AGREED
Chairman of the educational and methodological council of JSC "IIT U"
_____ A.K. Mustafina
«13» 03 2024 y.

APPROVED
Chairman of the Board-Rector JSC "International University of information technologies"
_____ A.K.Khikmetov
«17» 03 2024 y.

EDUCATIONAL PROGRAM

7M06104 IT Project management

Code and classification of the field of education: 7M06 – Information and Communication Technology

Code and classification of training area: 7M061 - Information and Communication Technology

Group of educational programs: M094 – Information Technology

ISCED level: 7

NQR level: 7

ORC level: 7

Duration:: 2 year

Number of credits: 120

AGREED
OTIS PRIME LLP
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«13» 03 2024

AGREED
ILP IDIA MARKET
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«13» 03 2024

Almaty, 2024

Educational program 7M06103 IT Ptoject Management is the main academic document of the university for training in the direction of "Information and Communication Technologies" for the 7th level of qualification (master's degree).

This educational program was discussed and approved at the meeting of the department of Information Systems dated "07" March 2024.

Protocol No. 6

Head of the department _____ Naizabayeva L.K.

This educational program was reviewed and approved at a meeting of the University CC dated 27 March 2024. Protocol No. 8

Head of Department for educational and methodological activities _____ Ajibayeva A.Sh.

List of abbreviations and designations

ANPC	Atlas of new professions and competencies
BC	Basic competence
ICT	Info-communication technologies
AI	Artificial intelligence
IS	Information systems
IT	Information Technology
QC	Quantum Computing
ISCE	International Standard Classification of Education
RW	Research work
NQF	National Qualifications Framework
NQS	National Qualifications System
EP	Educational program
GPM	General professional module
SQF	Sectoral Qualifications Framework
PS	Professional Standard
PE	Postgraduate Education
PC	Professional competence
PM	Professional module
WG	Working Group
RK	Republic of Kazakhstan
LO	Learning Outcome
RS	Regional standard

1. Description of the educational program

This educational program (EP) was developed on the basis of professional standards (PS) of the National "Atameken" Chamber of Entrepreneurs, the National Qualifications Framework (NQF), the Sectoral Qualifications Framework (SQF) in the field of information technology and regional standards (RS) of education, according to research and trends indicated in the Atlas of new professions and competencies (ANPC) of Kazakhstan in the field of information technology.

Currently, in many organizations, specialized staff units have been allocated for IT project managers (and in IT-oriented organizations, entire specialized departments). As a result, very soon there will be an urgent need to train specialists such as a project manager and a project manager in the field of information technology. The profession of a project manager is officially recognized in many countries of the world, there are appropriate training programs, professional associations, and vacancies are regularly published. The profession of a project manager in the field of information technology is an integral part of the effective organization of the creation and commissioning of information systems.

The educational program "IT Project management" includes the acquisition of the following competencies:

- The ability to choose the methodology and tools for implementing a process approach in the enterprise; implement independent solutions in the field of business intelligence through SharePoint; create an effective system of key KPIs; design SQL Server business intelligence infrastructures; work with Integration Services in a data warehouse; implement BI using self-service tools; present data using Reporting services Services; identify forecasting trends using data mining techniques.
- The ability to understand the types of IT project, the life cycle of an IT project and its phases, the organizational structure of an IT project, basic standards in the field of project management, Scrum and Agile methodologies; IT project management process groups, principles of IT project cost management; IT project quality management methods, basic approaches to formation IT project teams, IT project risk assessment methods, IT project logistics system structure; optimize the organizational structure of the IT project; estimate the cost of the IT project; manage IT project resources; identify IT project risks; manage IT project changes; manage IT project activities; form and develop IT project teams; manage IT project communications.
- The ability to analyze the goals and interests of project stakeholders; determine the goals, subject area and structures of the project; calculate the calendar plan for the implementation of the project; form the main sections of the consolidated project plan; - analyze the risks of the project; select software tools to solve the main tasks of project management.
- The ability to implement and effectively manage software management activities; ensure that changes are made while maintaining the integrity of the software and minimizing the negative impact on the IT infrastructure and software users; test the operation of executable code (programs) (failures and disruptions in the software, as well as a lack of software functionality) that occur at the implementation stage and maintenance of IT systems; prepare release notes.
- The ability to understand the theory and methodology of strategic planning; to make strategic decisions, critical thinking based on modern mathematical methods and scientific approaches to management in conditions of incomplete information and constant changes in the external environment; formation of communication skills that allow effective interaction with stakeholders, develop a strategy and find alternative options in conditions of uncertainty; improving management experience based on classical models and tools of strategic management in relation to various conditions of the organization's activities.
- The ability to understand the key principles of working with various business intelligence methodologies, such as Agile and Scrum; describe the characteristics of business analysis in the process of Agile projects; apply Agile methodology to increase consumer value.

2. The purpose and objectives of the educational program

The purpose of the EP is to provide professional and research training of highly qualified specialists in the field of IT project management with broad competencies in the development, implementation and management of software products that increase the efficiency of companies and ensure their integration into the digital space.

Tasks of the EP:

1. To provide practice-oriented training of graduates in the field of development, implementation and application of project management technology.

2. To prepare graduates for production and management activities related to the management process, including: product development management, creation of an effective management system; analysis of the effectiveness of management decisions, implementation of controlling across the entire spectrum of production activities.

3. To create conditions for continuous professional self-improvement, the development of socio-personal competencies of graduates (broad cultural outlook, active citizenship, dedication, organization, hard work, sociability, ability to argue and make organizational and managerial decisions, proficiency in modern information technologies, fluency in several languages, striving for self-development and commitment to ethical values and a healthy lifestyle life, the ability to work in a team, responsibility for the final result of their professional activities, civic responsibility, tolerance), social mobility and competitiveness in the labor market. The purpose of the OP is to provide research training for masters in the field of IT project management.

3. Requirements for evaluating the learning outcomes of an educational program

The following forms of exams are used as an assessment of learning outcomes: computer testing, written exam (answers on sheets), oral exam, project (passing a course project, research and development), practical (open questions on a computer, solving problems on a computer), complex (test / written / oral + etc.). According to table 1, the following ratio of exam forms is recommended:

Table 1

№	The form of the exams	Recommended share, %
1	Computer testing	5%
2	Written	80%
3	Oral	5%
4	Project	5%
5	Practical	0%
6	Complex	5%

4 Passport of the educational program

4.1 General information

№	Field name	Note
1	The code and classification of the field of education	7M06 – Information and communication technologies
2	The code and classification of training areas	7M061 – Information and communication technologies
3	Group of educational programs	M094 – Information technology
4	Name of the educational program	7M06104 «IT Project management»
5	A brief description of the educational program	Currently, in many organizations, specialized staff units have been allocated for IT project managers (and in IT-oriented organizations, entire specialized units). As a result, very soon there will be an urgent need to train such specialists as a project manager and manager in the field of information technology. The profession of a project manager is officially recognized in many countries of the world, there are relevant training programs, professional associations, vacancies are regularly published. The profession of a project manager in the field of information technology is an integral part of the effective organization of the creation and commissioning of information systems.
6	The purpose of the EP	The purpose of the EP is to provide professional and research training of highly qualified specialists in the field of IT project management with broad competencies in the development, implementation and management of software products that increase the efficiency of companies and ensure their integration into the digital space.
7	ISCED level	7
8	NQR level	7
9	ORC level	7
10	List of competencies of the educational program: BC1: the ability to master the culture of thinking, generalization, analysis, perception of information, setting goals and choosing ways to achieve them BC2: the ability to construct oral and written speech in a logical, reasoned and clear manner, to formulate and reasonably defend one's own position, to analyze the consequences of scientific and industrial activities BC3: the ability to creatively interact with colleagues in a research team, to build interpersonal interactions, respecting comrades and showing tolerance for other points of view BC4: the ability to make organizational and managerial decisions and assess their consequences BC5: fluency in a foreign language as a means of professional communication BC6: the ability to self-develop, improve skills, readiness to eliminate gaps in knowledge and carry out independent learning in the context of continuous education,	

	master new issues, language, methodology and scientific knowledge in the chosen subject area BC7: the ability to critically evaluate one's strengths and weaknesses, to outline paths and choose means to develop strengths and eliminate weaknesses. PC1: The ability to identify the essence of problems arising in the course of professional activity and to use the appropriate physical and mathematical apparatus to solve them. PC2: Ability to identify promising areas of scientific, technical or innovative activity, select current problems in the subject area and propose methods for solving research problems. PC3. Ability to deeply understand project management methodologies (Waterfall, Agile, Scrum and others), their practical use for managing deadlines, budgets and resources. PC4. Have skills in strategic planning, budget assessment and resource allocation. PC5. Ability to identify risks, develop plans to manage them, and ensure the quality of project execution. PC6. Ability to collect, analyze and interpret data to support management decisions within an IT project, and to be proficient in modern IT tools. PC7. Knowledge of national and international IT standards, including data protection and privacy requirements. PC8. Ability to develop and implement innovative solutions and manage change in organizations. PC9. Have skills in leading interdisciplinary teams, managing conflicts and motivating employees. PC10. Ability to effectively allocate resources and manage communications within an IT project. PC11. Know the methodologies and technologies for conducting scientific research in the field of IT management.

11	Learning outcomes of the educational program: LO1: Know the basics of project, program and portfolio management; own tools and methods of project management; be able to maintain project documentation; be able to conduct market research. LO2: Apply projects risk management techniques. LO3: Manage the quality, timing of projects based on the adoption of optimization decisions on the project of financial management of projects. LO4: Possess the skills of managing and developing the project team; be able to manage stakeholders; be able to use information technologies for project management; have a flexible approach to project management. LO5: Document the process and result of scientific research in accordance with the standards and regulations for the conduct of scientific research, if necessary, using English as a means of communication in professional and scientific activities. LO6: Apply methods of managing stakeholders and counterparties of the project. LO7: Apply methods of business analysis, audit and system analysis of information systems. LO8: To be able to assess the factors of the internal and external environment of companies and projects, to master the skills of financial analysis of companies and projects, to draw up strategies for the development of a company through projects. LO9: Conduct an analysis of the digital infrastructure of the organization, apply methods for optimizing business processes and assess the effectiveness of information resources. LO10: Know the basics of project integration and be able to manage project content; be able to draw up a project plan; possess the skills of project investment analysis; be able to manage the cost and procurement of the project, be able to manage the quality and risks of the project. LO11: Use information technologies for innovation management and effective methods for implementing start-ups and IT projects. LO12: Own the ability to conduct marketing research in the market of high-tech goods; have the ability to model and determine the stages of the life cycle of innovation according to economic and financial criteria. LO13: Develop the field of information and communication technologies by conducting theoretical and experimental research, through the integration of knowledge from existing areas of ICT, new or interdisciplinary areas, and taking into account philosophical, historical, linguistic, psychological factors. LO14: Organize and manage communications, team and project staff development. LO15: Determine the content, methods and means of training sessions in accordance with the objectives of the course for the development of teaching materials and the implementation of educational activities based on psychological and pedagogical principles.	
12	The form of education	Full-time
13	The language of education	English
14	Volume of the credits	120
15	Academic degree awarded	Master of Technical Sciences in the educational program 7M06104 "IT Project management"
16	Name of the professional standard	1. Teacher (faculty) of higher and (or) postgraduate education 2. Software Testing 3. Business analytics and IT project

		management
17	Developer(s) and authors:	JSC "International University of Information Technologies", Department of Information Systems: - Sembina G.K., Candidate of Technical Sciences, Associate Professor. - Ibragim G. K., Master of technical sciences, senior-lecturer

4.2 The matrix of correlation of learning outcomes according to the educational program with the competencies being formed

	LO1	LO 2	LO3	LO4	LO5	LO 6	LO7	LO8	LO9	LO 10	LO 11	LO 12	LO 13	LO 14	LO 15
BC1	V						V	V	V	V		V	V		
BC2					V										
BC3				V										V	V
BC4		V	V			V		V		V		V		V	
BC5					V										
BC6				V			V		V		V		V		V
BC7															V
PC1															
PC2													V		
PC3	V			V											
PC4								V							
PC5		V	V							V					
PC6	V		V				V	V	V	V	V	V			
PC7									V						
PC8											V	V			
PC9				V										V	
PC 10	V	V	V	V		V				V	V			V	
PC 11					V								V		V

4.3 Information about modules/disciplines (if there are modules, you need to highlight them)

№	Name of the discipline	A brief description of the discipline (30-50 words)	Number of credits	LO	Prerequisites	Post-requirements
The cycle of basic disciplines The university component						
1	High School of Pedagogy	The objectives of mastering the discipline "Higher education pedagogy" are - provide knowledge about educational management process for teaching in higher education, to give an idea of the main categories of pedagogy, about the place, role and significance of pedagogy higher education in the system of human sciences and in practical activity teacher, to form an understanding of the basic principles of modern pedagogy and methodological approaches to solving pedagogical problems high school.	4	LO15		Teaching practice
2	Psychology of management	The purpose of the course is a fundamental study of modern	4	LO 14		Project quality and

		main categories of psychological science; work with psychological mechanisms of management and the laws of interpersonal interaction in the conditions of professional activity; substantiation of the relevance of psychological knowledge in solving practical issues in human life; development of systemic, creative thinking of the future specialist, research culture and the need for continuous self-education and self-development.				management
3	Foreign language (professional)	Students will become familiar with the processes of activity and the sequence of procedures that are central to the study: in particular, how to determine the scope and topic of research, how to conduct research, how to work with various databases and data sources. During the course, undergraduates will work on one project.	4	LO5		
4	History and Philosophy of Science	The purpose of the discipline is to form the skills of working with scientific literature; logical, systemic and critical thinking skills. The discipline will study: the main stages of the development of science; history and philosophy of science to form a conscious attitude to the environment and history, the basic principles of research activities.	4	LO13		Scientific research methods
5	Teaching practice	The practice is aimed at consolidating, expanding, deepening and systematizing knowledge on the methodology of teaching special and professional disciplines. The theoretical foundations and patterns of functioning of reforms in the field of education and science, legislative and regulatory legal acts that carry out the activities of educational institutions, principles of making and implementing pedagogical and managerial decisions are studied.	4	LO15		High school of pedagogy
The cycle of basic disciplines Component of choice						
6	Marketing Management	The purpose of the disciplines is to choose a comprehensive view of the use of the company based on the principles of marketing, reflecting the relationship between strategic and tactical marketing decisions and assessing the impact of these decisions on business performance. The course knows the theoretical foundations and the categorical and conceptual apparatus of marketing management, as well as has practical skills in applying the principles and methods of marketing management in the activities of firms and companies.	5	LO12		Financial project management

7	Economics for managers	The purpose of the discipline is to form a clear relationship between the conclusions of economic theory and real market practice. This course covers the main sections of modern economic theory necessary for a manager. Methods for solving economic problems in market conditions are considered.	5	LO8, LO12		Financial project management
8	Innovation management and startups	Methods and tools for analyzing and evaluating the effectiveness of various types of innovations and methods of their implementation, based on investment analysis; Methods of financial assessment of comparing the costs of new technical solutions with their effectiveness; Methods of building an innovation and startup management strategy, taking into account the audit of the company's digital infrastructure in order to assess opportunities	5	LO11		Financial project management
9	Innovation management	This course focuses on innovation, what it is (or not), what it looks like ("search" and "choice") and how it can be managed ("embedded" and "captured"). Innovation is not limited to creativity and new technical ideas, but also takes organizational aspects into account. The course aims to provide an opportunity to learn to use some of the tools and news ways of thinking that are better suited to solving the complex problems and opportunities inherent in modern organizations.	5	LO11		Financial project management
10	Financial project management	This course explores the basic financial concepts in business and project, financial report data and how these reports affect each other, the use of budgets and estimates for planning and cost control, project success indicators, earned value analysis, and forecasting. The course also helps you gain the necessary project and financial management skills to confidently motivate, communicate, make real-time decisions, and achieve business results that support the strategic goals of your team or organization.	5	LO3,LO10	Economics for managers, Marketing management	Project quality and risk management
11	Advanced Financial Management	This course covers a wide range of financial issues, including working with financial statements, assessing future cash flows, evaluating bonds and stocks, assessing risk and profit, evaluating capital budgeting decisions. The course is intended for undergraduates intending to work in various industries who will face difficulties in making financial decisions.	5	LO3,LO10	Economics for managers, Marketing management	Project quality and risk management
The cycle of core disciplines						

The university component						
12	Theory and practice of project management	The main objective of this course is to study modern methodologies, principles, and tools required for defining and managing projects in complex environments, understand of the role of projects in organizational change and innovation, thorough understanding of the phases and activities of the project life cycle, thorough understanding of the concepts of stakeholders, project outputs vs. project outcomes, business case, work breakdown structure, planning & organising, project governance, risks, scope creep and changes.	5	LO1, LO10		Project quality and risk management
13	Pattern recognition methods	We study the methods and technologies of decision support systems by pattern recognition in various systems, methods of their application for information processing and system recognition. The concepts of modeling and simulation in the decision-making process using modern IT technologies are investigated.	5	LO7		Database management methods and business analytics
14	Mathematical programming	Linear and nonlinear programming: simplex method, modified simplex method, general transport problem, production and storage planning problems, integer programming problems and gradient methods. Optimization of linear differential systems based on the dynamic programming method and the Pontryagin maximum principle.	5	LO2		RWGS
15	Scientific research methods	Methods of analysis and processing of static data; information technologies used in scientific research, software products related to the professional sphere; requirements for the design of scientific and technical documentation are considered.	5	LO5, LO13	History and philosophy of science	RWGS
16	Business process management	This course explores the basic principles, standards, technologies, and methodologies of business process modeling; methods of describing business processes are considered. The course consists of theoretical and practical parts. The practical part provides for the execution of tasks of analysis and modeling of business processes, Students also carry out independent work on certain topics.	5	LO9		Analysis and design of information systems architecture
17	Intelligent methods of IP and project management	The study of the discipline is aimed at preparing undergraduates to solve practical data processing problems using modern intelligent problem solving methods, including using the neural network method used for data processing, forecasting and clustering.	4	LO11, LO12		RWGS

		Neural networks allow solving various non-formalized problems of data processing, forecasting and clustering of unstructured data without preliminary formulation of hypotheses.				
18	Project quality and risk management	Undergraduates in the process of studying the course will master the methods and tools for identifying, identifying, analyzing, evaluating and managing various threats, risks, negative scenarios for processes or projects implemented in the company. At the same time, methods of statistical data analysis will be mastered. As a result, undergraduates will learn how to build risk management strategies, knowing how to assess the costs of preventing negative scenarios. Also, in the process of studying the course, the criteria, principles and methods of project quality management will be studied.	4	LO2,LO3,LO10	Theory and practice of project management, Psychology of management	
19	Analysis and design of information systems architecture	The architecture of information systems is being studied. Variants of information systems architectures. Design of information systems. Statement of requirements for IS architecture. Development of technical specifications for the design of information systems. Methodology for designing the architecture of information systems.	4	LO9		Business process management
20	Research practice	The methods of analysis and processing of static data are studied; information technologies used in scientific research, software products related to the professional field; requirements for the design of scientific and technical documentation.	8	LO5	Scientific research methods	RWGS
The cycle of core disciplines Component of choice						
21	Project stakeholders and integration management	Project stakeholders, as a rule, make efforts to a greater or lesser extent to favor the completion of the project, although they can sometimes negatively affect the project if they believe that its further development begins to ignore or infringe on their interests. As a result, the theory and practice of project management devote considerable attention to the classification of stakeholders, the analysis of their interests and, ultimately, the management of their behavior.	4	LO6	Theory and practice of project management	RWGS
22	Effective project team management	All parts of modern science management team project are represented. Considered the procedural human resources of the project. Particular attention is paid to	4	LO4,LO14	Theory and practice of project management	RWGS

		the socio-psychological structure of the team. The stages of team development are considered in detail. Spatial-temporal characteristics of the conflict are studied: conditions, reasons, frequency and form of conflict interaction.				
23	Database management methods and business analytics	The course studies methods and tools for modeling processes and systems, methods for modeling business processes of systems, basic means of computer modeling and organizing computational experiments. At the end of the course, undergraduates will master the skills of designing and developing the design of information systems and databases using modern cloud and network tasks. To solve problems, the course offers a range of computer tools to choose from.	4	LO7	Pattern recognition methods	RWGS
24	Modern data analysis tools	The course focuses on mastering key technologies and methods for working with big data and processing it for decision making. Students study tools for analyzing structured and unstructured data, including modern platforms for visualization and data processing, such as Power BI, Tableau, Python and SQL. The course emphasizes the practical application of machine learning methods, business analysis and automation of data processing processes.	4	LO7		RWGS
The research cycle Required component						
25	Research work of a student, including internship and completion of a master's thesis	The purpose of the undergraduate's research work is the formation of general cultural and professional competencies necessary for conducting both independent research work, the result of which is the writing and successful defense of a master's thesis (project), and research work as part of a research team.	24	LO13	Scientific research methods, Research practice	

5. The curriculum of the educational program

Discipline code	Name of the disciplines	Total					including							Distribution of credits by courses and semesters			
							including				SIW			number of weeks			
		Total credits	Term	Form of control	Course project (work)	Total hours	Classroom	lectures	Practical	Laboratoral	Total	IWST	SIW (out of court)	15	15	15	15
														2024-2025		2025-2026	
														1	2	3	4
	I. Theoretical training																
	1. The cycle of basic disciplines (BD)																
	1) The University component (UC)																
SPS7003	Psychology of management	4	1	экз		120	30	15	15		90	15	75	4			
LAN7001A	Foreign language (professional)	4	1	экз		120	30		30		90	15	75	4			
SPS7001	History and philosophy of science	4	2	экз		120	30	15	15		90	15	75		4		
SPS7002	High School of Pedagogy	4	2	экз		120	30	15	15		90	15	75		4		
PP7301	Teaching practice	4	2			120					120	30	90		4		
	Total BD UC	**20**				**600**	**120**				**480**						
	2) Component of choice (CC)																
MRK7701	Marketing Management	5	1			150	45	15	30		105	15	90	5			
ECO7701	Economics for managers		1				45	15	30		105	15	90				
PM7702	Innovation management and startups	5	2			150	45	15	30		105	15	90		5		
PM7707	Innovation management		2				45	15	30		105	15	90				
PM7701	Financial project management	5	3			150	45	15	30		105	15	90			5	
FIN7701	Advanced Financial Management		3				45	15	30		105	15	90				

	Total BD CC	**15**				**450**	**270**				**630**						
	Total BD UC, CC	**35**				**1050**	**390**				**1110**						
	2. The cycle of core disciplines (CD)																
	1) The University component (UC)																
MGT7701	Theory and practice of project management	5	1			150	45	15	30		105	15	90	5			
SFT7110	Pattern recognition methods	5	1			150	45	15	30		105	15	90	5			
SFT7109	Mathematical programming	5	1			150	45	15	30		105	15	90	5			
RM7101	Scientific research methods	5	2			150	45	15	30		105	15	90		5		
SFT7134	Business process management	5	2			150	45	15	30		105	15	90		5		
PM7102	Intelligent methods of IP and project management	4	3			120	30	15		15	90	15	75			4	
PM7103	Project quality and risk management	4	3			120	30	15	15		90	15	75			4	
PP7101	Research practice	8				240										8	
SFT7133	Analysis and design of information systems architecture	4	4			120	30	15	15		90	15	75				4
	Total CD UC	**45**				**1350**	**270**				**795**						
	3. The cycle of core disciplines (CD)																
	2) Component of choice (CC)																
PM7705	Project stakeholders and integration management	4	3			120	30	15	15		90	15	75			4	
MGT7705	Effective project team management		3			120	30	15	15		90	15	75				
PM7107	Database management methods and business analytics	4	4			120	30	15	15		90	15	75				4
PM7113	Modern data analysis tools		4			120	30	15	15		90	15	75				
	Total CD, CC	**8**				**480**	**120**				**360**						
	Total CD CC, UC	**53**				**1830**	**390**				**1155**						
RW7000	Research work of a student, including internship and completion of a master's thesis (RWGS)	2	1			60								2			

RW7001	Research work of a student, including internship and completion of a master's thesis (RWGS)	3	2			90									3		
RW7002	Research work of a student, including internship and completion of a master's thesis (RWGS)	5	3			150										5	
RW7003	Research work of a student, including internship and completion of a master's thesis (RWGS)	14	4			420											14
	Total RWGS	**24**				**720**											
	Preparation and defense of a master's thesis	8	4			240											
ИА	**Total according to the final certification**	**8**				**240**											
	TOTAL	**120**				**3600**	**780**				**2265**			**30**	**30**	**30**	**22**

6. Approval sheet with developers

The name of the educational program: 7M06104 «IT Project management»

No	Position, academic or academic degree and Surname of the Acting developer of the educational program	Date	Signature	Note
1	Associate Professor of the Department of Information Systems, Ph.D., Associate Professor Sembina Gulbakyt Kakeyevna	07.03. 2024 г.		
2	Senior-lecturer of the Department of Information Systems, Master in Technical Sciences, Ibragim Gulnur Kuandykkyzy	07.03. 2024 г.		