



NJSC SHAKARIM UNIVERSITY OF SEMEY

DEVELOPMENT PLAN EDUCATIONAL PROGRAM

6B06105 - Computer Engineering and Software/Smart Computing/

Semey

NJSC SHAKARIM UNIVERSITY OF SEMEY

APPROVED
Board member- Vice-Rector for academic Affairs

I. Oralkanova

« 25 » 05 2023



**DEVELOPMENT PLAN
EDUCATIONAL PROGRAM**

6B06105 “Computer technology and software / Smart Computing”

(code and name of educational program)

2023-2027

Semey, 2023

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1. Passport of the Development Plan for Bachelor's Degree Program 6B06105 Computer technology and software/Smart Computing

1	Basis for development	<p>In the modern world it is impossible to imagine life without information technology. Information technologies represent the entire accumulated experience of mankind in a formatted form suitable for applied use. New information technologies based on computer technology require radical changes in organizational management structures, its regulations, human resources, documentation systems, recording and transmission of information. More and more qualified specialists are required in the field of Information Technology.</p>
2	Developed by the Academic Committee of the OP	<p>Head of AK: Nurymkhan G.N. - Dean of the Faculty of Engineering and Technology, PhD. OP Manager: Kurushbaeva D.T. – St. Lecturer at the Department of Automation, Information Technologies and Urban Planning, Master's Degree. AK members: Kozhakhmetova D.O. – Head of the Department of Automation, Information Technologies and Urban Planning, PhD Bekbaeva R.S. – St. Lecturer at the Department of Automation, Information Technologies and Urban Planning, Candidate of Technical Sciences, Employers: 1 Daurembekova U.E. - Head of the Department of Information Technology, Communications and Information Security of Semey Engineering JSC, 2 Kdirbaev A.N. - Director of Kigros LLP Students: 1 Akshabaeva M.K. – student of group BSC-201 2 Dzhumenov A.A. - student of group BSC-201 (in accordance with order No. 99 of March 29, 2023)</p>
3	Implementation deadlines	2023-2027 y
4	Expected results of	Training of bachelors with general cultural and professional competencies in the IT

	implementation	industry, cybersecurity and big data, etc., which constitute the area of training that meets the requirements of employers.
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2. Analytical justification for the EP

2.1 Information about the educational program

Educational program 6B06105 “Computer technology and software / Smart Computing”, implemented by the Faculty of Engineering and Technology of NJSC Shakarim University of Semey at the undergraduate level, was developed taking into account the needs of the regional and national labor market, the requirements of regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan is a system of documents for organizing the educational process.

OP 6B06105 “Computer technology and software / Smart Computing”
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 the meeting of the Academic Council of the University (Protocol No. 8 dated 04/25/2023).

The main criterion for the completion of the educational process is the development of at least 240 credits, with the award of a Bachelor of Engineering and Technology degree in OP 6B06105 "Computer Engineering and Software/ Smart Computing".

The educational program 6B06105 "Computer engineering and software/ Smart Computing" in the field of training "6B057 Information Technology", implemented by the **NJSC** "Shakarim Semey University", was developed taking into account the needs of the regional labor market.

The content of the educational program is implemented through a curriculum developed in a modular format, which provides two cycles of disciplines: a cycle of basic disciplines and a cycle of core disciplines, as well as additional types of training.

2.2 Information about students

Academic year Form of training	2023-2024 academic year	2024-2025 academic year	2025-2026 academic year	2026-2027 academic year
Grant	5	8	10	12
Contract	10	15	20	25
Total	15	23	30	37

2.3 Internal and external conditions for the development of EP

To implement the educational program 6B06105 "Computer technology and software/ Smart Computing", the department has the appropriate material and technical equipment. The department has the software and hardware necessary for mastering the disciplines of the educational program.

To date, the classroom fund of the department is sufficient for the successful implementation of the EP plan. The department is equipped with 4 computer classes with a LAN connection and unlimited Internet, 4 specialized laboratories, 14 classrooms. Information resources are provided by the library (including electronic publications), access to the Internet for all students and teaching staff, access to the local network of the university. There are open WI-FI zones on the territory of the university.

According to the educational program 6B06105 "Computer engineering and software/ Smart Computing", work is being successfully carried out on the program of internal and external academic mobility. The students of this educational program of the first 2 courses (1st and 2nd year) study at the NJSC "Shakarim University", and the 3rd and 4th year study at Kyung Dong University, South Korea.

During the development of the OP, employers took part in its discussion: Daurembekova U.E. - Head of the Department of Information Technology, Communications and Information Security of Semey Engineering JSC, Kdirbaev A.N. - Director of Kigros LLP, who represented the interests of production specialists.

2.4 Information about teaching staff implementing the educational program

The total number of the teaching staff of the department as of September 1, 2023 was 23 people, including 5 people with academic degrees and titles. All teachers have extensive teaching experience, academic titles and degrees, as well as work experience in production.

The teaching staff of the department is constantly improving their knowledge in this field and are undergoing advanced training, including short-term refresher courses, attending various seminars, internships at leading universities in Kazakhstan, far and near abroad, as well as in relevant organizations of the industry.

2.5 Characteristics of the achievements of the OP

The main indicator of the effectiveness of the educational program is the proportion of employed graduates. The dynamics of the share of employed in recent years has been, respectively, by year: 2018 – 90%, 2019 – 100%, 2020 -82%, 2021-100%, 2022-92%.

An important indicator of the relevance and relevance of educational programs, their compliance with modern trends in education is the academic mobility of students and teaching staff.

Involvement of professors of leading foreign universities in teaching and research activities. To improve the level of education, it is planned to invite foreign scientists to give lectures to students of this OP in 2023-2027.

3. The main objectives of the OP development plan

The purpose of the OP and its development is to improve it in accordance with the mission and strategy of the university, aimed at training highly qualified, competitive personnel, improving the quality of knowledge, forming a multi-level system of research activities in accordance with the current needs of modern education and science, transformation into an innovative world-class university.

The main purpose of OP 6B06105 "Computing and Software/ Smart Computing" is to train professionals in the field of information technology, providing students with knowledge in the field of information technology in order to prepare them to start their careers in the IT industry as software developers, IT infrastructure specialist, database administrator, experts in cybersecurity, big data analytics, web designers, etc. A graduate, having mastered such qualities, has the opportunity to create new and innovative ideas in the field of IT at enterprises of the Republic of Kazakhstan and abroad.

To implement the educational program 6B06105 "Computer technology and software/ Smart Computing", the following tasks are defined:

- to ensure the level of education of students that meets the modern requirements of the specifics of the OP
- develop independent thinking, the ability to self-development and self-education among students and teaching staff;
- provide conditions that take into account the individual and personal characteristics of the student;

- • to create a positive environment among students for fruitful learning activities.
- • to organize the study, implementation and improvement of technologies and methods for diagnosing the quality of education;
- • integrate new information technologies into the educational process.
- • to improve the organization of the educational process:
- • to improve the interaction of academic disciplines;
- • introduce technologies that form key competencies into the educational process.

4. EP risk analysis

№	Name of risks	Measures to eliminate
1	Reduction of the contingent of students in the EP	Formation of a contingent of students through career guidance and information and advertising works (improving the effectiveness of speaking in the media), the formation of a positive image of the EP
2	Insufficient level of knowledge of the language for the introduction of multilingualism	Taking language courses, obtaining IELTS and TOEFL certificates
3	Decrease in the level of employment	Work on dual training
4	Insufficient development of external and internal academic mobility of students and teaching staff	Conclusion of contracts with universities
5	The risk of reducing the settlement of the all staff by EP	Financial support of initiative teachers; motivation and stimulation to scientific and pedagogical activity (material encouragement for the manifestation of creative qualities); professional development of the staff of teaching staff through doctoral studies
6	Insufficient provision of educational and methodological literature on professional disciplines in the state language	Plan the annual release of scientific and educational literature in the state language by scientists and teaching staff
7	Material and technical base	Implementation of annual purchases of modern equipment and verification of equipment; timely repair of educational laboratories
8	Weak involvement of teaching staff and students in research activities	Work in scientific circles, participation in international and national scientific conferences and competitions, in competitions for grant funding

5. Action plan for the development of the EP

№	Criteria	Expected results	unit of measurement	2023-2024	2024-2025	2025-2026	2026-2027
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 6B06105 "Computer technology and software/ Smart Computing" in order to increase the practice orientation and development of professional competencies of graduates	fact	+	+	+	+
1.2	Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies, the demands of the labor market.	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 of modern learning technologies into the educational process, contributing to the development of cognitive activity, communicative ability of students	Совершенствование качества преподавания учебных дисциплин, с учетом новизны и разнообразия форм работ, способствующих развитию познавательной активности.	Fact	+	+	+	+

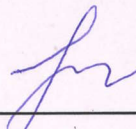
1.3.1	Introduction of mass open online courses (MOOCs) in the educational process according to the educational program 6B06105	Introduction of disciplines into the educational process, improvement of the quality of teaching academic disciplines, taking into account the novelty and diversity of forms of work that contribute to the development of cognitive activity.	Unit of m.	-	1	1	1
1.4	Involvement of social partners and employers in the development, examination of the implementation of educational programs	Improving the quality of educational programs implemented taking into account market demands and recommendations of employers	Unit of m.	1	1	1	1
1.5	Development and implementation of elective courses in English	Conducting classes in English	Unit of m.	5	5	4	4
1.6	Conducting seminars and round tables on the application of innovative technologies in the educational process	Introduction of innovative technologies in the educational process	Unit of m.	1	1	1	1
1.7	Publication of educational, methodical and scientific literature on the implemented EP	Improvement of educational and methodological support in the disciplines of the implemented educational programs	Unit of m.	2	2	2	2
1.8	Conclusion of contracts with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff	Creation of a database of foreign and domestic partner universities for the development of academic exchange of students of all levels and teaching staff	Unit of m.	1	1	1	1

1.9	Inviting students from partner universities to study for a semester, short-term internships, internships, etc.	Development of international recognition of educational programs, implementation of academic mobility programs for students	human	-	-	-	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 direction 6B06105 "Computer engineering and software/ Smart Computing"	human	1	1	1	1
1.11	Development of outgoing academic mobility of teaching staff and students in the direction 6B06105 "Computer engineering and software/ Smart Computing"	Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities	human	-	1	1	1
Direction 2. Teaching staff							
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 and international level is at least 25%	human	-	25		25
2.2	Completion of advanced training, retraining, internship of teaching staff at the international level	Completion of at least 1 teacher in a professional development program, retraining, or internship program for teaching staff at the international level	human	-	-	-	1

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	%	-	30	-	30
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 15% of specialists)	%	15	15	15	15
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	U of m	-	-	-	1
3.2	Attracting foreign students to study under the educational program 6B06105 “Computer technology and software / Smart Computing”	Increase in the number of foreign students	human	-	-	-	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	U of m	-	-	-	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	U of m	1	1	1	1

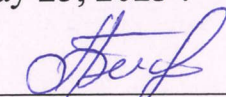
3.5	Expanding cooperation with leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs	Formation of key and professional competencies in accordance with the practice of leading universities	human	-	-	-	-
Direction 4. Logistics support and digitalization							
4.1	Stage-by-stage equipment of classrooms with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen)	Equipping classrooms assigned to the department with technical teaching aids (projectors, panels, interactive and multimedia boards, multifunctional devices, webcam, projector screen)	U of m	2	2	2	2
4.2	Carrying out automation of the educational process (testing, session management, student movement, dean's office, department, teaching staff 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.)	U of m	1	1	1	1

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	10
4.5	Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media	Formation of the faculty website on various aspects of the implementation of educational programs	%	100	100	100	100

Head of department  Kozhakhmetova D.O.

REVIEWED

At the meeting of Quality Assurance Commission of the faculty of Engineering and Technology
Protocol 5, May 25, 2023 .

Chairman  Abdilova G.B.

APPROVED

Dean of the Faculty  Nurymhan G.N.

May 26, 2023

