NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

8D07 - Engineering, Manufacturing and Civil engineering
(Code and classification of the field of education)

8D071 - Engineering and engineering trades
(Code and classification of the direction of training)

0710
(Code in the International Standard Classification of Education)

D103 - Engineering and Manufacturing Industries
(Code and classification of the educational program group)

8D07101 - Technological machinery and equipment
(Code and name of the educational program)

Doctor of philosophy (PhD)
(Level of preparation)

Semey

Educational program

8D07 -- Engineering, manufacturing and construction industries
(Code and classification of the field of education)

8D071 - Engineering and Engineering affairs
(Code and classification of the direction of training)

0710
(Code in the International Standard Classification of Education)

D103 - Engineering and Manufacturing Industries
(Code and classification of the educational program group)

8D07101 - Technological machinery and equipment
(Code and name of the educational program)

Doctor of philosophy (PhD)
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Semey 2024

PREFACE

Developed

The educational program 8D07101 - Technological machinery and equipment in the direction of preparation 8D071 - Engineering and Engineering affairs on the basis of the State Compulsory Standards of Higher and Postgraduate Education approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

Members of the Academic Committee	Full name	Academic degree, academic title, position
Head of the Academic Committee	Nurymkhan Gulnur	Faculty of Engineering and Technology Deans
Educational program manager	Kabulov Bolat	Associate Professor of the Department of Technological Equipment
Member of the AC	Abdilova Galia	head of the department of technological equipment
Member of the AC	Kakimov Aitbek	Professor of the Department of Technological Equipment and Mechanical Engineering
Member of the AC	Suychinov Anuarbek	Director of Semey Department of LLP
Member of the AC	Esimbekov Zhanibek	Project Manager of the Semey branch of Kazakh Research Institute of Processing and Food Industry LLP
Member of the AC	Bayadilova Asyl	Doctoral student of the Department of Technological Equipment
Member of the AC	Dukenbayev Damir	Doctoral student of the Department of Technological Equipment

Reviewing

Full name of the reviewer	Position, place of work
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Reviewed

at a meeting of the Academic Quality Committee of the Faculty of Engineering and Technology
Protocol No. 3 dated 15.01.2024

at a meeting of the Academic Quality Committee of the Research School of Food Engineering
Recommended for approval by the Academic Council of the University
Protocol No. 1 , dated 06.06.2024

Approved

at a meeting of the University Academic Council by protocol No. 6/1 of January 19, 2024.

at a meeting of the University Academic Council by protocol No. 11 of June 28, 2024.

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1.Introduction

1.1.General data

This program was developed for the doctoral program OP 8D07101 Technological machines and equipment, Department of Technological Equipment , taking into account the needs of the regional labor market, the requirements of regulatory documents of the Ministry of Science and Higher Education of the Republic of Kazakhstan and is a system of documents for the organization of the educational process. The educational program 8D07101 Technological machines and equipment for the preparation of a Doctor of Philosophy (PhD) has a scientific and pedagogical orientation and assumes fundamental educational, methodological and research training and in- depth study of disciplines in the relevant fields of sciences for the system of higher and postgraduate education and the scientific sphere.

The introduction of a modular system for the organization of the educational process imposes special requirements on the preparation of curricula of academic disciplines, their structure and content. The curriculum of the discipline is being developed

When implementing the educational program, it is planned to use artificial intelligence tools in the educational process, thereby developing digital competencies among students in a rapidly changing technological environment.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process for the preparation of specialty 8D07101 "Technological machines and equipment" is the development of students at least 45 credits of theoretical training, as well as at least 10 credits of pedagogical practice, 10 credits of research practice, 123 credits of research work, at least 12 credits for writing and defending a doctoral dissertation. A total of 180 credits.

1.3.Typical study duration: 3 years.

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	Preparation of competitive specialists for work in the field of technological machines and equipment of the food and meat and dairy industry, able to quickly adapt to the rapidly changing socio-economic conditions, as well as meeting the needs of the individual in a comprehensive professional and intellectual development.
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	8D07 - Engineering, manufacturing and construction industries
Code and classification of the direction of training	8D071 - Engineering and Engineering affairs
Code in the International Standard Classification of Education	0710
Code and classification of the educational program group	D103 - Engineering and Manufacturing Industries
Code and name of the educational program	8D07101 - Technological machinery and equipment
2.3.Distinctive features of the OP (double degree/joint, OVPO-partner, Double major, innovative)	-
2.4.Qualification characteristics of the graduate	
Degree awarded / qualification	Doctor of Philosophy PhD in the educational program 8D07101 Technological machines and equipment
Name of professional standard	Professional standard: Teacher (faculty) of higher and (or) postgraduate education organizations
Atlas of new professions	-
Regional standard	-
Name of the profession / list of positions of a specialist	- teacher at Universities and colleges; -head of the laboratory of food enterprises of various forms of ownership; - research associate; - researcher in research institutes and Universities; - specialist in the centers of standardization and certification.
OQF qualification level (industry qualification framework)	8
Area of professional activity	all branches of industry, including the military-industrial complex, as well as design and research support for the development of technological processes and production of food products, design and research organizations, as well as firms of various forms of ownership, higher and secondary specialized institutions.
Object of professional activity	during scientific and pedagogical training: - universities and other educational institutions, research institutes, enterprises of various types that provide services for the maintenance and repair of technological machines and equipment, enterprises that certify food products.
Types of professional activity	Graduates of the doctoral program OP 8D07101 Technological machines and equipment can perform the following types of professional activities, with scientific and pedagogical training: - researcher, researcher, teacher in educational

	organizations.
2.5.Graduate Model	1 Description of the OP The educational program 8D07101 – "Technological machines and equipment" was developed by the qualification characteristics of the graduate. It reflects the features of the objectives of the educational training of doctoral students with innovative thinking, owning advanced technologies in the field of engineering. Graduate model educational program 8D07101 – "Technological machines and equipment" 1. The Law of the Republic of Kazakhstan "On Education" No. 319-III dated July 27, 2007. 2. State Higher and Postgraduate Education No. 604 dated 31.10.2018 3. Rules for the organization of the educational process on credit technology of education Order of the Ministry of Education and Science of the Republic of Kazakhstan dated April 20, 2011 No. 152 4. Standard Rules for the activities of educational organizations implementing educational programs of higher education, Resolution No. 595 of the Government of the Republic of Kazakhstan dated October 30, 2018 5. Strategic plan of the NAO "Shakarim Semey University" for 2021-2025. 2 The purpose of the educational program – training of highly qualified personnel in demand in the labor market; – formation of systematized knowledge in the field of engineering; – formation of key and special competencies of a Doctor of Philosophy (PhD) with high social and civic responsibility, able to carry out professional activities; mastering by doctoral students of the basics of research and experimental methods of observation and analysis of information processes and phenomena; formation of universal and socio-personal values in the context of scientific thinking and worldview. 3 Objectives of the educational program - To prepare a Doctor of philosophy (PhD) with dedication, leadership, the ability to work in a team, carry out scientific research, apply modern methods of scientific and pedagogical direction in the field of information technology, responsible for the final result of their professional activities and the ability to self-improvement and self-development. - Master knowledge in engineering and various research methods. 4 Results of the Doctor of Philosophy (PhD) training on OP 7M07103 - "Technological machines and equipment": - demonstrate the developing knowledge and understanding gained at the level of higher professional education, which are the basis or

	opportunity for the original development or application of ideas, often in the context of scientific research; - apply knowledge, understanding and the ability to solve problems in new or unfamiliar situations in contexts and within broader (or interdisciplinary) areas related to the field being studied; - integrate knowledge, cope with difficulties and make judgments based on incomplete or limited information, taking into account ethical and social responsibility for the application of these judgments and knowledge; - clearly and clearly communicate their conclusions and knowledge and their justification to specialists and non-specialists; - continue training independently. 4.1 Acquired competencies expressed in the achieved learning outcomes As a result of mastering this OP of doctoral studies , the graduate must have the following competencies: 1) general cultural competencies (OK): - the ability to improve and develop their general intellectual and general cultural level; - willingness to use knowledge of modern problems of science and education in solving educational and professional tasks; - the ability to independently master new research methods, to change the scientific profile of their professional activities ; 2) professional competencies: general professional: - the ability to carry out professional and personal self-education, to design a further educational route and professional career; - the use of a personality-oriented approach to ensure the possibility of self-disclosure and self-realization of students; - application of various engineering technologies, creation of favorable conditions for self-education and professional orientation; - implementation of professional, research, production activities in accordance with modern requirements. 4.2 Personal qualities of the graduate The personal qualities of a graduate that must be possessed in order to be a competitively capable specialist in the field of engineering: - Analytical skills: the ability to conduct a systematic analysis of information; systematize information; compare data; abstract information; design the result. - Diagnostic skills: the ability to structure the information received; to implement innovative and combinational processes related to the ability to predict. - Verbal and non-verbal skills: the ability to build business relationships with colleagues; establish cooperation with partners; formulate professional tasks; master oral and written speech. - Predictive skills: confidence in one`s own actions in

	accordance with the assessment of everything that is happening; manifestation of extroversion and dominance as a condition of purposefulness, management, information modeling, energy mobilization, perseverance, activity, ability to withstand the load, perseverance when performing complex tasks. - Correctional skills: the ability to carry out self-analysis, self-correction; to determine the trajectories of self-development and self-education; to comprehend their own professional and personal capabilities.

3.Modules and content of the educational program

Modern aspects of the development of science and practice in the field of technological machines and equipment

Brief description of the module content

The disciplines of this module will allow students to obtain general cultural, professional and special competencies for carrying out professional activities, in addition, the disciplines are aimed at studying the culture of scientific thinking, forms analytical capabilities and research skills, provides theoretical and practical knowledge necessary for a future scientist in the field of technological machines and equipment.

Module disciplines

Statistics and experimental design using R

Academic writing

Research methods

Scientific-theoretical bases of heat and mass transfer processes

The latest achievements in the field of technological equipment of meat and dairy industry

Modern aspects of science and practice in the field of technological machinery and equipment

Pedagogical practice

Organization of experiments and processing of the obtained data

Brief description of the module content

The study of the disciplines included in this module will allow students to gain skills in collecting the latest theoretical, methodological and technological achievements of domestic and foreign science, in addition to developing practical skills, applying modern research methods, processing and interpreting experimental data in dissertation research

Module disciplines

Membrane processes and technologies in the food industry

Research work of the doctoral student, including internship and doctoral dissertation I

Mathematical modeling of machining processes

Research work of the doctoral student, including internship and doctoral dissertation II

Rheological bases of visco-plastic food

Theory and technique of engineering experiment

Research work of the doctoral student, including internship and doctoral dissertation III

Research work of the doctoral student, including internship and doctoral dissertation IV

Research practice

Research work of the doctoral student, including internship and doctoral dissertation V

Research work of the doctoral student, including internship and doctoral dissertation VI

Final assessment

Brief description of the module content

Writing and defending a doctoral dissertation

Module disciplines

Doctoral dissertation

4.Summary table on the scope of the educational program
«8D07101 - Technological machinery and equipment»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
Modern aspects of the development of science and practice in the field of technological machines and equipment										
Statistics and experimental design using R	BS/US	1	3	90	15	15		20	40	Examination
Academic writing	BS/CC	1	5	150	15	30		35	70	Examination
Research methods	BS/US	1	5	150	30	15		35	70	Examination
Scientific-theoretical bases of heat and mass transfer processes	AS/CCh	2	5	150	15	30		35	70	Examination
The latest achievements in the field of technological equipment of meat and dairy industry	AS/CCh	2	5	150	15	30		35	70	Examination
Modern aspects of science and practice in the field of technological machinery and equipment	AS/CCh	2	5	150	15	30		35	70	Examination
Pedagogical practice	BS/US	3	10	300						Total mark on practice
Organization of experiments and processing of the obtained data										
Membrane processes and technologies in the food industry	BS/US	1	5	150	15	30		35	70	Examination
Research work of the doctoral student, including internship and doctoral dissertation I	AS/US	1	15	450						Total mark on practice
Mathematical modeling of machining processes	AS/CCh	2	5	150	15	30		35	70	Examination
Research work of the doctoral student, including internship and doctoral dissertation II	AS/US	2	20	600						Total mark on practice
Rheological bases of visco-plastic food	AS/CCh	2	5	150	15	30		35	70	Examination
Theory and technique of engineering experiment	AS/CCh	2	5	150	15	30		35	70	Examination
Research work of the doctoral student, including internship and doctoral dissertation III	AS/US	3	20	600						Total mark on practice
Research work of the doctoral student, including internship and doctoral dissertation IV	AS/US	4	30	900						Total mark on practice
Research practice	AS/US	5	10	300						Total mark on practice
Research work of the doctoral student, including internship and doctoral dissertation V	AS/US	5	20	600						Total mark on practice
Research work of the doctoral student, including internship and doctoral dissertation VI	AS/US	6	18	540						Total mark on practice
Final assessment										
Doctoral dissertation		6	12	360						

NON -PROFIT LIMITED COMPANY «SHAKARIM UNIVERSITY OF SEMEY»

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

8D07101 Technological machines and equipment

for 2024 - 2027 years

Semey 2024

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1. Passport of the Development Plan for Doctoral Studies EP 8D07101 Technological machines and equipment

1	Basis for development	Development program of the Non -Profit Limited Company «Shakarim University of Semey» for 2023-2029. School y work plan
2	Implementation deadlines	2024 - 2027 years
3	Expected results of implementation	Doctoral students gain a broad base of knowledge in technological machinery and equipment, as well as cutting-edge scientific research, that prepares them for successful scientific careers in academia, government, or industry.

2. Analytical justification of the OP

2.1 Information about the educational program

The educational program is developed in accordance with the National Qualifications Framework and Occupational Standards, *in accordance with* the Dublin Descriptors and the European Qualifications Framework. The typical period for completing a doctoral educational program is 3 years.

The main criterion for the completion of the educational process is the completion of at least 180 credits, with the award of the degree Doctor of Philosophy (PhD) in the educational program "8D07101 Technological machines and equipment".

The educational program 8D07101 Technological machines and equipment for the preparation of Doctor of Philosophy (PhD) has a scientific and pedagogical focus and involves fundamental educational, methodological and research training and in-depth study of disciplines in relevant areas of science for the system of higher and postgraduate education and the scientific field . The training of specialists in EP 8D07101 - "Technological machines and equipment" is carried out by the special department of "Technological Equipment" of the Research School of Food Engineering on the basis of the

Appendix to license No. KZ 38 LAA 00018432, issued on June 25, 2020, the State compulsory postgraduate standard education, Decree of the Government of the Republic of Kazakhstan dated October 31, 2018, Model rules for the activities of educational organizations implementing educational programs of higher and (or) postgraduate education. Order of the Ministry of Education and Science of the Republic of Kazakhstan dated October 30, 2018, No. 595.

2.2 Information about students

Academic year / Basics of training	2024 - 2025 academic year	2025 - 2026 academic year	2026 - 2027 academic year
Grant	7	8	8
Agreement	-	-	-
Total	7	8	8

2.3 Internal and external conditions for the development of EP

The academic policy of the department “Technological Equipment”, implementing EP 8D07101 “Technological Machinery and Equipment”, is aimed at the use of innovative teaching technologies based on best practices in teaching modern general education, basic and major disciplines, on the quality of teaching using modern teaching strategies, modern teaching methods in higher education. Doctoral students and teaching staff of the Department of Technological Equipment have unlimited access to information and educational resources and electronic library systems necessary to carry out independent educational and research work. Information electronic resources: full access to databases - Scopus, ScienceDirect, Electronic library system "Polpred", Cyberleninka, digital library of the publishing house AKNURPRESS and "Smart-kitap" (multimedia electronic books) . To conduct online conferences, lectures, seminars with the participation of leading scientists from Kazakhstan, near and far abroad, the conference system PolyCom, Zoom is used .

Students have access through the electronic resource https://ais.semgu.kz to educational and methodological materials - lectures, videos, assignments for self-testing, presentations on topics, teaching aids. There is an open system “OpenMeetings”, which allows you to conduct two-way and multi-way video and audio conferences in good quality. The most common innovative methods developed by teaching staff of departments for giving lectures, conducting practical and laboratory classes, defense and

pre-defense of final works include: video lectures, presentation slides, working with an interactive whiteboard, using the graphic editor KOMPAS , AutoCAD .

The educational and laboratory classrooms of the Department of Technological Equipment are equipped with modern equipment and comply with current sanitary standards, fire safety requirements, and qualification requirements for the activities of educational organizations.

All types of internships implemented within the EP are carried out in accordance with the internship program approved by the Faculty Council, the academic calendar, agreements with practice bases, as well as on the basis of P 042-2.14-2022 “Regulations on the organization and conduct of internships and scientific internships for undergraduates and PhD doctoral students "and the order of the rector of the university. Practice bases meet the requirements and content of practice.

Research and development work implemented within the framework of the EP are carried out on the basis of the SF LLP "Kazakh Research Institute of Processing and Food Industry"

2.4 Information about teaching staff implementing the educational program

No.	Indicators	Unit.	2024 - 2025 academic year	2025 - 2026 academic year	2026 - 2027 academic year
1	Share of teaching staff with an academic degree in EP	%	**100**	**100**	**100**

The teaching staff of the department “Technological Equipment”, ensuring the implementation of the EP 8D07101 - “Technological Machinery and Equipment” is 3 people, including 1 Doctor of Technical Sciences, 2 Candidates of Technical Sciences. The degree of teaching staff ensuring the implementation of the EP is 100 %. All teachers of the educational program have a basic education and carry out teaching activities according to an individual plan, there are no deviations from the plan.

The Department of Technological Equipment carries out the educational process at three levels of study: bachelor's, master's and PhD doctoral studies. The formation of scientific and pedagogical personnel at the department is carried out through training through master's programs, PhD doctoral studies, and advanced training of teaching staff.

Currently, according to the educational program 8D07101 – “Technological machines and equipment” are studying 7 person.

EP teachers undergo advanced training at leading universities in Kazakhstan (according to the FPK plan) and training seminars conducted by the Ministry of Education and Science of the Republic of Kazakhstan , universities and other organizations. Teacher training is confirmed by certificates and certificates. The university teaching staff undergo scientific internships at universities near and far abroad, at universities and research institutes of the Republic of Kazakhstan. The qualified staff of teachers is able to provide high-quality educational process, meets the qualification requirements, level and specifics of the educational program.

Teaching staff OP 8D07101 - “Technological machines and equipment” takes part in competitions for grant funding, program-targeted financing of projects administered by the Ministry of Education and Science of the Republic of Kazakhstan, the Ministry of Agriculture of the Republic of Kazakhstan, and development institutions. The scientific direction of the department is associated with research in the field of improving technological machines and equipment, processes and apparatus of the food, meat and dairy and processing industries. The teaching staff of the department has high scientific and methodological publication activity. The results of the scientific activities of teachers are reflected in scientific publications with an impact factor. Scientists of the Department of Maintenance and Mechanics have the Hirsch index (h-index) in the Web of Science and Scopus databases.

2.5 Characteristics of the achievements of the EP

OP 8D07101 - “Technological machines and equipment” in 2021 successfully passed international specialized accreditation at the Independent Agency for Accreditation and Rating (IAAR) for a period of 5 years (certificate No. AB 3268 dated 16 April 2021).

3. Main objectives of the EP development plan

In accordance with the Strategic Development Plan of the University for the effective implementation of EP 8D07101 - “Technological machines and equipment” the following tasks have been identified

- Ensuring high-quality training of competitive specialists
- Development and implementation of scientific projects
- Development of human resources
- Strengthening the material and technical base
- Development of international cooperation

The expected final results include: participation in funded grant projects, publication activity of teaching staff in rating publications with a non-zero impact factor, development and operation of joint educational programs with foreign universities, implementation of scientific research results in the educational process, involvement of students in scientific research, academic mobility students and teaching staff.

4. Risk analysis of OP

Identification and assessment of risks of EP 8D07101 - "Technological machines and equipment" is carried out in accordance with the Strategic Development Plan of the University until 2027. The mechanism for monitoring possible risks of EP 8D07101 - "Technological machines and equipment" is surveys and surveys of students' satisfaction with the organization of the educational process, the quality of teaching , material and technical base. Employers' questionnaires are systematically monitored to assess the quality of specialist training. The results of the survey and monitoring of EP risks are analyzed and used in the future when updating educational programs.

No.	Name of risks	Corrective measures
1	Decrease in the number of EP students	Strengthen career guidance among master's graduates
2	Insufficient development of external and internal academic mobility of students and teaching staff	Determining directions for academic mobility of doctoral students and concluding agreements
3	Changing student needs and priorities	Increasing the level of material and technical equipment of the department and increasing the prestige of postgraduate education on the part of employers.
4	Low proportion of doctoral dissertations defended	Strengthen measures of scientific support for doctoral students

5. Action plan for the development of EP

No.	Criteria	Expected results	Unit change	2024-2025 academic year		2025-2026 academic year		2026-2027 academic year	
				plan	Actual Execution	plan	Actual Execution	plan	Actual Execution
Direction 1. Educational and methodological support									
1.1	Updating the educational program based on professional standards , taking into account the recommendations of employers	Conducting an examination of the Educational program 8D07101 - “Technological machines and equipment” in order to increase practice orientation and develop professional competencies of graduates	fact .	+		+		+	
1. 2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies and labor market demands	Improving the quality of the content of educational programs by including elective courses aimed at developing key and professional competencies of graduates in accordance with the demands of the labor market.	fact .	+		+		+	
1. 3	Introduction into the educational process of modern teaching technologies that contribute to the development of cognitive activity and communicative ability of students	Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity.	fact .	+		+		+	

1.3.1	Introduction of massive open online courses (MOOCs) into the educational process according to the educational program 8D07101 - "Technological machines and equipment"	Introduction of disciplines into the educational process Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity.	units _	**-**		**1**		**1**	
1.4 _	Involving social partners and employers in the development and examination of the implementation of educational programs	Improving the quality of implemented educational programs taking into account market demands and employer recommendations	units _	**1**		**1**		**1**	
1.5 _	Development and implementation of elective courses in English	Introduction of disciplines in English into the educational process	units _	**-**		**1**		**1**	
1.6 _	Conducting seminars and round tables on the use of innovative technologies in the educational process	Introduction of innovative technologies into the educational process	units _	**1**		**1**		**1**	
1.7 _	Publication of educational, educational , methodological and scientific literature on implemented educational programs	Improving educational and methodological support in the disciplines of implemented educational programs	units _	**1**		**1**		**1**	
1.8	Concluding agreements with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a base of foreign and domestic universities - partners for the development of academic exchange of students of all levels and teaching staff	units _	**-**		**1**		**1**	
1.9	Inviting students from partner universities to study for a semester, short-term internships, practice, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	people	**-**		**1**		**1**	

1.10	Participation of teaching staff and students in international academic exchange programs	Development of international cooperation with foreign universities implementing educational programs in the field of " Mechanics and metalworking "	people	**-**		**-**		**1**	
1.11	Development of outgoing academic mobility of teaching staff and students in the field of " Mechanics and Metalworking "	Improving the educational program based on the experience of implementing similar programs in leading universities of the Republic of Kazakhstan	people	**-**		**-**		**1**	
Direction 2. Faculty									
2.1	Increasing the professional level and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years	The share of teaching staff who have undergone advanced training at the republican level is at least 20%	people	**1**		**1**		**1**	
2.2	Completion of advanced training, retraining, internship of teaching staff at the international level	Walkthrough at least 2 teachers advanced training, retraining, internship programs for teaching staff at the international level	people	**2**		**2**		**2**	
2.3	Promotion of publications of teaching staff works in international publications indexed by the Web of Science and Scopus databases	Increasing the share of teaching staff who have published the results of scientific research in publications indexed by the Web of Science and Scopus databases - at least 30% of the total number of teaching staff	%	**35**		**40**		**45**	
2.4	Involving specialists from the practical field of activity in teaching and scientific activities	Participation in the implementation of educational programs of practitioners (at least 20% of specialists)	%	**20**		**20**		**20**	
Direction 3. Internationalization of educational programs									

3.1	Concluding agreements on international cooperation with foreign universities	Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships for students	units _	**1**		**1**		**1**	
3.2	Attracting foreign students to study under the educational program 8D07101 - “Technological machines and equipment”	Increase in the number of foreign students	people	**-**		**-**		**1**	
3.3	Organization of joint scientific and practical events with international partners	Increasing the efficiency of scientific and scientific-methodological activities of teaching staff, exchange of experience with foreign partners	units _	**1**		**1**		**1**	
3.4	Inviting foreign specialists to give lectures and provide consultations on master’s projects and dissertations	Improving the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs	units _	**-**		**1**		**1**	
3.5	Expanding cooperation with leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	people	**-**		**1**		**1**	
Direction 4. Logistics and digitalization									
4.1	Phased equipping of classrooms with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	Equipping classrooms assigned to the department with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen, etc.)	units _	**1**		**1**		**1**	
4.2	Carrying out automation of the educational process (testing, session management, student movement, dean's office, department, teaching load, schedule, library, syllabuses)	Information management based on automation of the educational process (testing, session management, student movement, dean's office, department, teaching load, schedule, library, syllabuses)	fact .	+		+		+	

4.3	Replenishment of the full-text database of scientific research results of teaching staff and students, teaching staff (articles, monographs, etc.)	Increasing the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs, etc.)	units –	**3**		**4**		**5**	
4.4	Expansion of the fund of scientific and educational literature, including on electronic media for ongoing educational programs	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	%	**10**		**10**		**10**	
4.5	Monitoring the content and improvement of the faculty website	Formation of the faculty website on various aspects of the implementation of educational programs.	%	**90**		**95**		**97**	

Head of the Department _____ Abdilova G.B.

REVIEWED
at the meeting of the Commission on Academic Quality
of the Research School of Food Engineering
Protocol of the meeting No. 1 dated 06.06.2024
Chairman _____ Toleubekova S.S

AGREED
Dean _____ Nurymkhan G.N.
06.06.2024