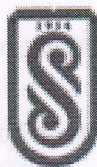


MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
Kazntu named after K.I.Satpayev



Institute of Automation and Information Technology
Department of "Cybersecurity, Information Processing and Storage"

Graduate model
for Master's and Doctoral degree programs
7M06103, 8D06103 «Management of information systems»

Almaty 2022

The graduate model of Master's and doctoral studies defines the main components that determine the training of specialists in master's and doctoral programs 7M06103, 8D06103 "Management of information systems".

1. Goals and purpose of the Programs.

Continuous improvement of programs implementing training of specialists in the specialties 7M06103, 8D06103 "Management of information systems", compliance with global trends in training specialists in information systems as an independent cluster of IT technologies determine the main goals of the development of programs.

1. Objectives of the educational program.
2. Increasing the prestige of Kazntu named after K.I.Satpayev as the main training base for engineering and scientific personnel of the country.
3. Expansion and development of effective tools for attracting applicants, the base of professional practices, the development of academic mobility, as well as the graduate employment market.
4. Comprehensive modernization of the educational program taking into account the needs of the modern labor market, maximum satisfaction of professional requirements of employers, orientation to the consumer of educational services.
5. Expansion of academic mobility of teaching staff. The introduction of "guest lectures" with the involvement of representatives of production and foreign scientists.
6. Development of academic mobility of PhD doctoral students, exchange of PhD doctoral students;
7. Constant and active participation of students, undergraduates, doctoral students and teaching staff in professional competitions and Olympiads.
8. Improving the quality of final qualifying works and educational services. Introduction of new educational technologies that increase the intensity and quality of training.

Adaptation of the educational process to the needs of employers, an increase in the curriculum of disciplines that instill research skills.

The emphasis of the programs is on natural science, mathematical and research training aimed at the formation of general cultural universal, professional and research competencies of graduates. The uniqueness of the program lies in the active participation of students in search, research and experimental research work in the implementation of innovative projects in the cluster of IT information systems.

Educational programs 7M06103, 8D06103 "Management of information systems" have the following features:

- orientation of the development, implementation and evaluation of the educational program on the competence of graduates as learning outcomes and compliance with global trends in the development of the specialty;

- orientation of the development, implementation and evaluation of the educational program on the competence of graduates with the skills of a systematic understanding of the subject area, capable of conducting research in the field of information systems;

- the effectiveness of the implemented credit-modular system of organization of the educational process based on the modular principle of presentation of the content of the educational program and the construction of curricula;

- using the credit system of credit units for the assessment of competencies, as well as didactic units of the program that ensure their achievement;

- Implementation of ISO 9001 international standards, European standards and guidelines for quality assurance of higher education within the framework of the Bologna Process, as well as national and international criteria for the quality of educational programs;

- ensuring the continuity of the results of training in master's and doctoral programs, by ensuring the prerequisites of the studied disciplines;

- taking into account the unified specialization "Management of information systems", the use of goals, skills, competencies and learning outcomes of the master's program in the formation of requirements for applicants to doctoral studies.

The peculiarities of training specialists in the specialties 7M06103, 8D06103 "Management of information systems" is an in-depth study of economic, mathematical and system engineering disciplines, which ensures a high level of general cultural, professional and research competencies of graduates and their competitiveness in the labor market, as well as the involvement of undergraduates and doctoral students in research work.

The programs are focused on training specialists who ensure the innovative development and modernization of promising clusters of IT technologies.

The material, technical and personnel potential of the educational program allows using the laboratory bases of both the NAO KazNITU named after K.I.Satpayev, and IT companies, research institutes of Almaty and other cities of the Republic of Kazakhstan for conducting educational and research works and practices of undergraduates and doctoral students.

The main consumers of the program and stakeholders are:

applicants for a master's degree and a PhD in the direction of "Management of information systems", focused on professional activity and research activities in this field;

- IT companies, research institutes and other organizations, including foreign ones, implementing, developing and supporting new information technologies in their activities;

- Universities that train specialists in the IT cluster.

2. The objectives of educational programs taking into account the development of the economy and the needs of the labor market of the region and the country with an emphasis on student-centered learning.

The educational program in the direction of master's degree, PhD 7M06103, 8D06103 "Management of information systems" is formed based on the assessment of the demand for graduates, which are determined by the interest of potential employers, the requirements of the state and society as a whole and must meet the expectations of employers.

Taking into account the fact that information technology is one of the most dynamically developing areas of human activity, the educational programs 7M06103, 8D06103 "Management of information systems" are constantly updated based on current trends in the development of the IT industry. The renewal of the educational program is initiated by the Specialty Council based on the recommendations of employers and specialists in the field of IT education. When forming the goals of the educational program, the specific requirements of potential employers to the competencies of graduates are taken into account. Competencies of graduates taking into account the requirements of employers and trends in the development of the specialty:

- know the methods of system analysis and evaluation of the effectiveness of the development, implementation and functioning of the information system;
- be able to present the knowledge of the subject area for non-specialists;
- know the techniques and methods of personnel training and within the framework of the organization's process of developing objects of professional activity;
- have system scientific skills of applying modern computer technologies in the tasks of designing information systems;
- have system skills in developing simulation models of processes and information processing and management systems;
- have system research skills in the development, implementation, testing and operation of information retrieval and information management systems;
- to make the optimal choice and implement mathematical, linguistic, informational, software and technical support of information systems based on modern methods, tools and technologies of design;
- design and analyze the effectiveness of information systems and their elements;
- to divide the development of information systems into separate interdependent tasks and to carry out their composition;
- analyze the feasibility of the study and present the results of the analysis;
- to use a systematic approach in the research and design of information systems, to identify business tasks and propose solutions to them;
- develop modeling algorithms and implement them using algorithmic languages and modeling application software packages;
- to teach and control the knowledge of various categories of students;
- develop technical specifications for software;

- to consult on the creation of business processes.
- develop a project development concept based on the developed requirements

In accordance with the State Program for the development of education of the Republic of Kazakhstan in the field of higher and postgraduate professional education, the main goal of KazNITU is to achieve a high level of quality of higher education that meets the needs of the labor market, the tasks of industrial and innovative development of the country, corresponding to the best world practices in the field of education. Due to the acquisition of the special status of "research university", there are new opportunities today to strengthen the research component in the educational process. One of the directions of the University's academic activity is the constant updating and improvement of modular educational programs in the context of strengthening the practical significance of acquired knowledge and skills with the participation of employers in the process of teaching individual courses adapted to the needs of the labor market.

3. Policy in the field of quality assurance. Compliance of educational programs with regulatory requirements

The quality policy is established in order to serve as a guideline for the university. It determines the desired results, promotes the use of resources by the organization to achieve these results. The quality policy provides the basis for the development and analysis of quality objectives. The quality objectives are consistent with the Quality Policy and commitment to continuous improvement of all processes defined at the University.

The achievement of quality objectives has a positive impact on the quality of educational services, work efficiency and financial indicators and, consequently, on the satisfaction and trust of stakeholders.

The quality policy is formed and periodically reviewed on the basis of the following components:

- the strategy fixed in the University Development Program;
- current results of the analysis of satisfaction of consumers of educational services and other interested parties;
- "ENQA Standards and Directives";
- information about the results of the functioning of the university's quality management system for previous periods.

The Program's compliance with regulatory requirements is confirmed by the results of the state certification of specialties 7M06103, 8D06103 "Management of information systems", as well as the results of periodic internal audits and evaluations.

4. Participation of the administration, teaching staff and doctoral students in the formation and support of the quality assurance policy of educational programs.

The quality policy of the University has established our main goal – to ensure the quality of educational activities by meeting the requirements of consumers. The University management ensures the effective implementation of the quality policy of educational activities by all university staff. The policy is implemented at all levels of management and can be analyzed and revised if necessary. The main goal of the university's policy is achieved by:

- carrying out a constant policy of integration of the educational process and research activities, the development of students through research activities and the formation of professional competence and ethical standards among undergraduates and doctoral students through the use of their own scientific results in training according to educational programs agreed with employers, strategic partners of the university;
- development of educational programs and technologies, taking into account the priority areas of science and technology (in terms of the program under consideration, these are information and communication technologies);
- improving the mechanisms of qualitative selection of teachers, providing conditions for productive and creative work, professional development and professional development of the teaching staff and teaching and support staff of the university through the creation and implementation of a system of personal responsibility, evaluation and stimulation of everyone's work;
- development of international cooperation in the field of education, science and high technologies, training of foreign doctoral students, increasing the mobility of teachers and students;
- improving the admission selection procedure to the university in order to accept the most worthy students for study at the university by supporting the development of university-industry cooperation and partnerships with scientific organizations, schools, gymnasiums and colleges, improving the process of pre-university training, as well as creating and developing positive motivation of students to study;
- continuous improvement of the quality of the content of education, the opening of new specialties and educational programs, taking into account the needs of the labor market; development of an effective mechanism for the introduction of a competence-based and student-centered approach in the training of specialists;
- improving the organization and conduct of the educational process taking into account quality criteria, objective monitoring of students' progress; improving educational, methodological and logistical support, the introduction of modern educational, including distance learning technologies;

The participation of managers of all levels, teaching staff and doctoral students in achieving quality goals is carried out through participation in the work of Academic, Educational, Methodological and Scientific-Technical Councils, Academic Councils of institutes, meetings of the Rector's Office, meetings and methodological seminars, working groups, intra-university commissions, audit groups created by the rector's order (Composition of councils, rector's office, orders and orders on commissions, the composition of audit groups).

The duties and responsibilities of departments, institutes, departments, other structural divisions and their heads to ensure the quality of training specialists in educational programs are fixed in the Quality Manual, regulations and documented procedures on activities, job responsibilities.

Educational programs are updated annually with the adjustment of individual curricula of students, the choice of elective disciplines by undergraduates and doctoral students according to individual learning trajectories and the demands of the labor market.

5. Interaction between teaching, research and training in the quality assurance policy of programs

The interaction between teaching, research and learning in the quality assurance policy of programs plays a key role, and it is being strengthened in connection with the transition of the university to research status.

To achieve the main goal, the University pursues a permanent policy:

- integration of the educational process and research activities, the development of students through research activities and the formation of professional competence and ethical standards among undergraduates and doctoral students through the use of their own scientific results in training according to educational programs agreed with employers, strategic partners of the university;
- development of educational programs and technologies taking into account the priority areas of science and technology.

6. Efficiency and systematic use of evaluation results to improve and adjust long-term program directions, setting new goals in accordance with changes in environmental conditions.

The analysis of the assessment of the degree of implementation of the policy in the field of quality assurance is adequate to the directions of the strategic plan, material resources and intellectual assets of the university, the focus on meeting the needs of undergraduates, doctoral students, teaching staff and changes in environmental conditions are considered at meetings of the Academic Council of the University and institutes, the rector's Office, Educational and Methodological Councils, Scientific and Technical Councils of the University, meetings of departments.

The results of the conducted sociological surveys are widely used in the preparation of programs for the further development of the university, for the

development of measures to improve the quality of training of specialists, certification and election to the position, differentiated payment of the teaching staff.

The management of the university, institutes, structural units at the end of each academic year analyzes the results of internal audits, competitions and sociological monitoring conducted according to approved schedules to achieve confidence that the Quality Policy is being implemented and is suitable for continuous improvement. The analysis includes: analysis of the fulfillment of quality goals, both at the university level and individual programs; analysis of customer satisfaction (undergraduates, doctoral students, teachers, employers); analysis of the results of internal audits; analysis of the effectiveness of corrective and preventive actions.

An effective form of evaluating the activities of institutes to improve the quality of training of specialists is the reports of directors on the work done with a "cross-check" by the Commission of the Internal Audit Department, which are heard at the Academic Council. In case of changes in external factors in the educational space, reforming or reorganizing the existing management system of the university, restructuring the activities of the mission, quality goals and objectives of the development of the university are adjusted to meet new requirements. The center of responsibility that ensures these changes is the Academic Council of the university.

The assessment of the quality of educational programs is based on the analysis of curricula, the catalog of elective disciplines, UMKD, questionnaires of undergraduates and teaching staff, attendance of classes.

7. Measures to maintain academic integrity and academic freedom, protection from any kind of intolerance and discrimination against undergraduates, doctoral students, teachers or employees.

KazNITU named after K.I. Satpayev takes the necessary measures to maintain academic integrity and academic freedom, protect against any kind of intolerance and discrimination against undergraduates, doctoral students, teachers or staff.

Helplines have been posted in all academic buildings and dormitories and boxes for complaints and suggestions have been installed, the rector's blog has been opened on the university's website, to which any student and teacher can apply.

There is a Disciplinary and anti-Corruption Commission and an Education Council, as well as an Intra-university Control Commission, which includes heads of institutes and departments, legal experts, experienced teachers, representatives of public organizations of the university.

Information and explanatory work is carried out among teaching staff and students, including compliance with the "Ethical Code of the student of KAZNIT named after K.I.Satpayev" and "Code of Corporate Culture of the teaching staff and employees of KazN ITU named after K.I.Satpayev". In order to form a

positive social and professional image of teachers at the university, the competition "The best adviser of KazNITU" is held.

An important area of educational activity is the anti-corruption policy at the university as an important element of the policy in the field of ensuring the quality of programs. Anti-corruption measures, accessibility of the management of the university, the institute for teachers and students, flexibility to respond to requests.

Discussed at the meeting of the Department "Cybersecurity, information processing and storage"

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