«T¥PAH» УНИВЕРСИТЕТІ» МЕКЕМЕСІ



### УЧРЕЖДЕНИЕ «УНИВЕРСИТЕТ «ТУРАН»

|                           | APPROVED                            |
|---------------------------|-------------------------------------|
| Discussed at the chair of | Vice-Rector for Academic Affairs of |
| «CSS»                     | the Turan University                |
| Protocol No dated «» 2023 | Tusupova L. A                       |
| Head of the chair         | «»2023                              |
| Kisseleva O V             |                                     |

Development plan of the modular educational program

**«6B06104 –Software engineering»** 

#### 2023 y. Content

| 1. Passport                               |   | 2 |
|---|---|---|
| 2. Analysis of the external environment   |   | 3 |
| 3. Analysis of the internal environment.  |   | 4 |
| 4. Action plan for the development of MEP | • | 7 |

# Passport of the plan for the development of modular educational programs (MEP) EP

**«6B06104 – Software engineering»** 

| 1   | «оботоч –Software engineering»  |
|---|---|
| The purpose of the EP                         | technologies, possessing theoretical, practical and scientific knowledge, skills and abilities that meet the needs of domestic and global intellectual and engineering labor markets, able to quickly adapt to constantly changing socio-economic conditions in the light of the prospects for the development of the information and communication sphere.   |
| Grounds for developing a development plan MEP | The educational program has been developed in full compliance with the regulatory legal acts defining the national priorities in the field of education of the Republic of Kazakhstan, as well as the mission of the University "Turan" "Culture, education and science for the benefit of society" and the quality goals for the 2023-2024 academic years of the University "Turan".   |
| The main<br>developers of<br>the Plan         | <ol> <li>Head of the department: Kiseleva O.V.;</li> <li>Teaching staff: 1) Kubekov B.S., Candidate of Technical Sciences, Professor;</li> <li>Akhmetov B.S., Doctor of Technical Sciences, Professor</li> <li>Alyonova R.A., master, senior lecturer</li> <li>Employers:</li> <li>Konysbaev A.T., Director of the "Park of innovative Technologies "Alatau".</li> <li>Naumenko V.V., Director of IP "Classer Web"</li> </ol>   |
| Purpose of the<br>Plan                        | To ensure effective management of the OP «6B06104 –Software engineering» The strategic goal of the educational program development plan is to improve and supplement the content of educational programs, taking into account the employment of graduates, the results of monitoring the demand for the profession, the formation of professional competencies.  The operational objective of the plan is to ensure effective management and implementation of the MEP for the approved period. |
| The mechanism of plan formation <sup>1</sup>  | The MEP and the Development Plan were drawn up with the involvement of developers and employers (Kalimoldaev Maksat Nuradilovich, Ph.D., Professor, corresponding member, Director of the Institute of Information and Computing Technologies of the Ministry of Education and Science of the Republic of Kazakhstan, Yezhkov Sergey Yurievich - Chairman of the Management Board of JSC NAT "Kazakhstan") taking into account the results of a survey of students of                           |

|                   | the specialty " Computer hardware and software engineering " (analysis of the external and internal environment, analysis of student satisfaction |
|-------------------|---|
|                   | and teaching staff, analysis of the resources available and necessary for   |
|                   | the program, including the material and technical base, etc.).  |
| Mechanisms for    | All information about the educational program, including information  |
| the dissemination | about teaching staff, students, university resources, partners, admission   |
| of information    | rules, library, etc., is available on the Internet portal of the University   |
| about             | "Turan" www.turan-edu.kz . The official website of the university   |
| The plan and      | provides access to educational and methodological and educational and   |
| objectives of the | administrative information necessary for students through links to  |
| MEP <sup>2</sup>  | automated information systems   |
|                   | "Canvas" designed to manage the learning process.   |
|                   | Consideration of the educational program at an expanded meeting of the  |
|                   | department's UMC with the participation of employers.   |
|                   | Review and approval of the educational program at the faculty's UMS.  |
|                   | Placement of the MEP on the university's website.   |
| Terms of          | From 1.09.2023 to 1.09.2027   |
| implementa        |   |
| tion of the       |   |
| Plan              |   |

#### Analysis of the external environment<sup>3</sup>

The market of higher and postgraduate education is dynamically developing in Kazakhstan. The largest number of universities is located in the city of Almaty.

Turan University is one of the first private universities in the Republic of Kazakhstan. The University is a leader in its segment and occupies a leading place among universities in the general ranking of the Republic of Kazakhstan.

Consumers of educational services of Turan University are individuals and the state. The state consumes services based on the distribution of educational grants. The largest share falls on consumers by individuals, among whom are graduates of educational institutions. The target segment of consumers of educational services at Turan University are students whose ages range from 18 to 35 years old. Whose ages range from 18 to 35 years old. There are 20% more female students than male students.

An affordable tuition fee, a large number of grants, both state and university, and a flexible discount system allow consumers to use the university's general education services. In addition to state educational grants, it is possible to study at Turan University under the "Rector's grant", which is awarded on a competitive basis.

Over the entire period of its stay in the education market, the university has developed programs that combine the best traditions of academic education and advanced technologies of modern business education.

# SWOT analysis of the external environment during the implementation of the educational program plan

| Strengths  | Weaknesses                                      |
|--|---|
| -funding from the state, which allows to fully       | -Rapid obsolescence of training programs due to |
| develop and stabilize the training of specialists in | dynamically developing IT-industry.             |
| the field of information technologies;               | -Insufficient funding for updating software and |
| -to organize highly qualified teaching staff and     | hardware.                                       |
| gradually raise the level of education;              | -Limited access to exchange programs.           |

-availability of workplaces in employers' organizations.

- High demand for IT and programming specialists on the labor market.
- -Cooperation with IT
- -companies for internships and practicums.
- -Teaching staff with real experience in the IT sphere.
- -Possibility to use modern educational technologies and equipment.

-Lack of sufficient focus on the development of "soft" skills such as teamwork, project management, communication skills, which are extremely important in today's work environment.

#### **Threats**

- -availability of a large number of universities
- -competitors in the field of specialty training;
- -stricter requirements of the Ministry of Education and Science of the Republic of Kazakhstan for
- -entering universities and graduates of universities.
- -Intensive competition from other educational institutions, including foreign online courses and educational platforms.
- -Rapid changes in skill requirements in the IT sphere, which requires constant updating of training programs.
- -Possible changes in government policy and education funding.

#### **Opportunities**

- -need for specialists;
- -broad discussion of the OP by stakeholders allows to strengthen the quality component of the program.
- -Development of new technologies, such as artificial intelligence, big data, cloud technologies, opens new directions for training.
- Possibility to introduce distance and hybrid forms of learning.
- -Participation in national and international scientific projects.

#### Analysis of the internal environment<sup>4</sup>

The educational program is updated and supplemented annually, taking into account the interests of the labor market. The change in compulsory disciplines occurs due to the introduction of the State Mandatory Standard of Higher and Postgraduate Education, approved by Order of the Minister of Science and Education of the Republic of Kazakhstan dated July 20, 2022 No. 2, working curricula and work programs and other regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan.

The structure of educational programs OP 6B06104 – "Software Engineering" of Turan University is developed in accordance with scientific, theoretical and practice-oriented requirements for professional and social competencies.

When forming the goals of educational programs, the changing conditions of the external and internal socio-political environment, legal reforms and changes in the regulatory framework of Kazakhstan in the field of education are taken into account. In this regard, it is necessary to train highly qualified personnel in the field of information technology.

The amount of study load and time required to master an academic discipline, module, or educational program as a whole is taken into account on the basis of a credit learning system.

Credits reflect the complexity of the student's academic load, which includes all types of his educational activities provided for in the curriculum, including classroom and independent work, practice, etc.

The content-based educational program consists of general compulsory modules, specialty modules and elective modules covering the entire course of study for students of OP 6B06104 - "Software Engineering" with a total volume of 240 ESTC credits.

Within the framework of the characteristics of professional activity, the general and professional competencies of the graduate are defined, as well as the role of each module in obtaining appropriate professional competencies, which is reflected in the competence matrix.

In general, the structure and design of educational programs comply with current legislation and regulations in the field of vocational education of the Republic of Kazakhstan, ensures the mobility of students, improving the quality of education and continuity of all levels of education.

The teaching staff meets all the qualification requirements. The composition and share of teaching staff with academic degrees in the context of EP is presented in Table 1.

Table 1. Qualitative composition of teaching staff in the context of OP in 2023-2024 academic

year.

| ) <del></del>                |                   |                                       |                                      |                                       |
|------------------------------|-------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| EP                           | PPS total         |                                       | Teaching staff with academic degrees |                                       |
|                              | number,<br>person | Of these, the regular Number /share,% | number,<br>person                    | Of these, the regular Number/share, % |
| 6B06104–Software engineering | 24                | 17/ 71%                               | 13                                   | 11/ 85%                               |

Of the 24 members of the department with an academic degree, job responsibilities are distributed within the framework of the program: the number of teaching staff conducting training sessions in this specialty is 24 people, 17 full–time, including 11 with academic degrees and titles.

Doctor of Sciences, Professor - 2 full-time units (Nusupbekova G.S., Akhmetov B.S.); PhD - 6 (Kiseleva O.V., Kurmanbaeva A., Zhetpisbayev K.U., Kulambayev B.O., Ainakul N., Kashaganova G.B.);

Candidate of Sciences, Associate Professor – 4 full-time units;

Over the past 3 years, teachers of the specialty have completed various advanced training courses.

Research work in the specialty is carried out annually through the participation of teaching staff in international and republican scientific and practical conferences, interuniversity methodological conferences, etc.

Scientific projects carried out at the Faculty of "CTI":

1. Project manager Kubekov B.S., topic of the scientific project "Concepts and mechanisms of digital transformation of education, based on the cognitive-frame approach and ontological engineering" (No. AP05134973, 01.01.2018-12/31/2020).

Scientific projects of grant financing of the Ministry of Education and Science of the Republic of Kazakhstan:

- 1. Project manager G.B. Kashaganova, topic of the scientific project "Research and development of a fiber sensor for monitoring the condition of road surfaces" (no. IRN AR 14972921, 01.01.2022- 31.12.2024)
- 2. Project executors Alyonova R.A., Naumenko V.V., topic of the scientific project "Building a system of intelligent management of the development and harmonization of standards within the framework of interstate and national standardization based on ontological engineering" (1.01.2021-12/31/2023, Int-Sat Alatau LLP "Int-Sat Alatau")

Students undergo practical training at enterprises and organizations that correspond to the profile of the specialty. Internship places can be offered by the department, by the students themselves, at the request of enterprises (organizations), as well as district, city and regional administrations.

#### The bases of practices are:

- 1. AliSan Tumar LLP
- 2. "SimbiosKZ" LLP
- 3. MyCarRaiymbek LLP
- 4. JSC "AUES"
- 5. JSC "Kaspi"

- 6. JSC "Technodom"
- 7. JSC "Bank Center Credit"
- 8. IP "NEKO"
- 9. LLP "Nemo.kz"
- 10. LLP "stop shop"
- 11. IP "Web-art.kz"
- 12. Dastarkhan Toy LLP
- 13. LLP "MSTRATEGY"
- 14. IP "Cluster WEB"
- 15. LLP "informConsulting"
- 16. LLP "Optimum Market"
- 17. JSC "Halyk Kazteleport"
- 18. IP "Warehouse"
- 19. JSC "Alfa-Bank"
- 20. JSC "Eurasia"
- 21. GOS "PSC"
- 22. LLP "Accounting Accounting 1C"
- 23. TOO "White wind KZ"
- 24. Ilgeri Adi-Mer LLP
- 25. CyberTech LLP
- 26. Magnum LLP
- 27. RURG LLP
- 28. Bereke Bank JSC
- 29. ONE TECHNOLOGIES LLP
- 30. Kazstroy Engineering GroupLLP
- 31. Kontur LLP
- 32. Progress Electronic LLP
- 33. Turing LLP 34.
- 34. Aquameter LLP, etc.

SWOT analysis of the internal environment in the implementation of the educational

| progra  | ım plan   |
|---|---|
| Strengths   | Weaknesses  |
| <ul> <li>high rate of settling down of the personnel of the department;</li> <li>wide involvement of practitioners for the educational process;</li> </ul>  | <ul> <li>increase in the average age of the teaching staff;</li> <li>insufficient number of teaching staff teaching classes in English;</li> <li>insufficient level of potential realization in research work (participation in competitions, tenders, funded projects).</li> </ul> |
| Threats   | Opportunities   |
| <ul> <li>increase in state funding of scientific research;</li> <li>the possibility of professional development through the university's continuing education system;</li> <li>the opportunity to participate in the competition for Master's and PhD degree educational grants.</li> </ul> | - low socio-economic status of a pedagogical employee of a university in the Republic of  |

# Action plan for the development of the ${\rm EP}^5$

| №    | Events  | The level of education | Responsible     | Deadlines   | Type of reporting   |
|------|---|------------------------|-----------------|---|---|
| I. I | mproving the content of the   | MEP <sup>7</sup>       |                 |   |   |
| 1    | Formation and optimization of<br>the educational program<br>(annually updated by 30%,<br>taking into account the<br>achievements of science, the<br>requirements of the labor<br>market and the analysis of the<br>satisfaction of students and<br>their needs) |                        | Kisseleva O. V. | Annually<br>May-June  | UMKD  |
| 2    | Work on anticipating the formation of employers' requests (meetings, round tables, presentation events, visits of teaching staff to enterprises and organizations)  | Bachelor               | Kisseleva O. V. | Annually According to the plan of the department  | Minutes of<br>meetings with<br>representatives<br>of the practice<br>bases, potential<br>employers,<br>copies of<br>contracts                       |
| 3    | Adjustment of the MOS taking into account new regulatory documents in the field of higher education   | Bachelor               |                 | If necessary, as soon as the NPA is published within the time limits set by the NPA. April-May before the start of the year | Updated MOP   |
| 4    | Attracting employers to participate in the work of the educational and methodological section of the department   | Bachelor               |                 |   | Minutes of meetings of the educational and methodological section of the Department and the Educational and Methodological Bureau of the Faculty of |

|       |                                |              |                   |                 | Economics           |
|-------|--------------------------------|--------------|-------------------|-----------------|---------------------|
| 5     | Adjustment of work curricula   | Bachelor     | Kisseleva O. V.   | If necessary    | Updated MOP         |
|       | taking into account the        |              |                   |                 | •                   |
|       | requirements of the market,    |              |                   | March-April     |                     |
|       | the wishes of employers and    |              |                   | (RUP for the    |                     |
|       | the recommendations of the     |              |                   | next year of    |                     |
|       | Ministry of Education and      |              |                   | study)          |                     |
|       | Science of the Republic of     |              |                   |                 |                     |
|       | Kazakhstan (elective           |              |                   |                 |                     |
|       | modules and elective           |              |                   |                 |                     |
|       | disciplines) in order to       |              |                   |                 |                     |
|       | increase the competitiveness   |              |                   |                 |                     |
|       | of the educational institution |              |                   |                 |                     |
| 6     | Annual updating of the         | Bachelor     | Kisseleva O. V.   | For the entire  | OP development      |
|       | content of the OP, based on    |              |                   | period          | plan, corrective    |
|       | the principles of              |              |                   |                 | action plan,        |
|       | practice-oriented training,    |              |                   |                 | updated RUP         |
|       | including the content of       |              |                   |                 |                     |
|       | disciplines that define        |              |                   |                 |                     |
|       | modern professional            |              |                   |                 |                     |
|       | competencies of a specialist   |              |                   |                 |                     |
| 7     | Constant monitoring of         | Bachelor     | Kisseleva O. V.   | For the entire  | Updated MOP         |
|       | specialist competencies and    |              |                   | period          |                     |
|       | disciplines of the OP          |              |                   |                 |                     |
|       | specialty                      |              |                   |                 |                     |
| 8     | Involving students in          | Bachelor     | Kubekov B.S.      | For the entire  | Theses, articles    |
|       | research work on the topic of  |              |                   | period          |                     |
|       | the department                 |              |                   |                 |                     |
| II. I | Educational and methodolog     | ical support | 8                 |                 |                     |
| 1     | Introduction of innovative     | Bachelor     | Teaching staff of | For the entire  | Training manuals    |
|       | methods of technology          |              | the department    | period          |                     |
|       | (preparation of a lecture      |              |                   |                 |                     |
|       | course using presentation      |              |                   |                 |                     |
|       | material, videos, handouts)    |              |                   |                 |                     |
| 2     | 1 &                            | Bachelor     | Teaching staff of | For the entire  | Methodological      |
|       | conducting practices in order  |              | the department    | period          | developments:       |
|       | to prepare students for        |              |                   |                 | guidelines for      |
|       | independent performance of     |              |                   |                 | the passage of      |
|       | professional tasks             |              |                   |                 | all types of        |
|       |                                |              |                   |                 | practice            |
| 3     | Optimization of teaching       | Bachelor     | Teaching staff of | Annually        | Methodological      |
| 1     | methods, the introduction of   |              | the department    | According to    | developments:       |
|       | new learning technologies into |              |                   | the plan, the   | methodological      |
|       | the educational process that   |              |                   | department will | guidelines for the  |
| 1     | increase the efficiency of     |              |                   | die             | implementation      |
|       | teachers, the active use of    |              |                   |                 | of practical tasks, |
|       | information technologies that  |              |                   |                 | SRSP, SRO           |
|       | allow students to master       |              |                   |                 | within the          |
| 1     | educational material at a      |              |                   |                 | framework of the    |
|       | convenient time for them       |              |                   |                 | studied             |
| Щ     | L                              |              |                   |                 | disciplines         |

|        | Development and testing of author's innovative teaching methods  | Bachelor | Teaching staff of the department         | 2024-2025<br>2025-2026   | Patents for author's developments   |
|--------|--|----------|--|--|---|
| III. I | Personnel support <sup>9</sup>   |          |  |  |   |
| 1      | Analysis of statistics on the contingent of students and personnel in the management of the EP   | Bachelor | Kisseleva O. V.                          | For the entire period  | Report  |
| 2      | Conclusion of a cooperation agreement on academic mobility and double-degree education   | Bachelor | Kiseleva O. V.                           | Annually<br>during the<br>academic year  | The contract, the schedule of classes   |
| 3      | Advanced training of teaching staff (internships, School of Pedagogical Skills, trainings, training seminars, round tables, etc.) in order to effectively implement modular, variable, individually oriented education | Bachelor | Teaching staff of<br>the department      | Annually<br>according to the<br>PC plan of the<br>department, the<br>SHPM plan           | Certificates of participation, diplomas   |
| 4      | Improvement of the PPP rating system   | Bachelor | Advisors-<br>curators of study<br>groups | Annually<br>May-June   | Annual reports of the department, the rating of the department, the qualitative composition   |
| 5      | Assessment of teaching quality   | Bachelor | Kisseleva O.V.                           | Annually according to the plan of mutual visits of the department, work plans of the COC | Analysis of<br>teaching staff<br>attendance,<br>panoramic<br>lectures,<br>competition for<br>vacant positions<br>2 times a year<br>(January,<br>August) |
| 6      | An increase in the number of teachers who have taught as part of academic mobility abroad  | Bachelor | Teaching staff of the department         | For the entire period  | Training and internships at a foreign university, certificates  |
| IV. N  | <b>Materialand technical support</b> 10  |          |  |  |   |
| 1      | Purchase of educational equipment in full compliance with modern requirements for a specialist in the field of infocommunications in the labor market.   |          | Kisseleva O.V.                           | For the entire period  | Applications.<br>Reports of the<br>department   |
| V. In  | V. Informationand library resources 11   |          |  |  |   |

| 1     | Monitoring the availability of scientific databases, electronic scientific journals  | Bachelor                | Kisseleva O.V.                      | For the entire period  | Applications. Reports of the department  |
|-------|--|-------------------------|-------------------------------------|--|--|
| 2     | Updating the library fund with professional literature   | Bachelor                | Kisseleva O.V.                      | For the entire period  | Applications.<br>Reports of the<br>department  |
| VI. I | <b>Development of the research co</b>  | mponent of t            | he MEP <sup>12</sup>                |  |  |
| 1     | An increase in the proportion of teaching staff and students who have publications in scientific journals with a non-zero impact factor                    | Bachelor                | Teaching staff of the department    | Annually according to the plan of the Research Institute of the Department | Articles   |
| 2     | Participation of students with<br>reports and articles in<br>international and<br>interuniversity scientific and<br>practical conferences                  | Bachelor                | Teaching staff of the department    | Annually according to the plan of the Research Institute of the Department | Reports,<br>certificates of<br>participation,<br>collections of<br>conference<br>materials.                    |
| 3     | Involvement of students in the collection of materials on the cathedral research topics registered in the NCGNTE.  | Bachelor                | Teaching staff of the department    | Annually in accordance with the thematic research plans                    | Annual reports<br>on the research<br>of the<br>department,<br>interim reports,<br>final report to the<br>NCNTI |
| 4     | Organization of interdisciplinary applied research in order to carry out a diploma and master's project  | Bachelor                | Kisseleva O. V.                     | For the entire period  | Graduation projects  |
| 5     | Activation of relations with foreign partners in order to implement joint scientific research and publication of educational and methodological literature | Bachelor                | Teaching staff of<br>the department | Ежегодно   | Implementation of joint scientific research and publication of educational and methodological literature       |
| VII.  | Monitoring the effectiveness of  | f the MEP <sup>13</sup> |                                     |  |  |
| 1     | Improving the evaluation of learning outcomes.   | Bachelor                | Kisseleva O. V.<br>Kubekov B. S.    | Annually   | UMKD, WK<br>protocols  |
| 2     | Development/ use of methods for determining the level of formed competencies of students.  | Bachelor                | Kisseleva O. V.<br>Kubekov B. S.    | For the entire period  | Faculty reports,<br>annual report of<br>the Department   |
| 3     | Survey of employers, survey of teaching staff satisfaction with the educational program, etc.  | Bachelor                | Kisseleva O. V.<br>Kubekov B. S.    | Annually<br>April -May   | Annual report of<br>the Department,<br>SCUMS<br>protocols  |

## **Developers:**

| Head of EP                      | Kisseleva U.V.      |
|---------------------------------|---------------------|
|                                 |                     |
|                                 |                     |
|                                 |                     |
| AGREED:                         |                     |
| Chairman of the Faculty Council |                     |
| Dean of Faculty                 | Kuandykova D.R.     |
| Dean of Lucuny                  | Kuandykova D.K.     |
| Annroved Online Learning Center | Rekmagamhetova Zh N |