's thesis (project) to persons who have received the grade "unsatisfactory" is not permitted within this period of final certification.

11.22. A master student who has passed the final certification and defended the master's thesis/project is awarded a master's degree by the decision of the Attestation Commission and a diploma is issued.

12. Organizing and planning research work of doctoral students

12.1. Organization of doctoral studies is carried out on the basis of the educational program of doctoral studies in two trajectories:

- training doctors of philosophy (PhD);
- training doctors by profile.

12.2. The educational program of training a Doctor of Philosophy (PhD) has the scientific and pedagogical focus and involves fundamental educational, methodological and research training and in-depth studying the disciplines in the relevant areas of science for the system of higher and postgraduate education and the scientific sphere.

12.3. The educational program of training a Doctor in Profile assumes fundamental educational, methodological and research training and in-depth studying the disciplines in the relevant areas of science for the branches of the national economy, the social sphere: education, medicine, law, art, economics, business administration and in the field of national security and military affairs.

12.4. The structure of the educational program of doctoral studies contains two equivalent components: educational and scientific, which determine the content of education and reflects their ratio, measurement and accounting.

12.5. The scientific component of the educational program of doctoral studies is formed of the research (hereinafter DRPW) or experimental research work (hereinafter DERW) of a doctoral student, scientific publications, writing and defending a doctoral dissertation.

The volume of research (experimental research) work of a doctoral student is 123 academic credits in the total volume of the educational program of doctoral studies.

12.6. To supervise the doctoral dissertation, the doctoral student is assigned a scientific supervisor within two months after enrollment.

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12.7. Scientific guidance of doctoral students for the degree of Doctor of Philosophy (PhD) is carried out by consultants who are specialists in the field of doctoral student research, in the number of at least 2 people, one of whom is a scientist from a foreign university.

Scientific consultants ensure implementation of the doctoral dissertation and adherence to the principles of academic honesty and the timely submission of the dissertation work for defense.

12.8. Scientific consultants and topics of doctoral dissertations are determined within the first term and approved by the Rector of the University order on the basis of the Academic Council of the University decision.

12.9. Requirements for a scientific advisor of a doctoral student are as follows:

- possessing an academic degree of "Candidate of Science", or "Doctor of Science", or "Doctor of Philosophy (PhD)", or "Doctor of Specialization", or an academic degree of "Doctor of Philosophy (PhD)", or "Doctor of Specialization", or the degree "Doctor of Philosophy (PhD)", or "Doctor of Profile";

- at least three years of experience in scientific and pedagogical work;

- scientific articles published:

- in the areas of personnel training 8D05 "Natural sciences, mathematics and statistics", 8D06 "Information and communication technologies", 8D07 "Engineering, processing and construction industries", 8D08 "Agriculture and biological resources", 8D09 "Veterinary medicine", 8D10 "Health care and social security (medicine)" **two articles** in international peer-reviewed scientific journals included in the 1st, 2nd, 3rd quartile according to the JCR data in the Web of Science Core Collection or having a CiteScore percentile of at least 35, or the Hirsch index of 2 or more;

- in the other areas of training **five articles** in journals by profile, included in the list of publications recommended for publication of the results of scientific activities of COXON and 1 article in an international peer-reviewed scientific journal with an impact factor according to JCR data or indexed in one of the Science Citation Index databases Expanded, Social Science Citation Index or Arts and Humanities Citation Index in the Web of Science Core Collection or with a CiteScore of at least 35 percentile in the Scopus database;

12.10. The doctoral student is trained on the basis of the individual work plan, which is drawn up under the guidance of scientific consultants.

12.11. The individual work plan of a doctoral student is drawn up for the entire period of study and includes the following sections:

- an individual curriculum (if necessary, it is updated annually);

- research (experimental research) work (indicating the topic, area of research, terms and forms of reporting);

- practice (with application of the program, indicating the base, terms and forms of reporting);

- the topic of doctoral dissertation with rationale and structure;

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- a plan of implementing the doctoral dissertation;
- a plan of scientific publications and internships including foreign ones.

12.11. Within the framework of the DRPW (DERW), the individual work plan of a doctoral student to familiarize himself with innovative technologies and new types of production provides for a mandatory scientific internship at scientific organizations and (or) organizations of relevant industries or fields of activity including those abroad. The terms of the foreign internship are determined by the University independently.

12.12. Requirements for the research work of a student under the PhD program.

Research work of a doctoral student must:

- correspond to the main problems of the specialty in which the doctoral dissertation is being defended;
- be relevant, contain scientific novelty and practical significance;
- be based on updated theoretical, methodological and technological achievements of science and practice;
- be based on updated methods of data processing and interpretation using computer technology;
- be carried out using updated methods of scientific research;
- contain research (methodological, practical) sections on the main defended provisions.

12.13. Requirements for the experimental research work of a student under the doctor's program in profile.

Experimental research work of a doctoral student must:

- correspond to the main problems of specialty in which the doctoral dissertation is being defended;
- be relevant, contain scientific novelty and practical significance;
- be based on updated achievements of science, technology and production and contain specific practical recommendations, independent solutions to management tasks of an integrated, inter-functional nature;
- be carried out using advanced information technologies;
- contain experimental and research (methodological, practical) sections on the main protected provisions.

14. Every year, at the end of the academic year, the doctoral student undergoes academic certification for implementing the individual work plan. The procedure of conducting academic certification of a doctoral student is determined by the University independently.

12.15. The results of research work at the end of each period are formalized by the doctoral student in the form of a brief report with its consideration and approval by the Scientific-technical Council of the University.

12.16. The area of dissertation research should, as a rule, be associated with national priorities, which are formed by the Higher Scientific and Technical

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Commission under the Government of the Republic of Kazakhstan, or state programs, or programs of fundamental or applied research.

12.17. The dissertation is carried out in compliance with the principles of **independence, internal unity, scientific novelty, reliability and practical value, and academic honesty.**

The principle of independence means that the dissertation is written independently and testifies to the personal contribution of the dissertation author to science, the development of technology.

The principle of internal unity means that the dissertation has internal unity, all the sections and provisions of the dissertation are logically interconnected; scientific provisions, the results and recommendations obtained must correspond to the goals and objectives set in the dissertation. New solutions (principles, methods) proposed by the author are reasoned and evaluated in comparison with the known solutions.

The principle of scientific novelty means that the scientific results, provisions, recommendations and conclusions of the dissertation are new and the dissertation contains:

- new scientifically grounded theoretical and (or) experimental results, the totality of which is qualified as a new scientific achievement or is important for the development of specific scientific areas;
- either scientifically grounded technical, technological, economic or managerial decisions, which implementation makes a significant contribution to the development of the country's economy.

The principle of reliability means that the results of the dissertation work are obtained using updated methods of scientific research and processing and interpreting data using computer technology (if applicable); for dissertations made in natural, technical, medical, agricultural specialties, theoretical conclusions, models, identified relationships and patterns are proven and confirmed by experimental research; for specialties of the "Education" group, the results are proved on the basis of a pedagogical experiment (if applicable).

The principle of the practical value of the dissertation means that the dissertation of applied value provides information on the practical use of the scientific results obtained by the author confirmed by copyright certificates, patents, certificates of intellectual property, acts of implementation in production and other official documents, and in the dissertation of theoretical importance recommendations for the use of scientific findings.

The principle of academic honesty means that the dissertation author respects the rights and legitimate interests of other authors, the absence of:

- using and (or) assignment of texts, ideas, hypotheses, conclusions, methods, research results, graphs, codes, figures or works of other authors without reference to the author and source of borrowing, as well as using texts by other authors with

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synonymous replacement of words and expressions without changing the meaning, including the use of text translated from another language (plagiarism);

- facts of using one’s own material, factual and digital data without reference to oneself and (or) to the source of one’s own quotes (auto plagiarism);

- links to non-existent sources, provision of inaccurate data and (or) results, records or reports of them (fabrication);

- manipulation of research materials, equipment, images, illustrations or processes, as a result of which the research materials in the dissertation are distorted (falsification).

The coincidence of the names of regulatory legal acts and official documents, the names of state and other official bodies and organizations generally accepted for the relevant branch of science, terms, definitions and concepts, texts of regulatory legal acts, texts of the studied works is not plagiarism, if the volume and nature of their use do not place under doubt the independence of the completed dissertation. It is not allowed using technical means and techniques in order to reduce or to eliminate the possibility of detecting plagiarism.

12.18. The main scientific results of the thesis for the degree of Doctor of Philosophy (PhD), doctors in the profile are published before the defense of the thesis in scientific publications included in the List of scientific publications recommended for publication of the main results of scientific activity approved by the EK MES CCES, and (or) in the internationally peer-reviewed scientific journal.

Articles in international peer-reviewed scientific journals are accounted depending on the field of study, namely:

- 1) in the areas of personnel training 8D05 Natural sciences, mathematics and statistics, 8D06 Information and communication technologies, 8D07 Engineering, manufacturing and construction industries, 8D08 Agriculture and biological resources, 8D09 Veterinary medicine, 8D10 Health and social security (medicine), 8D11 Services - in publications included in a certain quartile according to the Journal Citation Reports (hereinafter JCR) by Clarivate Analytics, or in publications that have a CiteScore percentile in the Scopus database;

- 2) for the other areas of personnel training in editions that have an impact factor according to JCR data or indexed in the Web of Science Core Collection database (Arts and Humanities Citation Index sections), Science Citation Index Expanded (Science Citation Index Expanded), Social Sciences Clarivate Analytics' Citation Index, as well as publications that have a specific CiteScore percentile in the Scopus database.

If there is 1 (one) article in an international peer-reviewed scientific journal that has an impact factor according to JCR data or is indexed in the Web of Science Core Collection database (Arts and Humanities Citation Index sections), Science Citation Index Expanded, Social Sciences Citation Index, or a CiteScore percentile of at least

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25 (twenty five) in the Scopus database, the number of articles in journals from the List of Publications is 3 (three).

If there is 1 (one) article in a journal with an impact factor according to JCR data or a CiteScore percentile of at least 25 (twenty five) in the Scopus database and 1 (one) article in a journal included in the first three quartiles JCR database or having a CiteScore percentile of at least 50 (fifty) in the Scopus database, it is not required to publish articles in scientific journals included in the List of Publications.

If there is one scientific article in a journal included in the first quartile of the JCR base, no other publications are required.

The articles in international peer-reviewed scientific journals correspond to the thematic focus of the journal declared in the indicated databases, and are published in current issues. At the same time, at the time of publication of an article or defense of a dissertation, the journal has a CiteScore percentile in the Scopus database or an impact factor (or indexed) in the Web of Science Core Collection database for at least one of the scientific areas corresponding to the content of the dissertation.

If there are scientific articles in excess of the required number in international peer-reviewed scientific journals, they are accounted as articles in scientific journals included in the List of Publications.

Foreign patents included in the Clarivate Analytics Web of Science database are accounted as publications in international peer-reviewed scientific journals.

When defending dissertations containing state secrets or information for official use, the main results of the dissertation are published in at least 7 (seven) publications on the topic of the dissertation including at least 4 (four) articles in scientific publications included in the List of the RK MES CCES editions.

12.19. The doctoral dissertation is being tested for the detection of the borrowing of the text of other authors. It is performed by the National Center of State Scientific and Technical Expertise.

12.20. The doctoral dissertation is organized and conducted in accordance with the orders of the Minister of Education and Science of the Republic of Kazakhstan dated March 31, 2011 No. 127 "On approval of the Rules for awarding degrees" and No. 126 "On approval of the model regulation on the Dissertation Board".

12.21. A doctoral student who has mastered the full course of theoretical study of the educational program of doctoral studies but has not completed the DRPW (DERW) is given the opportunity to re-master the academic credits of the DRPW (DERW) and to defend the thesis in subsequent years on the paid basis.

12.22. A doctoral student who has mastered the full course of theoretical study of the educational program of doctoral studies and completed the DRPW (DERW) but did not defend his doctoral dissertation, is assigned the learning outcomes and is given the opportunity to defend the dissertation within one year after graduation on the free basis, and in subsequent years on the paid basis in the amount of at least 4 academic credits. At the same time, after 3 years after graduation, a doctoral student

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is permitted to defend only after re-approval of the scientific substantiation of the dissertation research (research proposal) on the paid basis.

12.23. In case of refusal to award the degree of Doctor of Philosophy (PhD), the doctoral dissertation is submitted by the doctoral candidate for defense again but not earlier than one year after the previous defense.

12.24. Persons who have been awarded the degree of Doctor of Philosophy (PhD), Doctor in Profile, are issued state diplomas.

12.25. Persons who have received a PhD degree, in order to deepen scientific knowledge, solve scientific and applied problems on a specialized topic, can master a postdoctoral program under the guidance of the leading scientists at the selected university.

13. Results of implementing plans of research activities of the faculties, departments and the teaching staff

13.1. Based on the results of research activities, the departments make up and present the following:

- to the deputy deans of faculties for scientific work **monthly reports** in electronic format according to the approved form with the attachment of supporting documents;

- to the DS&I **semi-annual reports** in electronic format according to the approved form (Appendix 3) that are considered and approved at the meetings of the departments. The heads of departments are responsible for the accuracy of the data contained in the report.

13.2. Monthly reports on RA submitted by departments to the deputy deans of faculties, are checked at the faculties for reliability, analysis, comparison with plans including the comprehensive program for the development of the University followed by the making **a monthly report of the faculty on RA** and submitting it to DS&I not later than the 20th day of each month.

13.3. Based on the results of analyzing the monthly reports on scientific research submitted by the faculties, the Department of Science and Innovation prepares a certificate on the implementation by the departments and faculties of the Comprehensive Development Program of the University for taking corrective actions.

At the end of the calendar year, the Department of Science and Innovation prepares a final certificate on implementing the Comprehensive Development Program of the University in terms of the scientific component.

13.4. Based on the results of the analysis of the semi-annual reports on NID submitted by the departments, the Department of Science and Innovation forms the Annual Report on the NID of the University, which is considered and approved by the Academic Council of the University.

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13.5. The results of implementing the individual plans of the teaching staff are considered at the meetings of the departments at least once a term.

14. Criteria of the research activities assessment

14.1. Assessment of the research and innovation activities of departments and scientific subdivisions of the University efficiency is determined by such basic criteria as:

- participating in funded scientific and scientific-technical projects and programs, the level of their funding;
- participating in competitions for state budget funding for implementation of scientific projects and programs;
- publishing scientific articles in editions included in the IDB;
- citing scientific works of the teaching staff;
- inventive activity (filing applications, obtaining patents and certificates of state registration of rights to objects of copyright);
- holding and participating in conferences, symposia, seminars (based on the rank and number of events held, in which representatives of KTU divisions took part);
- training scientific and pedagogical personnel.

14.2. When assessing the departments RA, the contribution of doctors and candidates of sciences, PhDs and holders of the title "The best teacher of the University" in the overall results is taken into account.

15. Accounting on the performed research works

15.1. Interim and final reports on the research work performed at the department are drawn up in accordance with GOST 7.32-2001 and other applicable standards, they undergo internal regulation by the Department of Science and Innovation. The research manager of the research project is responsible for reliability of the data contained in the report.

15.2. The time frame for submission of reports on R&D carried out under funded contracts is set by the customer.

In special cases stipulated by the terms of contracts, the prepared R&D report is preliminary considered at the meeting of the Scientific and Technical Council of the University.

15.3. R&D performed under the state order and reports on them are subject to mandatory registration in accordance with the Rules of state accounting scientific, scientific-technical projects and programs funded from the state budget, and reports on their implementation approved by the Minister of Education and Science of the Republic of Kazakhstan order dated March 31, 2015 No. 149.

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Developers: N. Huangan, acting director of the DS&I
V.S. Moissev, chief expert of the DS&I
L.V. Ovsishcher, head of the RA Department

Appendix A
(informative)

Personnel scientific potential of the KTU departments (as of 2019-2020 academic year)

| Academic degree, position | Scientific potential coefficient (SPCj) | D e p a r t m e n t | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---------------------|-----|---------|-----|--------|-----|--------|-----|--------|-----|--------|------|--------|------|--------|------|--------|-----|--------|-----|--------|------|--------|-----|--------|-----|--------|------|-----------|-----|
| | | A&D | | PKA&SHD | | APP | | CC | | CE | | GEMD | | ICS | | FL | | HK | | EEM | | ITS | | IT&IM | | KL&C | | MSG | | Mechanics | |
| | | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП |
| Doctor of Science | 4 | 0 | 0 | 0 | 0 | 3 | 12 | 0 | 0 | 1 | 4 | 2.5 | 10 | 2.5 | 10 | 0 | 0 | 0 | 0 | 2 | 8 | 1.5 | 6 | 0 | 0 | 0 | 0 | 4.5 | 18 | 1 | 4 |
| Doctor of Philosophy | 3 | 0 | 0 | 0 | 0 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Candidate of Science | 2 | 5 | 10 | 5 | 10 | 8 | 16 | 1 | 2 | 6 | 12 | 4.5 | 9 | 6 | 12 | 2 | 4 | 6 | 12 | 5 | 10 | 9.5 | 1.9 | 4.5 | 9 | 5.5 | 11 | 9.5 | 19 | 7 | 14 |
| Master | 1 | 3 | 3 | 0 | 0 | 14 | 14 | 2 | 2 | 4 | 4 | 11 | 11 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 0 | 0 | 3 | 3 | 8 | 8 | 16.5 | 16.5 | 2.5 | 2.5 |
| Sn. teacher (no degree) | 1 | 10 | 10 | 6 | 6 | 10 | 10 | 13 | 13 | 2 | 2 | 3.5 | 3.5 | 10 | 10 | 9 | 9 | 1 | 1 | 2 | 2 | 11.5 | 11.5 | 4 | 4 | 2 | 2 | 2 | 2 | 3.5 | 3.5 |
| Teacher (no degree) | 0.5 | 1 | 0.5 | 9 | 4.5 | 2 | 1 | 7 | 3.5 | 1 | 0.5 | 0.5 | 0.25 | 4 | 2 | 21 | 10.5 | 0 | 0 | 0 | 0 | 7 | 3.5 | 0 | 0 | 0 | 0 | 1 | 0.5 | 0 | 0 |
| Assistant (no degree) | 0.5 | 0 | 0 | 0 | 0 | 3 | 1.5 | 1 | 0.5 | 0 | 0 | 0 | 0 | 3 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doctoral student (PhD) | 1.5 | 0 | 0 | 0 | 0 | 12 | 18 | 0 | 0 | 0 | 0 | 5 | 7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Master student | 0.5 | 0 | 0 | 0 | 0 | 136 | 68 | 0 | 0 | 0 | 0 | 60 | 30 | 61 | 30.5 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 17.5 | 8 | 4 | 0 | 0 | 65 | 32.5 | 0 | 0 |
| TOTAL | | 19 | 24 | 20 | 21 | 55 | 150 | 23 | 21 | 14 | 23 | 91 | 72 | 27 | 66 | 32 | 24 | 12 | 18 | 15 | 25 | 35 | 60 | 12 | 20 | 17 | 21 | 103 | 89 | 16 | 24 |

| Academic degree, position | Scientific potential coefficient (SPCj) | D e p a r t m e n t | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---------------------|-----|--------|-----|--------|-----|---------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|---------|-----|--------|-----|--------|-----|
| | | NTM | | PEP | | IT | | Ch&Ch T | | MA&OS | | DMD | | RL&C | | CMT | | TEMES | | TSC | | TELS | | PhE | | Physics | | EEM | | EC | |
| | | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП | Кол-во | КНП |
| Doctor of Science | 4 | 2 | 8 | 1 | 4 | 2 | 8 | 4 | 16 | 1.5 | 6 | 3 | 12 | 1 | 4 | 5 | 10 | 2 | 8 | 1 | 4 | 3 | 12 | 0 | 0 | 1 | 4 | 3 | 12 | 2 | 7 |

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|--------------------------------|------------|------|------|-----|----|-----|------|------|----|------|-----|------|------|----|----|----|----|------|------|-----|-----|----|----|----|----|----|----|-----|-----|------|------|
| Doctor of Philosophy | 3 | 4 | 12 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 9 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | |
| Candidate of Science | 2 | 14 | 28 | 4.5 | 9 | 5 | 10 | 11.5 | 23 | 18.5 | 37 | 15.5 | 31 | 4 | 8 | 10 | 20 | 14 | 28 | 4.5 | 9 | 9 | 18 | 1 | 2 | 6 | 12 | 8.5 | 17 | 10.5 | 21 |
| Master | 1 | 18.5 | 18.5 | 0 | 0 | 7 | 7 | 13 | 13 | 6 | 6 | 15 | 15 | 5 | 5 | 7 | 7 | 14.5 | 14.5 | 6 | 6 | 12 | 12 | 8 | 8 | 8 | 8 | 0.5 | 0.5 | 11.5 | 11.5 |
| Sn. teacher (no degree) | 1 | 1 | 1 | 7 | 7 | 1.5 | 1.5 | 2 | 2 | 4.5 | 4.5 | 2 | 2 | 4 | 4 | 1 | 1 | 6 | 6 | 4 | 4 | 6 | 6 | 8 | 8 | 1 | 1 | 20 | 20 | 5 | 5 |
| Teacher (no degree) | 0.5 | 0 | 0 | 2 | 1 | 0.5 | 0.25 | 0 | 0 | 0 | 0 | 1 | 0.5 | 6 | 3 | 2 | 1 | 0 | 0 | 1 | 0.5 | 0 | 0 | 6 | 3 | 0 | 0 | 2 | 1 | 1 | 0.5 |
| Assistant (no degree) | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.5 | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.25 |
| Doctoral student (PhD) | 1.5 | 13 | 19.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 13.5 | 0 | 0 | 6 | 9 | 8 | 12 | 0 | 0 | 12 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 18 |
| Master student | 0.5 | 164 | 82 | 4 | 2 | 4 | 2 | 56 | 28 | 10 | 5 | 53 | 26.5 | 0 | 0 | 62 | 31 | 162 | 81 | 0 | 0 | 26 | 13 | 0 | 0 | 0 | 0 | 17 | 8.5 | 59 | 29.5 |
| TOTAL | | 47 | 169 | 16 | 23 | 18 | 32 | 37 | 82 | 42 | 59 | 111 | 104 | 20 | 24 | 93 | 79 | 45 | 159 | 21 | 27 | 31 | 79 | 23 | 21 | 16 | 25 | 39 | 59 | 35 | 97 |

Appendix B
(informative)

Standards of planning research activities of the departments based on the Comprehensive Program of the University Development for 2020

| No | Indicator | Units | MF | | | | MF | | | | FEAT | | | | RTF | | | | FIT | | | | ACF | | | | FEEM | | | | | Total at KTU |
|-----------|--|----------------|-----|-----|-------|------|-----|--------|-----|-----|------|-----|-----|---------|------|-----|----|------|-----|-----|-----|--------|-----|-----|-----------|------|------|-----|---------|-----|------|--------------|
| | | | DMD | MSG | MA&OS | GEMD | NTM | TTEMES | PEP | FL | APP | EC | TSC | Physics | TELS | IT | CE | RL&C | ICS | ITS | EC | Ch&ChT | CMT | A&D | Mechanics | RL&C | EEM | EEM | PKA&SHD | PhE | | |
| | Scientific potential coefficient (SPCd/SPCu) | un. | 104 | 89 | 59 | 72 | 169 | 159 | 23 | 24 | 150 | 97 | 79 | 25 | 79 | 32 | 23 | 21 | 66 | 60 | 18 | 82 | 79 | 24 | 24 | 24 | 59 | 25 | 21 | 21 | 1697 | |
| 1 (31) | 7.8% increase of the number of international and national patents of their number in 2018 | un. | 8 | 3 | 4 | 5 | 6 | 8 | - | - | 5 | 6 | 5 | 1 | 5 | 2 | - | - | 1 | 4 | - | 5 | 5 | 1 | 1 | - | - | - | - | - | 75 | |
| 2 (32) | 7.8% increase of MAI of their number in 2018 | un. | 9 | 8 | 8 | 8 | 14 | 12 | 9 | 8 | 12 | 9 | 7 | 7 | 8 | 5 | 6 | 6 | 17 | 15 | 4 | 10 | 7 | 6 | 6 | 15 | 7 | 5 | 5 | 1 | 234 | |
| 3 (33) | Developing and introducing monographs in the educational process | un. | 5 | 3 | 3 | 4 | 6 | 6 | 2 | 2 | 3 | 2 | 1 | 1 | 5 | 1 | 1 | 2 | 2 | 3 | 2 | 6 | 6 | 1 | 1 | 1 | 2 | 2 | 2 | - | 75 | |
| 4 (34) | Providing not less than 15% co-financing of business projects for commercialization in the total amount of grant funding | 4ln.teng es | 3 | 2 | 1 | 2 | 4 | 3 | 0,5 | 0,5 | 3 | 1,5 | 1,3 | 0,8 | 1,3 | 1,3 | 1 | 0,5 | 2 | 2 | 0,5 | 2,3 | 2 | 0,5 | 1 | 0,5 | 0,8 | 0,8 | 0,5 | - | 39,6 | |
| 5 (35) | Participation in competitions for awarding grants for R&D | un. | 8 | 8 | 5 | 8 | 8 | 8 | 2 | 2 | 7 | 5 | 4 | 3 | 5 | 5 | 3 | 2 | 6 | 6 | 2 | 6 | 6 | 3 | 4 | 2 | 3 | 4 | 2 | - | 127 | |
| 6 (36) | Providing growing the number of the teaching staff participating in research and innovation activities | prs. | 22 | 25 | 12 | 12 | 20 | 20 | 7 | 10 | 17 | 12 | 11 | 6 | 17 | 10 | 12 | 8 | 11 | 13 | 8 | 20 | 15 | 6 | 5 | 8 | 12 | 6 | 10 | - | 335 | |
| 7 (37) | Providing participation of doctoral and master students in research and innovation activities | Doct. | 33 | | | 24 | 13 | 11 | | | 24 | | | | 10 | | | | | | | | | | | | | | | | 136 | |
| | | Mast. | 60 | 40 | 20 | 60 | 70 | 70 | 10 | - | 60 | 60 | - | - | 40 | 13 | - | - | 40 | 9 | - | 50 | 70 | - | - | - | 20 | - | - | - | 692 | |
| 8 (38) | Providing growth of the number of students participating in research and innovation activities | prs. | 135 | 90 | 60 | 55 | 120 | 110 | 25 | 15 | 110 | 110 | 45 | 15 | 90 | 45 | 18 | 18 | 90 | 80 | 25 | 120 | 60 | 25 | 12 | 12 | 55 | 25 | 25 | 27 | 2500 | |
| 9 (39) | Providing growth of the number of publications on the Clarivate Analytics base | un. | 4 | 3 | 2 | 4 | 4 | 4 | 1 | 1 | 3 | 2 | 1 | 1 | 3 | 1 | 2 | 0 | 2 | 3 | - | 4 | 4 | 1 | 1 | 1 | 2 | 1 | 1 | - | 60 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|--|---------------|----|----|----|----|----|----|---|---|----|----|---|---|----|---|---|---|----|----|---|----|----|---|---|----|----|----|---|----|-----|
| 10 (40) | Providing growth of the number of publications on the Scopus base | un. | 11 | 8 | 4 | 10 | 12 | 12 | 2 | 2 | 9 | 8 | 4 | 3 | 7 | 4 | 3 | 2 | 4 | 8 | 2 | 10 | 12 | 1 | 3 | 2 | 5 | 2 | 3 | - | 155 |
| 11 (41) | Providing growth of the number of publications on the RK MES CCES | un. | 32 | 20 | 17 | 25 | 32 | 32 | 7 | 7 | 20 | 15 | 8 | 6 | 26 | 9 | 8 | 9 | 16 | 20 | 8 | 20 | 32 | 5 | 6 | 12 | 20 | 10 | 8 | 5 | 440 |
| 12 (42) | Citation level of the publications on the Web of Science Core Collection (Clarivate Analytics) base among the total number of publications within the year | Cits. | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | - | 1 | 1 | - | 1 | 2 | 1 | 1 | - | 1 | 1 | 1 | - | 32 |
| 13 (43) | Increasing the University income due to economic contract activities | Un.teng es | 25 | 50 | 15 | 20 | 10 | 10 | 5 | 1 | 20 | 15 | 5 | 5 | 20 | 5 | 1 | 1 | 20 | 20 | 2 | 15 | 20 | 4 | 2 | 1 | 15 | 10 | 2 | 6 | 320 |
| 14 (44) | Participation in international research projects | un. | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | | 1 | | | 1 | | | 1 | | | 1 | 1 | | | | | | | 12 | |

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Appendix B.1
(informative)

Basic indicators of research activities of the _____ department of KTU for the 1(2) half-year 20__

| No | Names of teachers, doctoral and master students of the department (full composition of the department) | Position | Academic degree | Academic title | Participation in R&D, number of topics | | | Publishing the R&D results, number of published monographs and articles | | | | | | Participation in conferences, number of published reports | | | | | | Participation in exhibitions, number of exhibited items | Patenting | | Attracting students/master students to R&D | |
|--------------------------------|--|----------|-----------------|----------------|--|--------------|-----------------|---|--------------------------|-----------------------|--------------|-------|------------|---|----------|------------|-----------------------|--------------|-----|---|--------------------------------------|---|--|-----------|
| | | | | | Economic contract | State budget | Department plan | monographs | Total number of articles | Including in journals | | | | Total reports | regional | republican | Including conferences | | | | Filed applications/ patents received | Received certificates for copyright objects | | |
| | | | | | | | | | | RK | | CIS | Far abroad | | | | international | | | | | | | |
| | | | | | | | | | | Total | Incl. at KTU | | | | | | Total | Incl. at KTU | CIS | | | | | Far abroa |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| EXAMPLE | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Kassymov Zh.K. | As.Pr. | CTS | As.Pr. | 3 | 1 | - | - | 4/2 | 2/1 | 1 | 2/1 | - | 6 | - | 1 | 4 | 3 | 1 | - | - | 3/1 | 2 | 12/5 |
| 2. | Ivanov I.P. | Sn.tea | PhD | - | 2 | 2 | 1 | 1 | 3/2 | 2/1 | - | - | 1/1 | 2 | 1 | - | 1 | 1 | - | - | | | | |
| ... | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL AT THE DEPARTMENT | | - | 16 | 12 | 4 | 3 | 1 | 6 | 18/16 | 12/11 | 12 | 12/11 | 6/3 | 187 | 14 | 165 | 127 | 118 | 92 | 37 | 5 | 12/11 | 46 | 120/34 |

Note: * - numerator: total number of the published articles, denominator: the number of articles published in rating journals.

Head of the department _____
(signature) (Name)

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Appendix B.2
(informative)

EFFICIENCY
of student and master student research activities at the
_____ department for the 1 half-year 2020

Total number of circles - _____
Among them of training orientation - _____

| Number of students /master students | | | Executed on scientific topics | | Published reports at conferences | | | | Prepared articles for publishing in journals | | | | Patenting | | | Participation in Olympiads | | | Participation in competitions | | | Participation in exhibitions | | | |
|--|--------------------|----------------------|-------------------------------|---|----------------------------------|--------------|-----|------------|--|-----------------------|-------------|------------|--------------------------------|----------|-----|----------------------------|-------------|-----|-------------------------------|-------------|-----|------------------------------|-----|----|----|
| Total number of persons participating in R&D | including | | Term projects | Graduation projects, master's dissertations | Total | Including in | | | Beero | Including in journals | | | Filed applications for patents | received | | RK | | CIS | RK | | CIS | RK | CIS | | |
| | In e/c and s/b R&D | In initiative topics | | | | Total | RK | Far abroad | | Total | RK | Far abroad | | patents | CIP | Total | incl.at KTU | | Total | incl.at KTU | | | | | |
| | | | | | | Incl.at KTU | CIS | | | Total | Incl.at KTU | CIS | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| Circle form of organizing R&D | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Name of circle, name and position of the supervisor | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Individual work with students | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name and position of the scientific supervisor | | | | | | | | | | | | | | | | | | | | | | | | | |

Appendix B.3
(informative)

Research report
of the _____ department
for the 1(2) half-year 20__

1. Research projects implemented

1) Name of the topic _____

Grounds for implementing _____

Project manager (*SNP, position*) _____

Basic results (*direct and indirect*) _____

2) Name of the topic

.....
(*information of all the topics of the department that reflects introducing the R&D results in the education process and production, attracting students, master and doctoral students, publishing articles, monographs, participation in conferences, patenting, etc.*)

2. Publishing the R&D results

2.1 Monographs

1) _____
(*author(s)*, title, edition, year, number of pages*)

2)

2.2 Articles submitted for publishing in journals

| No | Name of the author (s)* | Title | Country, name of the journal | Impact-factor of the journal |
|----|-------------------------|-------|------------------------------|------------------------------|
| | | | | |
| | | | | |

Total number of articles –

of them: in rating journals–

far abroad –

CIS –

RK – , including at KTU –

By students/with students –

| | | |
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By master students/with master students –
By doctoral students /with doctoral students –

2.3 Articles published in journals

| No | Name of the author (s)* | Title | Country, name of the journal | Impact-factor of the journal |
|----|-------------------------|-------|------------------------------|------------------------------|
| | | | | |
| | | | | |

Total number of published articles –
of them: in rating journals–
far abroad –
CIS –
RK – , including at KTU –
By students/with students –
By master students/with master students –
By doctoral students /with doctoral students –

2.4 Published reports (theses) at conferences

| No | Name of the author (s)* | Title of the report | Country, status, name of the conference, venue, date |
|----|-------------------------|---------------------|--|
| | | | |
| | | | |

Total number of reports published –
of them in the conference proceedings:
far abroad –
CIS –
RK – , including at KTU –
By students/with students –
By master students/with master students –
By doctoral students /with doctoral students –

3. Participation in exhibitions

- name of the exhibition, its status, venue;
- name of the item;
- names of the developers;
- results of participation in exhibitions.

4. Inventive activities (patenting)

4.1 Filing applications for granting a patent

| | | |
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| No | Name of author (s)* | Name of the invention | Applicant | Registration number |
|----|---------------------|-----------------------|-----------|---------------------|
| | | | | |
| | | | | |

4.2 Receiving patents

| No | Name of the author (s)* | Name of the invention | Patent holder | Patent number |
|----|-------------------------|-----------------------|---------------|---------------|
| | | | | |
| | | | | |

4.3 Receiving certificates for state registration of copyright objects

| No | Name of the author (s)* | Name of the copyright object | Copyright holder (s) | Certificate number, date |
|----|-------------------------|------------------------------|----------------------|--------------------------|
| | | | | |
| | | | | |

5. Academic degrees, titles, election to the Academy of Sciences and awards received by the teaching staff and staff of the department

Indicate the names and academic degrees, titles and other awards received by them within the reporting period.

6. Participation in competitions for R&D funding

Indicate the name of the competition, the name of the project, full name of the research manager, the results of consideration.

7. Results of scientific work on cooperation agreements with organizations of Kazakhstan

Submit a brief annotation report on the work done under cooperation agreements with organizations of Kazakhstan (excluding organizations that are part of Corporate University).

8. Results of scientific work within Corporate University

Provide a short annotation report on the work done.

9. Results of scientific work on projects and contracts on international cooperation

Provide a short annotation report on the work done.

10. Scientific work with students and master students

Present the results of scientific work of students and master students: participation in initiative, economic contractual and state budget research work of the

| | | |
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|--------------------------------------|--|--|

department, implementation of term and graduation projects on scientific topics, publication of the results of completed research work (articles, reports at conferences), participation in inventive activity, organization and participation in Olympiads, competitions and conferences, received awards.

In the submitted report, complete information of students and master students (surnames, initials, groups) is indicated.

Quantitative indicators of the research work efficiency of students and master students are presented in the form of a separate table.

11. Implementation of the Comprehensive Program of the University Development for 20__ based on the results of scientific activities for 1 (2) half-year of 20__

In this section, the planned and actual indicators in all the areas of scientific activity are noted, with indicating the reasons for non-fulfillment and the timing of when the debt will be eliminated.

| Indicator of the Comprehensive Program of the University Development for 20__ | | Planned indicator for the 1(2)-half-year 20__ | Actual state | Percent of implementation |
|---|-------------------------------|---|--------------|---------------------------|
| To provide funding economic contractual R&D for the amount, not less than, tenges | | | | |
| To provide co-financing of state budgetary business projects for commercialization, not less | | | | |
| To provide participation in the funded R&D | Teaching staff, not less | | | |
| | Doctoral students, not less | | | |
| | Master students, not less | | | |
| To provide participation in international research projects in the amount not less | | | | |
| To provide preparing articles for publishing in scientific journals contained in the databases | Clarivate Analytics, not less | | | |
| | Scopus, not less | | | |
| | CCES, not less | | | |
| To provide publishing monographs, not less | | | | |
| To provide the number of citations of the articles published in the IDB Clarivate Analytics, not less | | | | |

| | | |
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| | | | |
|--|--|--|--|
| To provide filing applications for patenting , not less | | | |
| To provide registration of copyright objects (receiving certificates, not less) | | | |
| To provide participation in competitions for awarding grants for implementing R&D (filing applications, not less) | | | |
| To provide student participation in the R&D of departments , not less | | | |

12. Analysis of the research groups work

This section provides the information of the number and composition of research groups, the results achieved for six months.

13. Other scientific information

Other scientific achievements of the department that are not noted in sections 1-11, are noted.

Notes:

- 1) *The font size of the text of the report should not exceed 12. (10 - in the tables);*
- 2) *Supporting documents are submitted only for materials that were not previously reported in monthly reports.*
- 3) *If there are coauthors in publications and documents of title (not employees of the department), indicate (in brackets after the surname) the place of work of each; for students, master and doctoral students indicate the group where they study.*

Head of the department _____
(signature) (Name)

Head of the SRL _____
(signature) (Name)

