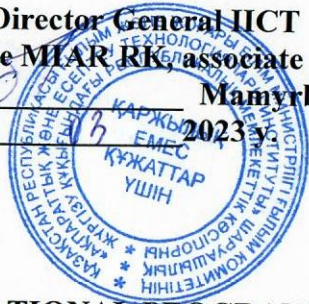


Deputy Director General ICT
 KN of the MIAR RK, associate professor, PhD
 Mamyrbayev O.Zh.

« 30 »



APPROVED
 Director of the A&T Institute
 A. Toygozhinova
 « 30 » 05 2023 y.

CATALOG OF DISCIPLINES OF THE OPTIONAL COMPONENT

EDUCATIONAL PROGRAM

7M06127 -Information systems (by industry)

Degree to be conferred: master's degree

Period of study: 1,5 years

Year of admission: 2023 y.

Module	Cycle	Component	Name of the discipline	General labor intensity		Semester	Learning Outcomes	Brief description of the discipline	Prerequisites	Postrequisites
				in academic hours	in academic credits					
1	2	3	4	5	6	7	8	9	10	11
Module 4 – Professional competencies	DB	HF	Lean	270	9	2	LO7	Studies the basics of managing an organization based on the principles of lean production: minimizing all types of losses in the process of activity, achieving the maximum possible result in the shortest possible period of time, rational use of all types of resources, improving aspects of the organization's activities, involving employees in technological processes; formation of lean thinking among future managers, correlated with the ideas of the concepts of sustainable development and conscious consumption that are relevant to the modern world	Smart technologies and automation, IP reliability	Industrial practice, Final certification
		HF	SMART technologies in transport				LO7	Intelligent technologies used in railway transport are reviewed and studied. The basic concepts of the current state and prospects for the development of railway transport infrastructure based on SMART technologies are described. Familiarization of students with and development of assessment skills for improving the operational safety of railway infrastructure facilities, taking into account the development of computer technologies, software and artificial intelligence.	Smart technologies and automation, IP reliability	Industrial practice, Final certification
Module 4 – Professional competencies	PD	HF	IC reliability	270	9	1	LO8	The purpose of studying the discipline "Reliability of Information Systems" is the theoretical and practical training of undergraduates in the field of reliability theory. The discipline is intended for research into the basic principles of reliability theory, methods for calculating the reliability of	Undergraduate disciplines	Industrial practice, Final certification

								technical devices and systems, features of the analysis and synthesis of information systems taking into account reliability requirements.		
		HF	Server and data storage				PO8	The purpose of the course "Server and Data Warehousing" is to study the fundamentals of modern methods and tools for working with data warehouses, designing data structures, administering data warehouses and studying technologies for generating basic reports and recommendations to enterprise managers on the development of a data domain information system.	Undergraduate disciplines	Industrial practice, Final certification
Module 4 – Professional competencies	PD	HF	Administration of multi-user databases	180	6	2	LO6	The discipline studies the principles of organization, technology, the role of the database, Big Data technologies, with modern DBMSs that support NoSQL data models and database development tools for their effective use in the management of technical systems.	Theory and practice of innovation in infocommunications	Industrial practice, Final certification
		CC6	Modern models and methods of cryptographic protection of information systems				LO6	Studies the basic mathematical research of formalized structures, the formation of logical and systematic thinking of undergraduates. Principles of information protection using cryptographic methods and examples of the implementation of these methods in practice. Modern cryptosystems in particular, their cryptanalysis and the underlying mathematical tools are studied.	Theory and practice of innovation in infocommunications	Industrial practice, Final certification
Module 4 – Professional competencies	PD	HF	Data management in information systems	180	6	2	LO3, LO4	The discipline is aimed at studying practical skills in the field of data management in information systems, allowing the use of modern methods for identifying data in the subject area, organizing data into certain “correct” structures and performing data manipulation in order to meet the information needs of users.	Bachelor's cycle database	final examination
		HF	Data Mining				LO3, LO4	The discipline is aimed at studying the basic methods of applied data analysis, developing skills in the practical application of intelligent analysis methods to solve various scientific and practical problems of economics and management.	Bachelor's cycle database	final examination
Module 4 – Professional competencies	PD	HF	Development risk management software	180	6	1	LO3, LO4	Considers the basic concepts of the theoretical and methodological basis for mastering knowledge in the field of risk management, forming an understanding of the practical aspects of the functioning of risk management units at enterprises.	Undergraduate disciplines	Industrial practice, Final certification

		HF	Object-oriented design and programming methodology			LO3, LO4	The discipline examines the basic concepts in the field of software development using the object-oriented model of modern programming languages. The knowledge gained as a result of mastering the discipline will help in the development of system software components of modern information and calculation programs, in the design and implementation of system components of operating systems to such an extent that undergraduates choose implementation tools, find the necessary software and technological solutions for studying important system and subject matter - oriented tasks.	Undergraduate disciplines	Industrial practice, Final certification
Total				1080	36				

Head of the Department "ICT" _____



D.T. Kasymova