EDUCATIONAL PROGRAM

7M06136 - Information systems

code and name of the educational program

Level: Master's (scientific and pedagogical)

Approved
by the Board of Directors of JSC
«K.Kulazhanov KazUTB» «02» 04 2025,
protocol No. 3

Recommended
by the Academic Council of JSC
«K.Kulazhanov KazUTB» «28» 03 2025,
protocol No. 8

Astana – 2025

CONTENT

Preface

The educational program «7M06136 - Information Systems» was developed in accordance with the requirements of the State Mandatory Standard of Higher and Postgraduate Education, approved by Order No. 2 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022.

The educational program «7M06136 - Information Systems» was approved at the meeting of the Council on Academic Quality on «27» 03 2025, protocol No. 4
Chairman Baibolova L.K. _____

The educational program «7M06136 - Information Systems» was approved at the meeting of the Commission on Academic Quality of the Faculty on «Technology» 29.11 2024, protocol No. 2
Chairman Zhunusova G.S. _____

The educational program «7M06136 - Information Systems» was developed and discussed at the meeting of the department «Information technologies» dated «19» 11 2024, protocol No. 4
Head of the department Serimbetov B.A. _____

Approval sheet

Educational program «7M06136 - Information Systems»
(code and name of the EP)

AGREED:

Vice-Rector for Administrative Affairs	_____	E.Askarbekov	"27" 03 2025year
Head of Educational Programs Department	_____ PP	B.Bayadilova	"27" 03 2025year
Director of «KazTelcom LLP»	_____ PP	M.M. Khodzhabaev	"19" 11 2024year
Director of «Digital system Engineering LLP»	_____ PP	E.J. Zhantlesov	"19" 11 2024year
Arta Software LLP. Product Director, Product Development Department.	_____ PP	Serikov Kuanysh Serikovich	"19" 11 2024year
RSE on PCV "IVC Bureau of National Statistics. The Agency for Strategic Planning .planning and reforms" software engineer	_____ PP	Begimova Gaukhar Serikovna	"19" 11 2024year
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Master's student	_____	R.M. Salimzhanov	"19" 11 2024year

1. Passport of the educational program

International Standard Classification of Education (ISCED) level	7
National Qualification Framework (NQF) level	7
Sectoral Qualifications Framework (SQF) level	7
Code and name of the field of education	7M06- Information and communication technologies
Direction of training	7M061- Information and communication technologies
Number and name of the group of educational programs	M094- Information technology
Code and name of the educational program (EP)	7M06136 - Information Systems
Educational program profile	Scientific and pedagogical
Goal of the educational program	The purpose of this master's program is to train masters who are able to effectively conduct research, develop and implement information technologies and systems, as well as formulate and solve modern scientific and practical problems, plan and conduct research activities on the topic of scientific research.
Completion criterion of an educational program	At least 120 academic credits, including all types of undergraduate academic activities
Language of instruction of the	Kazakh, Russian
Distinctive features of the educational program	Accreditation of the OP by the International Accreditation Agency for Quality Assurance of Education IAAR
Partner University	-

2. Qualification characteristics of a graduate of an educational program

Degree awarded	Master of Technical Sciences in the educational program «7M06136 - Information Systems»
Field of professional activity	Organizational and managerial:
Types of professional activities	- managing the activities of IT departments and organizations involved in IT projects;
Object of professional activity	- development and implementation of innovative forms of management of organizations and other branches of human activity;
Functions of professional activity	Scientific research:

3 Requirements for the content of the educational program

Name of cycles and disciplines	Workload in academic credits
Naming of cycles and disciplines	**88**
Cycle of basic disciplines (BD)	**35**
University component, including pedagogical practice	20
Component of choice	15
Cycle of profile disciplines (PD)	**53**
University component	10
Component of choice	30
Research practice	13
Research work of a master's student, including an internship and the completion of a master's thesis	**24**
(Registration and defense of the Master's Degree project (MIS))	**8**
Total	**120**

3 Requirements for the content of the educational program

Name of cycles and disciplines	Workload in academic credits
Naming of cycles and disciplines	**88**
Cycle of basic disciplines (DB)	**35**
University component, including pedagogical practice	20
Component of choice	15
Cycle of profile disciplines (PD)	**53**
University component	10
Component of choice	30
Research practice	13
Research work of a master's student, including the completion of a master's thesis	15
Research work of a master's student, including an internship and the completion of a master's thesis	9
Final certification	**8**
(Registration and defense of the Master's Degree project (MIS))	8
Total	**120**

4. Competency map of the educational program «7M06136 - Information systems»

Competence map of the educational program	Learning outcome code	Learning Outcome (according to Bloom's Taxonomy)
Learning Outcome (according to Bloom's Taxonomy)	LO1	Conducts research in the field of information technology based on a holistic systematic scientific worldview using knowledge of the history and philosophy of science
	LO2	Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity
	LO3	Applies psychological and managerial methods and learning technologies for the formation of managerial and communicative competencies, using psychological management mechanisms in educational and professional training
	LO4	Applies the methodological foundations of higher school pedagogy, modern educational technologies and innovative pedagogical approaches in the development and conduct of training sessions aimed at developing pedagogical competence and professional pedagogical thinking
Digital competencies (Digital skills)	LO6	Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.
	LO8	Analyzes modern innovative approaches in education, developing and implementing pedagogical technologies using digital tools, evaluates their effectiveness to improve the quality of the educational process.
	LO10	Applies methods of applied information theory to optimize the processes of data processing, storage and transmission, including the use of algorithms for encoding, compressing and protecting data, evaluating information flows and their effectiveness in various information systems.
	LO12	Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to optimize business processes and increase the efficiency of the organization.
Professional skills (Hard skills)	LO5	Develops software solutions using the principles of software engineering, applying blockchain

		technologies to ensure transparency, security and reliability of digital transformation of information systems.
	LO7	He is proficient in the methods of systems theory and system analysis for modeling, optimizing, and managing complex IT systems, including analyzing relationships and processes within information technology, evaluating their effectiveness, and developing solutions to improve the functionality and sustainability of systems.
	LO9	Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.
	LO11	Develops the architecture of information systems, including client-server, distributed and cloud solutions, analyzing the infrastructure taking into account the components of the network, software and hardware environment, applying government and corporate IP models to build e-government systems, resource management and digitalization of business processes.

5 Learning outcomes of the educational program and modules

Key com-petencies	Learning Outcomes (LO) for the educational program	Name of module	Learning outcomes for the module	Name of disciplines that form learning outcomes
Behavioral skills and personal qualities (Soft skills)	LO1 Conducts research in the field of information technology based on a holistic systematic scientific worldview using knowledge of the history and philosophy of science	Basic disciplines module	Demonstrates knowledge of the main stages of the formation and development of science and world philosophical thought; understanding the professional and social necessity of their own scientific work	History and philosophy of science
	LO2 Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity		Uses the techniques of logical analysis of scientific texts in a foreign language. Demonstrates knowledge of modern methods and technologies of professional communication in a foreign language	Foreign language (professional)
	LO3 Applies psychological and managerial methods and learning technologies for the formation of managerial and communicative competencies, using psychological management mechanisms in educational and professional training		Demonstrates the ability to apply knowledge of psychology for the purpose of self-knowledge and the knowledge of others.	Management psychology

	LO4 Applies the methodological foundations of higher school pedagogy, modern educational technologies and innovative pedagogical approaches in the development and conduct of training sessions aimed at developing pedagogical competence and professional pedagogical thinking		Uses knowledge of teaching methods in organizing and conducting training sessions, Demonstrates knowledge of the theoretical and methodological foundations of teaching, the formation of professional and pedagogical culture and moral attitudes. Draws up programs and plans using various teaching methods	Pedagogics of higher school Pedagogical Practice
Digital competencies (Digital skills)	LO6 Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.	Data processing and FROM	Develops and analyzes conceptual and theoretical models for solving scientific and applied problems in the field of information technology.	Big Data processing and analysis
	LO6 Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.	Data processing and FROM	Processes and analyzes arrays of big data, uses machine learning algorithms to find new connections and patterns for building algorithmic models, using them to solve business, science, and everyday life problems. He is proficient in new research methods, in changing the scientific and scientific-industrial profile of his professional activity.	Data Science

LO6 Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.	Control systems and artificial intelligence	They have knowledge of modern innovative trends in science, allowing them to develop and use high-tech, intelligent systems in education..	Artificial Intelligence methods in Information Systems
LO12 Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to optimize business processes and increase the efficiency of the organization.	Control systems and artificial intelligence	They have knowledge of the principles of building enterprise management information systems, their classification, structure, as well as the basic economic and mathematical methods used in these systems.	Modern enterprise management systems
LO6 Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.	Control systems and artificial intelligence	Has knowledge of data collection. Understands data collection processes and methods, including automated collection, user input, and integration of data from various sources.Knows the principles and methods of data storage, including the selection of suitable storage technologies (relational and non-relational databases, file systems, cloud storage, etc.), as well as data storage capacity and performance management.	Data management of information systems

LO8 Analyzes modern innovative approaches in education, developing and implementing pedagogical technologies using digital tools, evaluates their effectiveness to improve the quality of the educational process.	Control systems and artificial intelligence	They have the skills to obtain and apply methods and technologies for organizing and implementing the educational process at various educational levels in various educational organizations.	Innovative processes in education
LO8 Analyzes modern innovative approaches in education, developing and implementing pedagogical technologies using digital tools, evaluates their effectiveness to improve the quality of the educational process.	Final certification	Conducts a search and analytical review of scientific literature. Defines research objectives and conducts experiments. Analyzes the research results.	Research work of a master's student, including an internship and the completion of a master's thesis
LO10 Applies methods of applied information theory to optimize the processes of data processing, storage and transmission, including the use of algorithms for encoding, compressing and protecting data, evaluating information flows and their effectiveness in various information systems.	Data processing and FROM	They have the skills to quantify information; calculate information losses; calculate information transfer rate and bandwidth of communication channels; use codes that detect and correct errors.	Applied Information Theory

	LO12 Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to optimize business processes and increase the efficiency of the organization.	Data processing and FROM	They have knowledge of enterprise automation and their business lines, They have the skills to choose approaches to solving problems of data quality, server virtualization technology and workplace virtualization	IT Infrastructure and Applied Systems of Enterprises
	LO12 Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to optimize business processes and increase the efficiency of the organization.	Data processing and FROM	Has knowledge of the implementation of technical security measures, the skills to install, configure and maintain technical security tools such as firewalls, intrusion detection systems, antivirus programs, etc. Manages security processes, monitors, analyzes threats, responds to incidents, performs security audits and reviews.	Information System Security Management
	LO5 Develops software solutions using the principles of software engineering, applying blockchain technologies to ensure transparency, security and reliability of digital transformation of information systems.	Data processing and FROM	Analyzes scientific problems and processes in the field of ICT for conducting original scientific research	Software Engineering

Professional skills (Hard skills)

LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Analysis and mathematical modeling	They know the methods of automated development of simulation models, collection and processing of the results necessary for professional activity.	Simulation modeling and optimization of business processes
LO5 Develops software solutions using the principles of software engineering, applying blockchain technologies to ensure transparency, security and reliability of digital transformation of information systems.	Analysis and mathematical modeling	He got acquainted with the possibilities of using blockchain technology in making managerial decisions, such as automating business processes, increasing transparency and reliability of data, in relation to financial accounting, logistics and document management.	Blockchain technology in the digital transformation of information systems
LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Analysis and mathematical modeling	They master the methods of mathematical and algorithmic modeling in the analysis of problems of engineering and natural sciences	Models and methods of decision support

LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Module of compulsory disciplines	Possess and have experience in: □ applying modern terminology in the field of decision support systems and problem solving methodology in the field of multidimensional data analysis; □ using modern software packages for multidimensional analysis. The discipline involves the formation of	Data analysis and modeling
LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Module of compulsory disciplines	Possess and have experience in: □ applying modern terminology in the field of decision support systems and problem solving methodology in the field of multidimensional data analysis; using modern software packages for multidimensional analysis. The discipline involves the formation of	Analysis, design and planning of IS
LO7 He is proficient in the methods of systems theory and system analysis for modeling, optimizing, and managing complex IT systems, including analyzing relationships and processes within information technology, evaluating their effectiveness, and developing solutions to improve the functionality and sustainability of systems.	Module of compulsory disciplines	Manages software product quality assurance processes in accordance with regulatory documents	Systems theory and system analysis in IT

LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Module of compulsory disciplines	Organization of information processes at the physical and channel levels, the study of modern methods and models for building information systems of various types.	Theoretical bases of information processes
LO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.	Final certification	Preparation and defense of a master's thesis	Preparation and defense of a master's thesis

LO11 Develops the architecture of information systems, including client-server, distributed and cloud solutions, analyzing the infrastructure taking into account the components of the network, software and hardware environment, applying government and corporate IP models to build e-government systems, resource management and digitalization of business processes.	Control systems and artificial intelligence	They have knowledge about the structure of the information process, the basics of organizing information processes,	Architecture and infrastructure of the informative systems
LO11 Develops the architecture of information systems, including client-server, distributed and cloud solutions, analyzing the infrastructure taking into account the components of the network, software and hardware environment, applying government and corporate IP models to build e-government systems, resource management and digitalization of business processes.	Control systems and artificial intelligence	They possess the skills of formalized description of information processes and objects;	State and corporate models of Information systems /

6 The relationship between the attainability of the formed learning outcomes according to the educational program and academic disciplines

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)											
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8	PO 9	PO 10	PO 11	PO 12
Cycle of basic disciplines University component/Elective component															
1	Foreign language (professional)	The purpose of the course is to acquire and improve competence in accordance with international standards of foreign language education, allowing the use of a foreign language as a means of communication in the intercultural, professional and scientific activities of the future master. The study of the discipline contributes to the training of highly qualified specialists who are able to compete in the labor market.	4		+										

2	History and philosophy of science	The purpose of studying the discipline is to philosophically comprehend science, comprehend the factual and ideological content of the stages of its development with the further use of acquired knowledge and skills in theoretical and practical professional activities. The course focuses on analyzing the main philosophical and methodological problems that arise in science at the present stage of its development, and gaining insight into the trends in the historical development of science.	4	+											
3	Higher school pedagogy	The objective of the course is aimed at developing pedagogical competence, mastering teaching methods and techniques, as well as modern educational technologies and their	4				+								

		application in higher education practice. The course content covers the design and delivery of academic classes, the implementation of innovative pedagogical approaches, and the development of professional pedagogical thinking.													
4	Management psychology	The objective of the course is aimed at mastering the methods of teaching psychological and managerial disciplines and instructional technologies that ensure the development of managerial and communication competencies. The course explores psychological mechanisms of management, methods of teaching them, as well as instructional technologies used in academic and	4			+									

		professional education.													
5	Software Engineering	The discipline is aimed at developing knowledge and skills in software engineering: design, programming, testing and maintenance of software. Software development methods and technologies used in various sectors of the economy are considered. Promotes the development of skills in applying modern software development standards and fostering corporate culture, analyzing scientific problems in the field of IT and scientific research.	5					+							
6	Applied Information Theory	The discipline studies methods of quantitative analysis, transmission, processing, storage and protection of information in various systems. The concepts of entropy, coding	5										+		

		theory, data compression algorithms, principles of signal transmission, communication channel models, noise-resistant coding, filtering, data recovery, optimization of data representation, as well as data structures, encryption methods, theory of cryptanalysis and authentication are considered.													
7	Big Data processing and analysis	The discipline studies key methods and technologies for working with large amounts of information, including distributed computing systems (Hadoop, Apache Spark) and data storage components (HDFS, HBase). Data analysis tools such as Pig and Hive, as well as the MapReduce model, are considered. Promotes the development of	5						+						

		skills in developing algorithms for data analysis and processing, using Data Mining models, estimating the necessary resources to solve problems and analyzing hidden patterns in big data.													
8	Data Science	The discipline examines methods of data collection, processing and analysis, including statistics, machine learning and working with big data, machine learning algorithms, visualization methods, data analysis and the construction of predictive models. It helps to develop skills in developing analytical solutions, applying advanced data processing techniques and creating effective models to solve real-world problems in various fields.	5						+						

9	Architecture and infrastructure of the informative systems	The discipline examines the principles of architecture and infrastructure of information systems, as well as their development, deployment and support. The models of designing software and hardware solutions, cloud technologies, distributed computing, database management, network infrastructures, virtualization and containerization, methods of ensuring fault tolerance and security are considered. Approaches to the integration of OT systems, process automation and the application of DevOps practices are being studied. It includes the design and administration of IT infrastructure, optimization of	5											+	

		computing resources, work with cloud platforms and information security.													
10	IT Infrastructure and Applied Systems of Enterprises	The discipline examines the principles of building, managing and optimizing the IT infrastructure of enterprises, as well as the development and operation of application systems. The architecture of computing systems, deployment models of corporate IT services, methods of information system integration, cloud and virtualized environments, database management, network technologies and cybersecurity are also considered. Business process automation tools, corporate platforms, ERP, CRM and SCM systems, methods of monitoring and administration of	5												+

		the IT infrastructure, ensuring fault tolerance and data protection are studied.													
Cycle of major disciplines University component/Elective component															
11	Systems theory and system analysis in IT	The discipline studies the basic principles and methods of system analysis used in information technology. Theories and approaches to the design, modeling and optimization of IT systems are considered, as well as methods for analyzing the relationships between system components. Promotes the formation of skills of a systematic approach to solving problems, the development of effective architectures and strategies for the implementation of IT projects, as well as the analysis and	5							+					

		optimization of processes within information systems.													
12	Analysis, design and planning of IS	The discipline studies methods of analysis, modeling, and IP design for effective data and process management. The concepts of system analysis, IP architecture, methods of object-oriented, structural design, data modeling, processes are considered. Notations and tools for describing business processes (BPMN, UML, ER diagrams), integration methods, IP optimization, software development lifecycle, application of modern design technologies, development of IP models, requirements analysis, construction of architectural solutions, automation of business processes are studied.	5									+			

13	Theoretical bases of information processes	The discipline studies methods for evaluating the effectiveness of virtualization in universities using the Proxmox VE platform. The principles of virtualization, computing resource management, deployment, administration of virtual environments, containerization, and optimization of the IT infrastructure are considered. Proxmox VE's capabilities for creating virtual machines, containers, performance monitoring, fault tolerance, and security are being explored. The analysis of the economic and technological efficiency of virtualization, optimization of the use of server capacities, automation of IT	5									+			

		infrastructure management, and the development of virtualization strategies in an educational environment are considered.													
14	State and corporate models of Information systems	The discipline is devoted to the study of models for the construction and functioning of information systems in the public and corporate sectors. The features of architectural solutions, organizational and legal aspects, standards and regulations governing activities in the field of occupational safety are considered. Typical models of government and corporate IP, their life cycles, processes of implementation, maintenance and integration are analyzed. Special attention is paid to information security, data management,	5											+	

		interaction with external systems, as well as the digital transformation of organizations. Modern approaches to building an efficient and sustainable IT infrastructure are being studied, taking into account the specifics of the application sector.													
15	Innovative processes in education	The discipline studies the development and implementation of testing platforms for supervised distance exams. Online testing technologies, academic integrity algorithms, monitoring, proctoring, and data protection are considered. Special attention is paid to the design of automated knowledge assessment systems, their effectiveness and the adaptation of educational processes to the digital environment. The skills of	5								+				

		administration, performance analysis, and online exam management are being mastered.													
16	Artificial Intelligence methods in Information Systems	The discipline studies artificial intelligence methods used in information systems. Machine learning models, neural network architectures, algorithms for data processing and analysis, methods of natural intelligence, logical inference and decision-making are considered. Deep learning technologies, natural language processing, computer vision, intelligent agents, recommendation systems, optimization methods and predictive analytics, development and implementation of intelligent algorithms, automation of processes in IP, analysis and	5						+						

		interpretation of big data, as well as the use of AI in various industries are studied.													
17	Modern enterprise management systems	The discipline studies modern methods and technologies of enterprise management based on information systems. The models and principles of business process management, digital transformation of organizations, architecture of corporate systems, methods of automation and data integration are considered. Modern ERP, CRM, SCM and BI systems are studied, their implementation and use in resource management, finance, logistics and personnel, analysis and optimization of business processes, the use of analytical tools to support decision-	5												+

		making, project management and digital platforms, as well as methods to ensure the efficiency and competitiveness of enterprises.													
18	Information System Security Management	The discipline studies methods of information system security management and data protection in a digital environment. The principles of cybersecurity, threat models, authentication methods, access control, cryptographic algorithms, and monitoring are considered. Network infrastructure protection technologies, vulnerability analysis, confidentiality, information integrity, information security standards, development and implementation of cyber defense strategies, risk management, audit,	5												+

		compliance with regulatory requirements, the use of threat analysis tools, and incident response in corporate systems are studied.													
19	Data management of information systems	The discipline studies methods of data management in IP, storage, processing, integration, protection. Data models, database architecture, ETL technologies, data quality management, optimization methods, and information recovery are considered. The principles of building data warehouses, big data processing, metadata management, distributed database technologies, cloud storage, the use of data analysis and visualization tools, access control, information security, and the development of	5						+						

		data storage and use strategies in corporate and cloud systems are studied.													
20	Simulation modeling and optimization of business processes	The discipline studies methods of simulation modeling, optimization of business processes for analysis and improvement of management efficiency. The concepts of system modeling, discrete event modeling, agent-based modeling, methods of process optimization, and risk assessment are considered. Simulation modeling tools, the development of digital twins, performance analysis, forecasting and	5									+			

		automation of decision-making, the use of modern software tools for modeling business processes, optimizing resources, identifying bottlenecks and increasing the stability of systems in conditions of uncertainty are studied.													
21	Blockchain technology in the digital transformation of information systems s	The discipline studies the application of blockchain technology in the digital transformation of information systems. The basics of the blockchain architecture, consensus mechanisms, smart contracts and cryptographic methods of data protection are considered. Approaches to the integration of blockchain technologies into information systems are being studied to increase security, transparency and automation of	5					+							

		processes. Examples of blockchain applications in various industries are analyzed, including digital asset management, tokenization, and evaluating the effectiveness of implementing blockchain solutions into organizational structures.													
22	Models and methods of decision support	The discipline studies models and methods of decision support in complex systems and management tasks. Mathematical and computational models, multicriteria analysis methods, optimization approaches, game theory, Bayesian networks, and machine learning methods are considered. The algorithms of forecasting, risk analysis, decision-making in conditions of	5									+			

		uncertainty, the use of data mining tools, scenario modeling, development of management strategies, automation of decision-making processes in various subject areas are studied.													
23	Data analysis and modeling	The discipline studies methods of data analysis and modeling to identify patterns, predict, and optimize processes. Statistical methods, machine learning, regression analysis, clustering, dimensionality reduction methods, and time series are considered. Big data processing models, neural network approaches, information visualization, predictive analytics, data mining, the use of modern tools for data analysis, the construction of mathematical models,	5									+			

		business process optimization, and data-based decision support are studied.													

7. Alignment of planned learning outcomes with teaching and assessment methods within the module

Learning Outcomes (LO) Number	Planned learning outcomes for the module	Assessment technologies (tools)	Methods of learning and teaching
LO 1	Conducts research in the field of information technology based on a holistic systematic scientific worldview using knowledge of the history and philosophy of science	Oral survey (exam, theoretical assessment).Test, Situational problem solving	Information theory (demonstration of educational material, explanation, story)
LO 2	Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity	Oral survey (exam, theoretical assessment). Test, Situational problem solving	Information theory (demonstration of educational material, explanation, story)
LO 3	Applies psychological and managerial methods and learning technologies for the formation of managerial and communicative competencies, using psychological management mechanisms in educational and professional training	Oral survey (exam, theoretical assessment). Test, presentation	Information theory (demonstration of educational material, explanation, story)
LO 4	Applies the methodological foundations of higher school pedagogy, modern educational technologies and innovative pedagogical approaches in the development and conduct of training sessions aimed at developing pedagogical competence and professional pedagogical thinking	Oral survey (exam, theoretical assessment). Control work. Presentation. A case study. Multi-level tasks and assignments.	Information theory (demonstration of educational material, explanation, story)

LO 5	Develops software solutions using the principles of software engineering, applying blockchain technologies to ensure transparency, security and reliability of digital transformation of information systems.	Oral survey (exam, theoretical assessment). Control work. Presentation. A case study.	Search and creative teaching methods (observation, experience, experiment)
LO 6	Applies big data processing and analysis methods using Hadoop and Spark technologies, developing and evaluating Data Science models based on machine learning and visualization, managing IP data, ensuring their structuring, quality and security.	Oral survey (exam, theoretical assessment). Project defense, colloquium	Search and creative teaching methods (observation, experience, experiment)
LO 7	He is proficient in the methods of systems theory and system analysis for modeling, optimizing, and managing complex IT systems, including analyzing relationships and processes within information technology, evaluating their effectiveness, and developing solutions to improve the functionality and sustainability of systems.	Oral survey (exam, theoretical assessment).	Search and creative teaching methods (observation, experience, experiment)
LO 8	Analyzes modern innovative approaches in education, developing and implementing pedagogical technologies using digital tools, evaluates their effectiveness to improve the quality of the educational process.	Project defense, colloquium	The method of independent work (reading, examination)
LO 9	Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business	Oral survey (exam, theoretical assessment).	Search and creative teaching methods (observation, experience,

	processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.		experiment)
LO 10	Applies methods of applied information theory to optimize the processes of data processing, storage and transmission, including the use of algorithms for encoding, compressing and protecting data, evaluating information flows and their effectiveness in various information systems.	Project defense, colloquium	Search and creative learning methods (observation, experience, experiment)
LO 11	Develops the architecture of information systems, including client-server, distributed and cloud solutions, analyzing the infrastructure taking into account the components of the network, software and hardware environment, applying government and corporate IP models to build e-government systems, resource management and digitalization of business processes.	Oral survey (exam, theoretical assessment).	Search and creative learning methods (observation, experience, experiment)

LO 12	Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to optimize business processes and increase the efficiency of the organization.	Oral survey (exam, theoretical assessment).	Search and creative teaching methods (observation, experience, experiment)

8 Correlation of learning outcomes of the educational program with the labor functions of professional standards (if any)

Name of the professional standards used	Professions at level 7 of the SQF	Labor functions	Tasks	Learning outcomes for the educational program
Computer System Architecture Management	Information Systems Architect	Labor function 1	-	PO11 Develops the architecture of information systems, including client-server, distributed and cloud solutions, analyzing the infrastructure taking into account the components of the network, software and hardware environment, applying government and corporate IP models to build e-government systems, resource management and digitalization of business processes.
		Creating an IP architecture		PO9 Applies the skills of theoretical analysis of information processes, applying simulation modeling methods to optimize business processes, using models and decision support methods to analyze data and develop strategies, analyzing, modeling and designing information systems taking into account their functionality, performance and security.
			-	PO 12 Ensures the security of information systems by analyzing and managing the IT infrastructure and application systems of enterprises, using modern enterprise management systems (ERP, CRM, etc.) to

				optimize business processes and increase the efficiency of the organization.
Teacher (faculty) of organizations of higher and (or) postgraduate education				RO 4 Applies the methodological foundations of higher school pedagogy, modern educational technologies and innovative pedagogical approaches in the development and conduct of training sessions aimed at developing pedagogical competence and professional pedagogical thinking.
Personal competency requirements	Responsibility, strategic thinking, flexibility of thinking, analytical thinking, logical thinking, performance, result orientation, organization, creativity, problem solving			

9 Graduate model

GRADUATE MODEL			
Professional standard	Competencies (soft skills, digital skills)		
	Attributes of a graduate	Knowledge	Skills
	- High professionalism in the field of IT technology and business; - Emotional intelligence; - Adaptability to global challenges; - Leadership; - Entrepreneurial thinking; - Global citizenship; - Understanding the importance of principles and culture of academic integrity; - Communication competencies; - Learning skills necessary for independent continuation of further education.	- Theoretical foundations of information systems, architectures and research methodologies. - Modern computing paradigms: distributed systems, cloud platforms, micro- and server-oriented architectures. - Formalization and modeling: UML, BPMN, modeling theories, model verification. - Methods of data processing, storage, Big Data and streaming analytics; principles of ETL/ELT. - Algorithms and methods of machine learning, statistical data processing, evaluation of the quality of models. - Methodology of scientific research: experimental design, statistics, publication of results and scientific ethics. - Pedagogical foundations: teaching methods in IT education, development of curricula and assessment tools. - Information security, personal data protection and ethical aspects of IP. - IP lifecycle management, quality assurance and maintenance techniques.	- Formulate research objectives in the field of IP and design experimental research. - Conduct theoretical and empirical analysis, process and interpret research results. - Design and implement IP prototypes, build architecture and databases for research tasks. - Apply ML/statistical methods for data analysis and hypothesis validation. - Develop training programs, methodological materials and assessment tasks on IP. - To conduct lectures, seminars and practical exercises; to use modern educational technologies. - Publish the results in scientific publications, prepare conference reports and reports. - Organize research projects and lead students (scientific guidance, mentoring). - Ensure reproducibility of research: documentation, data and code management. - Apply the principles of information security and ethics in research and teaching. .

	Professional skills (hard skills)		
	-Defines the essence and content of the processes of management, management, entrepreneurship and management; - Has the ability to establish communication and decision-making processes; has the ability to choose an effective leadership style and leadership, methods of managing groups, conflicts, and stress; -Possesses communication skills to communicate with colleagues and customers in the process of project development, as well as participates in the organization and management of projects -Calculates and prepares a business plan and project analysis of an investment and business project - Applies regulations for the organization of life cycle management of IT infrastructure and activities of IT enterprises		

ОҚУ ПРОЦЕСІНІҢ ЖОСПАРЫ
ПЛАН УЧЕБНОГО ПРОЦЕССА
PLAN OF EDUCATIONAL PROCESS

Білім беру бағдарламасының коды және атауы :7М06136 - «Ақпараттық жүйелер»
Код и наименование образовательной программы: 7М06136 - «Информационные системы»
Code and Name of the educational gram : 7М06136 - "Information Systems"

Модульдің № / № модуля / Module №	Пәндердің № / № дисциплины / Discipline №	ОҚУ ПӘНДЕРІНІҢ АТАУЫ НАИМЕНОВАНИЕ УЧЕБНЫХ ДИСЦИПЛИН NAME OF TEACHING DISCIPLINES	Оқу пәндерінің циклы (міндетті компонент / таңдау компоненті) / Цикл учебных дисциплин (обязательный компонент /компонент по выбору) Educational disciplines cycle (compulsory component / component of choice)	Оқу пәндерінің коды Код учебной дисциплины Educational discipline code	Семестр / semester	Кредиттер саны Количество кредитов Number of credits	Курстық жұмыс (жоба) Курсовая работа (проект)	Білім алушылардың жұмыс уақытының бюджеті сағатпен Бюджет рабочего времени (час) Budget of working time (hours)							Семестр бойынша бөлу Распределение по семестрам Distribytion of semesters				Оқыту тілі (үш тілде білім беру бағдарламасы бойынша: оқыту тілінде, екінші тілде, ағылшын тілінде) / Язык обучения (для программы трехязычного образования: на языке обучения, на втором языке, на английском языке) Language of education (for trilingual education programs: in the language learning in the second language, in English)
								Барлық сағат / Всего часов / Total hours	Аудиториялық жұмыс / Аудиторная работа / Class work				ОБӨЖ / СРОП / IWST	БАӨЖ / СРО / IWS	1 КУРС YEAR		2 КУРС YEAR	
									Барлық аудит. сағат Всего аудит. часов Total classroom hours	оның ішінде / в том числе / including					1 сем / sem	2 сем / sem	3 сем / sem	4 сем / sem
										Д / ЛК / Lec	СПС / СПЗ / SPL	ЛС / ЛЗ / LC			Семестрдағы апталар саны / Недель в семестре / Weeks in a semester			
															15	15	15	—
1	2	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Модуль №10/Модуль №1/ Module №1	**Негізгі модуль / Базовый модуль/Basic module**																		
	1	Шет тілі (кәсіби) / Иностранный язык (профессиональный) / Foreign language (professional)	БП ЖК/ БД ВК / BD UC	IYa (P) 5201-25 IYa (P) 5201-25 IYa (P) 5201- 25	1	4		120	45		45		15	60	0+3+0				окыту тілінде на языке обучения in the language of instruction
	2	Педагогика высшей школы/ Жоғары мектептің педагогикасы / Pedagogics of higher school	БП ЖК/ БД ВК / BD UC	PVSh 5202-25 PVSh 5202- 25 PVSh 5202-25	1	4		120	45	30	15		15	60	2+1+0				окыту тілінде на языке обучения in the language of instruction
	3	Басқару психологиясы/ Психология управления/ Management psychology	БП ЖК/ БД ВК / BD UC	PU5203-25 PU 5203-25 PU 5203-25	1	4		120	45	30	15		15	60	2+1+0				окыту тілінде на языке обучения in the language of instruction
	4	Ғылым тарихы мен философиясы / История и философия науки / History and philosophy of science	БП ЖК/ БД ВК / BD UC	IFN5204-25 IFN 5204-25 IFN 5204-25	1	4		120	45	30	15		15	60	2+1+0				ағылшын тілінде на английском языке in English
	5	Педогогикалық практика/ Педагогическая практика/ Pedagogical Practice		PedP 5205-25 PedP 5205-25 PedP 5205-25	2	4		60								4 апта/ 4 недели/ 4 week			окыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**20**	**0**	**540**	**180**	**90**	**90**	**0**	**60**	**240**	**12**	**0**			
Модуль №2 /Модуль №2 / Module №2	**Міндетті пәндер модулі/Модуль обязательных дисциплин/Module of compulsory disciplines**																		
	7	АЖ талдау, модельдеу және жобалау / Анализ, моделирование и проектирование ИС / Analysis, design and planning of IS	БП ЖК / ПД ВК / PD UC	AZhTMZh 6301-25 AMiPIS 6301-25 ADPIS 6301-25	3	5		150	45	30	15		15	90			2+1+0		окыту тілінде на языке обучения in the language of instruction
	8	Ақпараттық процесстердің теориялық негіздері/ Теоретические основы информационых процессов/ Theoretical bases of information processes	БП ЖК / ПД ВК / PD UC	AUTN5302-25 TOIP 5302-25 TBIP5302-25	1	5		150	45	30	15		15	90	2+1+0				окыту тілінде на языке обучения in the language of instruction
		It жүйесіндегі жүйелер теориясы және жүйелік талдау/ Теория систем и системный анализ в IT/ Systems theory and system analysis in IT	БП ЖК / ПД ВК / PD UC	ITJJTJT 5203-25 TSSAIT 5203-25 STSAIT 520325	2	5		150	45	30	15		15	90		2+1+0			окыту тілінде на языке обучения in the language of instruction

	9	Зерттеу практикасы / Исследовательская практика / Research Practice	БП ПД PD	ZP 6305-25 IP 6305-25 RP 6305-25	4	13		270										13апта/ недели/ week	оқыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**28**	**0**	**720**	**135**	**90**	**45**	**0**	**45**	**270**	**3**	**3**	**3**		
Модуль №3/Модуль №3/ Module №3	**Деректерді өңдеу және АЖ/ Обработка данных и ИС/Data processing and FROM**																		
	9	Бағдарламалық инженерия/ Программная инженерия/ Software Engineering	БП ТК/ БД КВ / BD EC	BI 5201-25 PI 5201-25 SE 5201-25	2	5		150	45	30	15		15	90		2+1+0			оқыту тілінде на языке обучения in the language of instruction
	10	Қолданбалы ақпарат теориясы/ Прикладная теория информации/ Applied Information Theory	БП ТК/ БД КВ / BD EC	KAT 5201-25 PTI 5201-25 AIT 5201-25															
	11	Үлкен деректерді өңдеу және талдау/ Обработка и анализ больших данных / Big Data processing and analysis	БП ТК/ БД КВ / BD EC	YDOT 5202-25 OABD 5202-25 BDPA 5202-25	2	5		150	45	30	15		15	90		2+1+0			оқыту тілінде на языке обучения in the language of instruction
	12	DataScience/ DataScience/ DataScience	БП ТК/ БД КВ / BD EC	DS 5202-25 DS 5202-25 DS 5202-25															
	13	Ақпараттық жүйелердің архитектурасы және инфраструктурасы/ Архитектура и инфраструктура информационных систем/ Architecture and infrastructure of the informative systems	БП ТК/ БД КВ / BD EC	AJAI 5203-25 AIIS5203-25 AIIS5203-25	2	5		150	45	30	15		15	90		2+1+0			оқыту тілінде на языке обучения in the language of instruction
	14	Кәсіпорындардың АТ инфрақұрылымы және қолданбалы жүйелері/ИТ-инфраструктура и прикладные системы предприятий./ IT Infrastructure and Applied Systems of Enterprises	БП ТК/ БД КВ / BD EC	KATIKJ 5203-25 ITIPS5203-25 ITIASE5203-25															оқыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**15**	**0**	**450**	**135**	**90**	**45**	**0**	**45**	**270**		**9**			
Басқару жүйелері және жасанды интеллект /Системы управления и искусственный интеллект/Control systems and artificial intelligence																			
Модуль №4/ Module №4	15	Ақпараттық жүйелердің мемлекеттік және корпоративтік модельдері/ Государственные и корпоративные модели ИС/State and corporate models of Information systems /	БП ТК / ПД КВ / PD EC	AJMKM 5301-25 GKMIS 5301-25 SCMI 5301-25	1	5		150	45	30	15		15	90	2+1+0				оқыту тілінде на языке обучения in the language of instruction
	16	Білім берудегі инновациялық процестер / Инновационные процессы в образовании / Innovative processes in education	БП ТК / ПД КВ / PD EC	BBIP 5301-25 IPVO 5301-25 IPE 5301-25															оқыту тілінде на языке обучения in the language of instruction
	17	Ақпараттық жүйелерге жасанды интеллект әдістері/ Методы искусственного интеллекта в ИС / Artificial Intelligence methods in Information Systems	БП ТК / ПД КВ / PD EC	AJIA 5302-25 MIIS 5302-25 AIMIS 5302-25	3	5		150	45	30	15		15	90			2+1+0		оқыту тілінде на языке обучения in the language of instruction

Модуль №4 /Мо.	18	Кәсіпорынды басқарудың заманауи жүйелері/ Современные системы управления предприятием/ Modern enterprise management systems	БП ТК / ПД КВ / PD EC	KBZJ 5302-25 SSUP 5302-25 MEMS 5302-25																окыту тілінде на языке обучения in the language of instruction
	19	Ақпараттық жүйелердің қауіпсіздігін басқару/ Управление безопасностью информационных систем/ Information System Security Management	БП ТК / ПД КВ / PD EC	AJKB6303-25 UBIS 6303-25 ISSM 6303-25	3	5		150	45	30	15		15	90			2+1+0		окыту тілінде на языке обучения in the language of instruction
	20	Ақпараттық жүйелердің деректерін басқару/ Управление данными информационных систем / Data management of information systems	БП ТК / ПД КВ / PD EC	AJDB 6303-25 UDIS 6303-25 DMIS 6303-25																окыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**15**	**0**	**450**	**135**	**90**	**45**	**0**	**45**	**270**	**3**		**6**			
Талдау және математикалық модельдеу/Анализ и математическое моделирование																				
	23	Имитациялық модельдеу және бизнес-процестерді оңтайландыру/ Имитационное моделирование и оптимизация бизнес-процессов/ Simulation modeling and optimization of business processes	БП ТК / ПД КВ / PD EC	IMBPO 6304-25 IMOBP 6304-25 SMOBP 6304	3	5		150	45	30	15		15	90			2+1+0		окыту тілінде на языке обучения in the language of instruction
	24	Ақпараттық жүйелерді цифрлық трансформациялаудағы блокчейн технологиясы/ Технология блокчейн в цифровой трансформации информационных систем/ Blockchain technology in the digital transformation of information systems	БП ТК / ПД КВ / PD EC	AJCTBT 6304-25 TBCTIS 6304-25 BTDTIS 6304-25																окыту тілінде на языке обучения in the language of instruction
	27	Шешім қабылдауды қолдау модельдері мен әдістері/ Модели и методы поддержки принятия решений/ Models and methods of decision support	БП ТК / ПД КВ / PD EC	SHKKMA 6305-25 MMPPR 6305-25 MMDS 6305-25	3	5		150	45	30	15		15	90			2+1+0		окыту тілінде на языке обучения in the language of instruction
	28	Деректерді талдау және модельдеу/ Анализ и моделирование данных/ Data analysis and modeling	БП ТК / ПД КВ / PD EC	DTM6305-25 AMD 6305-25 DAM6305-25																окыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**10**	**0**	**300**	**90**	**60**	**30**	**0**	**30**	**180**			**6**			
Зерттеу қызметі /Исследовательская деятельность/Research activities																				

Модуль №6 /Модуль №6 / Module №6	29	Тағылымдамадан өту мен магистрлік диссертацияны орындауды қамтитын магистранттың ғылыми-зерттеу жұмысы Научно-исследовательская работа магистранта, включая прохождение стажировки и выполнение магистерской диссертации Research work of a master's student, including an internship and the completion of a master's thesis			1, 2, 3, 4	24		720							4 апта/ 4недели/ 6 week	6 апта/ 6недели/ 5week	5 апта/ 5недели/ 4week	9 апта/ 9недели/ 9week	оқыту тілінде на языке обучения in the language of instruction
	Барлығы модуль бойынша / Итого по модулю / Total for module					24		720												
Қорытынды аттестаттау /Итоговой аттестации/Final certification																				
Модуль №7 /Модуль №7 / Module №7	30	Қорытынды аттестаттау (Магистрлік диссертацияны ресімдеу және қорғау) (МДРҚ) Итоговая аттестация (Оформление и защита магистерской диссертации) (ОиЗМД) Final assessment (Preparation and defense of a master's thesis) (PDMT)	ҚА ИА FC		4	8		240										8 апта/ 6недели/ 6week	оқыту тілінде на языке обучения in the language of instruction
Барлығы модуль бойынша / Итого по модулю / Total for module						**8**	**0**	**240**												
БАРЛЫҒЫ МОДУЛЬДАР БОЙЫНША / ИТОГО ПО МОДУЛЯМ / TOTAL FOR MODULES						**120**	**0**	**3420**	**675**	**420**	**255**	**0**	**225**	**1230**						

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу 7М06136 - «Информационные системы» научно-педагогического направления АО «Казахский университет технологии и бизнеса имени К.Кулажанова»

Образовательная программа (далее ОП) 7М06136 - «Информационные системы» научно-педагогического направления, реализуемая в АО «Казахский университет технологии и бизнеса» представляет собой систему учебно-методических документов, регламентирующих цели, ожидаемые результаты, содержание, условия и технологии реализации образовательного процесса, систему оценки качества подготовки выпускника и соответствует нормативно-правовым актам МНВО РК.

ОП разработана и утверждена на основании требований Государственных общеобязательных стандартов высшего и послевузовского образования (Приказ МНВО РК от 20.07. 2022 г. № 2 (с изменениями и дополнениями на 20 .02. 2023 года), а также на основе отраслевых рамок квалификации.

Целью образовательной программы 7М06136 - «Информационные системы» является: подготовка высококвалифицированных специалистов по направлению «Информационные системы»; формирование у обучающихся компетенций, обеспечивающих его профессиональную деятельность в разных отраслях применения информационных систем; подготовка специалистов по исследованию, разработке, внедрению и сопровождению информационных технологий и систем в разных отраслях экономики; формирование профессиональных навыков и компетенций, соответствующих преподавательской деятельности в ВУЗах, профильных колледжах необходимых для профессиональной, научной и образовательной деятельности во благо общества.

Обязательная часть профессиональной образовательной программы направлена на формирование управленческих, коммуникативных компетенций, состоящих из умения планировать и организовывать работу коллектива, используя современный менеджмент и принципы делового общения; анализа и контроля производственной деятельности подразделения. Вариативная часть образовательной программы дает возможность расширения и углубления подготовки и получения дополнительных компетенций, умений и знаний, необходимых для обеспечения конкурентоспособности выпускника в соответствии с требованиями рынка труда.

Реализация образовательной программы обеспечивается квалифицированными педагогическими кадрами, занимающимися научной и научно-методической деятельностью. К преподаванию дисциплин профессионального цикла привлечены преподаватели, которых имеют ученые степени и ученые звания.

Теоретическую и практическую подготовку по образовательной программе 7М06136 - «Информационные системы» обеспечивают дисциплины модуля «Обработка данных и ИС», «Системы управления и искусственный интеллект», «Анализ и математическое моделирование».

Практические навыки обеспечивают дисциплины: Технология блокчейн в цифровой трансформации информационных систем.

Модель компетенций магистра ОП 7М06136 - «Информационные системы» складывается из двух укрупненных наборов компетенций:

1. Универсальные: общепрофессиональные и социально-личностные, общекультурные;
2. Профессиональные: аналитические, проектные, производственно-технологические, организационно-управленческие, научно-исследовательские.

Профессиональные компетенции соответствуют областям и задачам профессиональной деятельности и включают:

1. Способность к формированию стратегии использования ИКТ в различных предметных областях и прогнозированию вероятных тенденций развития этих стратегий.

2. Способность проектировать информационные процессы и системы с использованием инновационных инструментальных средств.

3. Владение современными информационными технологиями управленческих решений и обладает способностями руководителя: планировать, управлять и контролировать выполнение требований, выполнять оценки степени трудности, рисков, бюджета, и времени в течение выполнения проекта, осуществлять контроль рабочего графика, осуществлять сопровождение информационной системы на всех этапах ее жизненного цикла.

4. Способность использовать и развивать методы научных исследований в области новых технологий проектирования и разработки информационных систем в прикладных областях.

На основании приведенной экспертизы можно сделать следующие выводы:

- представленная к рассмотрению программа отвечает требованиям ГОСО РК;
- структурные элементы программы реализуются с учетом компетентностного подхода;
- дисциплины учебного плана логически отражают содержание профиля подготовки 7М06136 - «Информационные системы» с учетом междисциплинарных связей;
- Учебно-методическое обеспечение представлено рабочими программами дисциплин, аннотациями рабочих программ дисциплин, фондами оценочных средств дисциплин, разработанными программами практик и итоговой государственной аттестации;
- характеристика среды вуза и факультета позволяют обеспечить развитие общекультурных компетенций выпускника.

Предложения по совершенствованию образовательной программы: учитывая постоянную динамику изменения методов и средств информационно-коммуникационных технологий, рекомендуется обновлять элективные дисциплины на 10 % в соответствии с компетенциями выпускника по ОП 7М06136 - «Информационные системы» и требованиями рыночной экономики и спросом работодателей.

Выводы:

- Образовательная программа рекомендуется к использованию в учебном процессе;
- Структура и содержание образовательной программы 7М06136 - «Информационные системы» имеет направленность на удовлетворение потребностям рынка труда и работодателей, соответствует аналогичным программам бакалавриата Европейского образовательного пространства и позволяет достичь ожидаемых результатов обучения.

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