NJSC SHAKARIM UNIVERSITY OF SEMEY

# DEVELOPMENT PLAN
# EDUCATIONAL PROGRAM

## 8D07101 - Technological machinery and equipment

Semey

**NJSC "SHAKARIM UNIVERSITY OF SEMEY"**

**I APPROVED**

Member of the Board – Vice-Rector for Academic Affairs _____ I. Oralkanova

"25" 05 2023

# EDUCATIONAL PROGRAM DEVELOPMENT PLAN

8D07101 Technological machines and equipment

for 2023 -2026 years

Semey 2023

## Content

**1. Passport of the Development Plan for Doctoral Studies EP** 8D07101 Technological machines and equipment
(name of OP)

| | | |
|---|---|---|
| 1 | Basis for development | Shakarim University Strategic Plan for 202 3 -202 6 .<br>Faculty work plan |
| 2 | Implementation deadlines | 202 3 -202 6 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.

EP " 8D07101 Technological machines and equipment " was developed by the Academic Committee
code and name of OP
Considered at a meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology (Minutes No. 4/6 of 04/10/2023)
Approved at a meeting of the University Academic Council (Minutes No. 8 of 04/25/2023).

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 "Technological equipment and mechanical engineering" of the Faculty of Engineering and Technology (ITF) 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 | 202 3 -202 4 academic year | 202 4 -202 5 academic year | 202 5 -202 6 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 and Mechanical Engineering", 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 and Mechanical Engineering 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 and Mechanical Engineering 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. | 202 3 -202 4 academic year | 202 4 -202 5 academic year | 202 5 -202 6 academic year |
|---|---|---|---|---|---|
| 1 | Share of teaching staff with an academic degree in EP | % | 100 | 100 | 100 |

The teaching staff of the department "Technological Equipment and Mechanical Engineering", 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 10 0 %. 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 and Mechanical Engineering 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 8D0 71 01 – " 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 20 2 1 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 1 6 April 20 2 1).

**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 2025. 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 | 2023-2024 academic year | 2024-2025 academic year | 2025-2026 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 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.4 _** | 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** | |
| **1.6 _** | 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** | |
| **1.8** | 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** | |
| **1.9** | 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** | |
| **1.10** | 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 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.11** | 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 | | | | | | |
| **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** | |
| **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 | % | **thirty** | | **35** | | **40** | |
| **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** | |
| **3.2** | Attracting foreign students to study under the educational program 8D07101 - "Technological machines and equipment" | Increase in the number of foreign students | people | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **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** | |
| **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** | |
| **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 _ | **2** | | **3** | | **4** | |
| **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. | % | **85** | | **90** | | **95** | |

**Head of the department** _____ **Zhumadilova G**

**REVIEWED**
at a meeting of the Quality Assurance Commission
Faculty of Engineering and Technology
Protocol No.5 from "25" 05. 2023
Chairman of the QAC _____ Abdilova G.

**AGREED**

Dean of the Faculty _____ Nurymkhan G.
« 25 » 05 20 23 G.

**NJSC "SHAKARIM UNIVERSITY OF SEMEY"**

**I APPROVED**

Member of the Board – Vice-Rector for Academic Affairs _____ I. Oralkanova

"25" 05 2023

# EDUCATIONAL PROGRAM DEVELOPMENT PLAN

8D07101 Technological machines and equipment

for 2023 -2026 years

Semey 2023

## Content

**1. Passport of the Development Plan for Doctoral Studies EP** 8D07101 Technological machines and equipment
(name of OP)

| | | |
|---|---|---|
| 1 | Basis for development | Shakarim University Strategic Plan for 202 3 -202 6 .<br>Faculty work plan |
| 2 | Implementation deadlines | 202 3 -202 6 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.

EP " 8D07101 Technological machines and equipment " was developed by the Academic Committee
code and name of OP
Considered at a meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology (Minutes No. 4/6 of 04/10/2023)
Approved at a meeting of the University Academic Council (Minutes No. 8 of 04/25/2023).

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 "Technological equipment and mechanical engineering" of the Faculty of Engineering and Technology (ITF) 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 | 202 3 -202 4 academic year | 202 4 -202 5 academic year | 202 5 -202 6 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 and Mechanical Engineering", 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 and Mechanical Engineering 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 and Mechanical Engineering 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. | 202 3 -202 4 academic year | 202 4 -202 5 academic year | 202 5 -202 6 academic year |
|---|---|---|---|---|---|
| 1 | Share of teaching staff with an academic degree in EP | % | 100 | 100 | 100 |

The teaching staff of the department "Technological Equipment and Mechanical Engineering", 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 10 0 %. 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 and Mechanical Engineering 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 8D0 71 01 – " 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 20 2 1 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 1 6 April 20 2 1).

**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 2025. 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 | 2023-2024 academic year | 2024-2025 academic year | 2025-2026 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 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.4 _** | 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** | |
| **1.6 _** | 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** | |
| **1.8** | 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** | |
| **1.9** | 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** | |
| **1.10** | 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 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.11** | 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 | | | | | | |
| **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** | |
| **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 | % | **thirty** | | **35** | | **40** | |
| **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** | |
| **3.2** | Attracting foreign students to study under the educational program 8D07101 - "Technological machines and equipment" | Increase in the number of foreign students | people | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **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** | |
| **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** | |
| **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 _ | **2** | | **3** | | **4** | |
| **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. | % | **85** | | **90** | | **95** | |

**Head of the department** _____ **Zhumadilova G**

**REVIEWED**
at a meeting of the Quality Assurance Commission
Faculty of Engineering and Technology
Protocol No.5 from "25" 05. 2023
Chairman of the QAC _____ Abdilova G.

**AGREED**

Dean of the Faculty _____ Nurymkhan G.
« 25 » 05 20 23 G.