"Kazakh University of Technology and Business" named after K.Kulazhanova" JSC

EDUCATIONAL PROGRAM

6B07525 Standardization, Certification and Metrology (by Industry)

code and name of the educational program

Level: Bachelor's

Approved
by the Board of Directors of JSC
«K.Kulazhanov KazUTB»
"18" 03 2026 protocol No. 4

Recommended
by the Academic Council of JSC
«K.Kulazhanov KazUTB»
"23" 02 2026 protocol No. 7

Astana, 2026

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Preface

The educational program " 6B07525 Standardization, Certification and Metrology (by Industry)" was developed in accordance with the State Compulsory Standard of Higher Education / Postgraduate Education, approved by the order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2, as well as on the basis of professional standards (if any). The development of the educational program also takes into account current professional roles identified in the *Atlas of New Professions*—specifically "Agricultural Export Specialist" and "Product Traceability Systems Engineer"—as well as roles from regional atlases of new professions: "Construction Quality Engineer" and "Agricultural Product Quality Control Specialist" for the Ulytau Region, and "Agro-safety and Product Quality Specialist" for the Abai Region.

The educational program " 6B07525 Standardization, Certification and Metrology (by Industry)" was approved at the meeting of the Council on Academic Quality on "22" 01 2026 protocol No. 3
Chairman Askarbekov E.B. _____
S.N.P. Signature

The educational program "6B07525 Standardization, Certification and Metrology (by Industry)" was approved at the meeting of the Commission on Academic Quality of the Faculty on "19" 12 2025, protocol No. 3
Chairman Safuani Zh.E. _____
S.N.P. Signature

The educational program "6B07525 Standardization, Certification and Metrology (by Industry)" was developed and discussed at the meeting of the department "Technology and Standardization" dated "19" 12 2025, protocol No. 5
Head of the department Orazov A.Zh. _____
S.N.P. Signature

Approval sheet

Educational program "6B07525 Standardization, certification and metrology (by industry)"

AGREED:

Vice-Rector for Administrative Affairs	E.Askarbekov	"22" 01	2026 year
Head of the EPD	B.Bayadilova	"22" 01	2026 year
Head of Staff of the Republican State Enterprise "Kazakhstan Institute of Standardization and Metrology"	I. Yessengeldi	"19" 12	2025 year
Chairman of the «Kazakh research institute of processing and food industry» LLP	Zh.Urazbaev	"19" 12	2025 year
Chairman of the «Association of Halal Industry of Kazakhstan» ALE	M.Sarsenbayev	"19" 12	2025 year
Director of «Scientific and Production Center of Ecological and Industrial Biotechnology» LLP	A. Usenova	"19" 12	2025 year
Director of «Capital managment» LLP	D.Bahtiyarova	"19" 12	2025 year
Student group S&S-241	M.Erezhep	"19" 12	2025 year

1 Passport of the educational program

International Standard Classification of Education (ISCED) level	6
National Qualification Framework (NQF) level	6
Sectoral Qualifications Framework (SQF) level	6
Code and name of the field of education	6B07 Engineering, Manufacturing and Construction Industries
Direction of training	6B075 Standardization, Certification and Metrology (by Industry)
Number and name of the group of educational programs	6B076 Standardization, Certification and Metrology (by Industry)
Code and name of the educational program (EP	6B07525 Standardization, Certification and Metrology (by Industry)
Educational program profile	Higher engineering education
goal of the educational program	Providing high-quality practice-oriented training in the field of standardization and certification with professional and social competencies that meet the requirements of the modern economy and the labor market
completion criterion of an educational program	At least 240 academic credits, including all types of student learning activities
language of instruction of the educational program	Kazakh, Russian
Distinctive features of the educational program	No
Partner University	-

2 Qualification characteristics of a graduate of an educational program

Degree awarded	Bachelor of Engineering and Technology in the educational program 6B07525 - "Standardization, Certification and Metrology (by industry)"
Field of professional activity	Government bodies and institutions: national bodies in the field of technical regulation and metrology, national standardization body, national accreditation center; conformity assessment bodies; testing laboratories and centers; technical committees for standardization; educational and research institutions; industrial and manufacturing enterprises: product quality control, metrological support of production, management system management.
Types of professional activities	Organizational and production activities: - organization of development of measures for product quality management, metrological support for development, production, testing and operation of products; - systematic verification of standards, technical conditions and other documents applied at the enterprise; - implementation of control over testing of finished products and material resources received by the enterprise, implementation of modern methods and means of measurement, control over manufacturing and testing of standardized and unified products; - development (improvement) and implementation of a quality management system, enterprise standards;

	- assessment of the level of defects and analysis of the reasons for their occurrence, implementation of modern methods of quality management, statistical and non-destructive testing; - determination of the nomenclature of measured and controlled parameters of products and technological processes. Design and calculation activities: - development of design and technological solutions in the field of quality management, metrological support and standardization; - preparation of draft technical specifications, standards, instructions and technical descriptions; Experimental research activities: - analysis of the state and dynamics of product quality, metrological support of production, standardization and certification; - creation of theoretical models that allow studying the quality of products and technological processes, assessing the effectiveness of metrological support and standardization; - development of plans, programs and methods for testing, measuring and quality control of products.
Object of professional activity	Products (services), processes (works) and systems; equipment of enterprises and testing laboratories (centers); methods and means of measurements, testing and control; regulatory documentation of standardization systems, certification, quality management, metrology; metrological support of production, social and environmental activities.
Functions of professional activity	PS "Metrology" Metrology Engineer Required job functions: 1. Metrological control 2. Ensuring measurement accuracy

3 Requirements for the content of the educational program

Name of cycles and disciplines	Workload in academic credits
Cycle of general education disciplines (GED)	56
Required component	51
University component	5
Cycle of basic disciplines (BD)	94
University component	35
Component of choice	54
Professional practice	5
Cycle of major disciplines (MD)	82
University component	10
Component of choice	60
Professional practice	12
Final assessment	8
Total	240

4 Additional educational programs (minor)

4.1 Minor «6B07525 Standardization, Certification and Metrology (by Industry)»

Name of disciplines	Workload in academic credits
Introduction to Artificial Intelligence	5

Development of Artificial Neural Networks	5
Artificial Intelligence in Object Management	5
Total	

5 Competency map of the educational program

Competence map of the educational program	Learning outcome code	Learning Outcome (according to Bloom's Taxonomy)
Behavioral skills and personality traits (Softskills)	LO $_{GED1}$	Forms a system of general competencies that ensure the socio-cultural development of the future specialist's personality, based on the formation of their worldview, civic, and moral stance, oriented towards a healthy lifestyle
	LO $_{GED2}$	Capable of communication in both oral and written forms in Kazakh, Russian, and foreign languages to solve tasks related to interpersonal, intercultural, and professional communication
	LO1	Develops competencies in the field of economics, law, the basics of anti-corruption culture, as well as entrepreneurship skills and financial literacy in professional activities
Digital competencies (Digital skills)	LO $_{GED3}$	Promotes the development of information literacy through the mastery and use of modern in-formation and communication technologies in all areas of activity
	LO2	Uses methods of mathematical analysis, digital technologies of artificial intelligence and the fundamentals of patent law to deeply master specialized disciplines, effectively integrating the acquired knowledge into scientific research and professional activities
	LO3	Conducts analysis of measurement results and quality control of products in order to substantiate their compliance with the requirements of technical regulations and standards
	LO4	Monitors the condition of measuring instruments using basic artificial intelligence algorithms, organizes metrological work aimed at improving the accuracy of measurements and the efficiency of production and economic processes
	LO5	Performs analysis of identification characteristics of marked products using modern methods of detecting signs of counterfeiting, ensuring reliability and transparency of product authenticity control
Professional skills (Hardskills)	LO6	Ensures product compliance by leveraging traceability across industries to minimize waste, ensure safety, environmental protection, and life safety, as well as quality control, using regulatory frameworks, sustainability principles, and digital management platforms
	LO7	Assesses the conformity of products and

		production processes with the requirements of the quality system and mechanisms for mutual recognition of results within the framework of technical regulations of the EAEU to ensure product safety
	LO8	Uses integrated processes in the activities of accreditation entities and in quality management to ensure product safety and compliance with international standardization and certification requirements in the field of international trade
	LO9	Conducts quality audits at enterprises, substantiating test results and assessing product characteristics in accordance with customs and government control requirements, including inspections and testing, as well as participation in the acceptance of facilities and interaction with regulatory authorities
	LO10	Applies practice-oriented activities in the development of documents on standardization and inspection control of certified products in order to achieve high quality

6 Learning outcomes of the educational program and modules

(The design layout is landscape)

Key com-peten cies	Learning Outcomes (LO) for the educational program	Name of module	Key com-petencies	Learning Outcomes (LO) for the educational program
Behavioral skills and personality traits (Soft skills))	LO $_{GED1}$ Forms a system of general competencies that ensure the socio-cultural development of the future specialist's personality, based on the formation of their worldview, civic, and moral stance, oriented towards a healthy lifestyle	Module 1 Man and Society – the foundation of worldview and socio-political knowledge	Applies the fundamental laws of Kazakhstan's history, philosophy, and socio-political knowledge for effective socialization and adaptation in changing socio-cultural conditions, shaping a personality capable of mobility in the modern world, critical thinking, and physical self-improvement.	History of Kazakhstan Philosophy Physical Culture Module of Socio-Political Knowledge (Political Science, Sociology, Cultural Studies, Psychology)
	LO_{GED2} Capable of communication in both oral and written forms in Kazakh, Russian, and foreign languages to solve tasks related to interpersonal, intercultural, and professional communication	Module 2 Information and Communication Module	Capable of interpersonal social and professional communi-cation in Kazakh, Russian, and foreign languages	Foreign Language Kazakh (Russian) Language
	LO_{GED3} Promotes the development of information literacy through the mastery and use of modern in-formation and communication technologies in all areas of activ-ity		Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Information and Communication Technologies
Digit	LO 1	Module 1	Apply knowledge of economics and law, as well as	Module of Economics,

al competencies (Digital skills)	Develops competencies in the field of economics, law, the basics of anti-corruption culture, as well as entrepreneurship skills and financial literacy in professional activities	Man and society - the basis of ideological and socio-political knowledge	entrepreneurship and financial literacy skills in professional activities	Entrepreneurship, Law, and Financial Literacy (Fundamentals of Economics and Entrepreneurship, Basics of Law and Anti-Corruption Culture, Basics of Financial Literacy)
	LO 2 Uses methods of mathematical analysis, digital technologies of artificial intelligence and the fundamentals of patent law to deeply master specialized disciplines, effectively integrating the acquired knowledge into scientific research and professional activities	Module 3 Natural Science	Demonstrates knowledge of mathematics for successful study of specialized disciplines, and applies the acquired knowledge in practice to solve educational, practical and professional problems in the studied field.	Higher Mathematics
			Applies methods of searching for sources containing scientific, technical and patent information. Knows modern approaches to organizing research work; methods and protection of intellectual property, copyright and patent law. Able to plan his/her individual research activities; formulate the goal and objectives, object and subject, research hypothesis; process the obtained results, analyze and comprehend them taking into account the available data.	Digital Research and Artificial Intelligence in the Field of Technical Regulation / Educational and Research Work of the Student
				Patent Protection / Licensing Basics
	LO 3 Conducts analysis of measurement results and quality control of products in order to substantiate their compliance with the requirements of technical regulations and standards	Module 4 Educational and industrial	Demonstrates knowledge in the field of standardization and certification. Applies skills of knowledge on the use of the information base of standardization, documents in the field of certification, forms the collection and interpretation of information in practice when developing standards.	Confirmation of Compliance / Classification and Coding of Food Products
				Technical Measurements
				Standardization
			Demonstrates and applies knowledge of the types of food production enterprises, knowledge of the organization of work of their structural divisions in accordance with regulatory documents. Apply theoretical and practical knowledge obtained during training to solve educational, practical and professional problems in production and	Introduction to the Specialty

			subordinate organizations	
	LO 4 Monitors the condition of measuring instruments using basic artificial intelligence algorithms, organizes metrological work aimed at improving the accuracy of measurements and the efficiency of production and economic processes	Module 5 Measurement and technical control	Applies knowledge and understanding of facts, phenomena, theories and complex relationships between them in the area of study. Demonstrates knowledge of verification, calibration, metrological certification of measuring instruments, analysis of measurement schemes for various physical quantities, processing of measurement results and analysis of their reliability, measurement errors. Applies theoretical and practical knowledge of control and measuring equipment, carries out verification, calibration, repair and adjustment of measuring instruments.	General Theory of Measurement
				Metrology / Methods and Means of Measurement Using Artificial Intelligence
				Metrological Ensuring of Production
			Demonstrates knowledge of the principles of technical regulation and aspects of metrological support, methods for assessing the quality of products and processes, as well as knowledge of the basics of artificial intelligence	Fundamentals of Technical Regulation and Metrology/ Quality Research Methods/ Introduction to Artificial Intelligence
			Applies effective economic planning of enterprise activities	Economics and Planning at the Enterprise
			Demonstrates learning skills to solve educational, practical and professional problems.	Production Practice 1
	LO 5 Performs analysis of identification characteristics of marked products using modern methods of detecting signs of counterfeiting, ensuring reliability and transparency of product authenticity control	Module 6 Identification and Analysis	Apply knowledge of legislative requirements governing the packaging and labeling process. Be able to identify the types of packaging materials used for food safety, know the requirements for the processes of creating, using, storing, transporting and disposing of packaging. Read and evaluate information on product labels, identify labels for reliable information, and be able to formulate and compile label information.	Packaging and Labeling of Goods / Food Containers
			Demonstrates to students the skills and knowledge to effectively identify counterfeit products and documents;	Basics of Product and Document Identification/

			differentiate between genuine and counterfeit products, use tools and methods to verify the authenticity of products, and methods to detect counterfeit documents	Adulteration of Food Products
Professional skills (Hardskills)	LO 6 Ensures product compliance by leveraging traceability across industries to minimize waste, ensure safety, environmental protection, and life safety, as well as quality control, using regulatory frameworks, sustainability principles, and digital management platforms		Collects and interprets information and data to analyze risks of potentially hazardous factors (biological, chemical, physical) that arise during the production of food products. Identifies and eliminates these risks. Forms scientific judgments for the purpose of establishing critical control limits (based on HACCP principles) in food production. Develops mechanisms and methodologies for instrumental research to determine the quality of food products	Risk and Hazard Analysis / Agricultural Product Safety
			Demonstrates knowledge of the main technical and design characteristics of products, principles and methods of assessing their quality management, as well as the specifics of the database and expert systems for selecting quality indicators.	Qualimetry / Methods and Tools of Agricultural Product Quality Management
			Applies principles of sustainable development, environmental responsibility and life safety.	Sustainable Development, Ecology, and Life Safety
			Applies knowledge of the organization and control of work in the field of conformity assessment, knows the legislative framework of the Republic of Kazakhstan, as well as the forms, schemes and procedure for conformity assessment. Possesses skills in analyzing the state of production, including technological processes, analyzing the results of measurements and quality control of products, as well as managing and processing statistical data on product quality at all stages of production and its implementation	Statistical Methods of Product and Process Quality Management / Data Processing in Quality Management Processes / Development of Artificial Neural Networks Artificial Intelligence in Object Management
	LO 7 Assesses the conformity of	Module 7 Quality System	Apply methods of implementing a management system for the relevant profiles of the organization, optimizing	Conformity Assessment / Certificates of Origin

	products and production processes with the requirements of the quality system and mechanisms for mutual recognition of results within the framework of technical regulations of the EAEU to ensure product safety		processes and increasing the efficiency of enterprises, and interpret production processes with the requirements of the functional standard of the management system by industry to improve the quality of products and services, reduce risks and satisfy stakeholders	Management Systems Standards / Management Systems Methods
				Quality Management Systems
			Demonstrates knowledge of the basic provisions of the laws and technical regulations of the Customs Union, regulatory documents in the field of quality and safety of food products, and is able to apply HACCP principles in food industry enterprises	Food Safety Management System / Technical Regulation And Standardization Of Agricultural Products Within The EAEU
	LO 8 Uses integrated processes in the activities of accreditation entities and in quality management to ensure product safety and compliance with international standardization and certification requirements in the field of international trade	Module 8 Quality Management	Knows the requirements of the legislation on accreditation of the Republic of Kazakhstan, has knowledge of the subjects, processes, criteria and procedures of accreditation. Demonstrates theoretical knowledge and basic skills in conducting documentary examination of accreditation materials; in on-site inspection during accreditation, inspection check; as an observer during control tests, research, witness assessments	Accreditation of Conformity Assessment Bodies and Testing Laboratories / Organization of Testing Laboratory Activities
			Formulates arguments and solves problems in the field of technical regulation at the international level, and uses learning skills to independently continue further education in the field of national and international standardization and certification.	International Standardization and Certification / International and Regional Standardization
			Knows the principles of creating and implementing integrated quality and safety management systems, and also studies hygienic requirements and methods for ensuring food safety at all stages of production and circulation	Development and Implementation of Integrated Management Systems / Hygiene Basics and Food Safety
			Possesses sufficient skills in handling modern technology, is able to use knowledge and understanding of facts, phenomena, theories and complex relationships between	Quality Control / Methods of Agricultural Product Analysis

			them, information and digital technologies in the field of professional activity.	
			Demonstrates learning skills to solve educational, practical and professional problems.	Production Practice 2
	LO 9 Conducts quality audits at enterprises, substantiating test results and assessing product characteristics in accordance with customs and government control requirements, including inspections and testing, as well as participation in the acceptance of facilities and interaction with regulatory authorities	Module 9 Expertise and product safety	Possesses skills in planning and processing the results of tests for reliability and the impact of external factors, makes decisions on the quality of products based on test results	Product Testing, Control and Safety
			Masters methods of examination of food products, including meat and milk, to assess their quality, safety and compliance with regulatory requirements. Applies the main methods and techniques for assessing the quality of food products, including organoleptic, physical and chemical quality indicators (description of procedures) and working instructions (protocols), labeling, quality gradations and product range.	Expertise of Food Products / Quality Expertise of Agricultural Products
			Demonstrates and applies knowledge in the field of legislative framework for technical regulation. Collects and interprets information on the safety of food products, the specifics of auditing and customs control of the system of state regulation of foreign trade activities, as well as state supervision services in the field of certification and declaration of goods.	Customs Control of Food Safety / State Supervision in the Field of Standardization, Certification and Metrology
				Audit Quality in the Food Industry / Quality Audit of Agricultural Products
	LO 10 Applies practice-oriented activities in the development of documents on standardization and inspection control of certified products in order to achieve high quality	Модуль 10 Professional and technical activities	Apply knowledge based on advanced achievements at a professional level to develop new and revise existing standards, specifications and other documents on standardization and certification, taking into account scientific considerations. Possesses professional knowledge to participate in the development of draft standards, methodological and regulatory materials,	Technology for the Development of Standards and Documents for Food Products / Technology for the Development of Standards and Documents for the Standardization of

			technical documentation and their practical implementation (methods of academic writing). Monitors compliance with established requirements, current norms and rules.	Agricultural Products
			Demonstrates knowledge aimed at preventing, identifying, and suppressing violations of the legislation of the Republic of Kazakhstan in the field of technical regulation in order to ensure the safety of technical regulation objects and the reliability of their compliance assessment.	State Control and Supervision in the Field of Technical Regulation / Control in the Field of Technical Regulation
			Demonstrates knowledge in the professional area of a specialist in the process of training, retraining and advanced training, training, certification and certification of personnel in the field of technical regulation: experts in conformity assessment, accreditation assessors, measuring instrument verifiers; technical experts in standardization and accreditation, and other specialists in accordance with current requirements and areas of activity in the field of technical regulation	Training of Specialists in the Field of Technical Regulation / Professional Skills of Expert Auditors
			Demonstrates skills in organizing work at food industry and public catering enterprises in the field of technical regulation	Pre-graduate Practice /Production Practice
	LO 11 Apply theoretical and practical knowledge, learning skills to independently solve assigned educational, practical and professional tasks at the end of the course and when continuing education at subsequent levels, as well as in professional activities	Модуль 11 Итоговая аттестация	Understands the goals, methodology and methods of professional activity of an engineer, production manager and standardization and certification organization, and applies scientific research in this area. Apply acquired skills in preparation for continuing further education in the profile of the studied educational program	Final Certification

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

(The design layout is landscape)

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
Cycle of general education disciplines University component/Elective component																	
1	History of Kazakhstan	The purpose of the discipline shall be to give objective knowledge about the main stages in the development of the history of Kazakhstan from ancient times to the present. The program consists of 5 thematic blocks: Ancient people and the formation of a nomadic civilization, Turkic civilization and the Great Steppe, Kazakhstan in a new era (XVIII-early XX centuries), Kazakhstan in the Soviet period, and Independent Kazakhstan. Upon completion of the discipline, student applies skills of analytical, axiological, critical analysis in the study of historical processes for an objective understanding of the modern Kazakh model of development.	5	+													
2	Foreign Language	The goal of the curriculum shall be the formation of intercultural communicative competence of students in the process of foreign language education at a sufficient level (A2, common European framework) and the level of basic sufficiency (B1, common European	10		+												

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		framework). The course content entails a sequential study of language proficiency levels by integrating social, socio-cultural, and academic-professional communication spheres. Upon completion of the discipline, student will be able to articulate potential solutions to contemporary issues in a foreign language, utilizing evidence-based information and reasoned arguments.															
3	Kazakh (Russian) Language	The purpose of the program - to teach the Kazakh (Russian) language in accordance with international standards for teaching languages, to increase the importance of the Kazakh language as the state language and the Russian language as a medium for intercultural and professional communication, developing competence in the use of the Kazakh (Russian) language by a future specialist as a means of communication in scientific, socio-cultural, political, professional spheres of public life. Upon completion of the curriculum, the student shall show competence in conditions of personal, social and professional communication in accordance with the peculiarities of the language, culture,	10		+												

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		communication situation.															
4	Information and Communication Technologies	The purpose of the program is to develop the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, and methods of collecting and transmitting information through digital technologies. Studies the fundamentals of working with information, digital technologies, and computer systems; the application of software, internet services, and ICT in professional and research activities; information security; and artificial intelligence technologies. Upon completion of the discipline, student will be able to utilize digital technologies to develop data analysis and management tools for various fields of activity.	5			+											
5	Physical Culture	The goal of the curriculum shall be the formation of socio-personal competences of students and the ability to purposefully use the means and methods of physical culture for conservation, promotion of health to prepare for professional activities; to take physical stress, mental stress and adverse factors in their future activities. Upon completion of the curriculum, the student shall to use a variety of forms and types of physical activities for healthy life, active	8	+													

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		recreation and leisure.															
6	Philosophy	The purpose of the program is to develop students' holistic understanding of philosophy as a special form of knowledge of the world, its main branches, problems, and methods of their study in the context of future professional activity. The discipline covers the key directions in the emergence and development of philosophy, the foundations of the philosophical understanding of the world, the philosophy of the human being, and the world of values. Upon completion of the discipline, student argue their own moral position regarding relevant issues of contemporary global society.	5	+													
7	Module of Socio-Political Knowledge (Political Science, Sociology, Cultural Studies, Psychology)	The objective of the discipline is to form the socio-humanitarian worldview of learners in the context of addressing the tasks of modernizing public consciousness, encompassing the interdisciplinary study of sociology, political science, cultural studies, and psychology while integrating principles of inclusion and the «Adal Azamat» (Honest Citizen) value orientations as fundamental pillars for the development of modern society. Upon completion of the discipline, the student interprets	8	+													

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		socio-humanitarian knowledge and ethical values based on scientific methods of social analysis, participates in conflict resolution, and provides reasoned advocacy for positions regarding the modernization of Kazakhstan.															
8	Module of Economics, Entrepreneurship, Law and Financial Literacy (Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture, Fundamentals of Financial Literacy)	The discipline is aimed at developing entrepreneurial thinking, financial responsibility, legal literacy, fostering an anti-corruption culture, and commitment to the principles of law and order in a market economy. Its content includes the fundamentals of economics, entrepreneurship, financial literacy, law, anti-corruption culture. As a result of studying the discipline, the student has the skills to make effective economic decisions, ensure legal protection, apply financial literacy, and adhere to anti-corruption practices.	5				+										
Cycle of basic disciplines University component/Elective component																	
9	Introduction to the Specialty	This discipline is designed to develop fundamental knowledge about ensuring product quality and the uniformity of measurements. The	3						+								

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		discipline covers standardization rules, conformity assessment procedures, the fundamentals of metrology, and regulatory documentation. Upon completion of this discipline, students will competently apply regulatory documents to assess and confirm product quality, using metrological tools and legal frameworks															
10	Higher Mathematics	The discipline is aimed at forming knowledge of the fundamentals of higher mathematics and familiarization with mathematical methods for solving standard problems and their application in practice. The content of the discipline covers theoretical and practical problems related to elements of linear and vector algebra, mathematical analysis, and probability theory. As a result of studying the discipline, the student solves applied problems by constructing mathematical models.	5					+									
11	General Theory of Measurement	This discipline is designed to master the methodology for assessing the accuracy of measurement systems. The discipline covers physical measurement calculations, methods for processing results, and the assessment of errors and uncertainties. Upon completion of the discipline, students analyze the	5							+							

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		reliability of measurement information to make technical decisions using probability theory															
12	Quality Management Systems	The discipline is studied with the aim of providing students with knowledge of ISO 9000 series requirements, development of processes and documented procedures, implementation of ISO 9001 at food production enterprises, as well as conducting inspection control, internal and external audits. The discipline content covers principles and methods of building a quality management system, development, implementation, control, and improvement of QMS processes. As a result of studying the discipline, the student acquires the skills of analysis, development and practical application of a quality management system at enterprises	5										+				
13	Standardization	This discipline is studied to develop a systematic approach to the development and application of regulatory documents. The content covers the principles of standardization, categories and types of standards, and rules for the construction and application of technical regulations. Upon completion of the discipline, students will effectively apply standard requirements to control the safety of	5						+								

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		products and processes, using the regulatory framework															
14	Technical Measurements	This discipline is designed to master the range of measuring instruments and their capabilities. The content covers the types of measuring instruments, their technical characteristics, and measurement methods. Upon completion of this discipline, the student will be able to correctly select a measuring instrument for monitoring the parameters of a part, using the instrument's specifications	4						+								
15	Sustainable Development, Ecology, and Life Safety	This discipline is designed to cultivate a systemic understanding of the principles of balancing economic development, social well-being, environmental preservation, and the protection of human life and health. It covers key issues in ecology, environmental protection, life safety, and sustainable development. Upon completion of the course, students will be able to apply the principles of sustainable development, environmental safety, and occupational health and safety to manage energy and waste within a circular economy framework.	5									+					
16	Economics and Planning at the Enterprise	The discipline is aimed at forming knowledge about the principles of enterprise functioning and the planning of its economic activities.	3							+							

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		The content covers the economic foundations of enterprise operations, the planning of production and financial indicators, the use of fixed assets and working capital, labor resource planning, cost formation, and the evaluation of enterprise performance efficiency. As a result of studying the discipline, the student substantiates planning decisions on the basis of economic calculations.															
17	Risk and Hazard Analysis	This discipline is designed to develop knowledge in risk and hazard analysis across industries. It covers risk management methods, project assessment, and digital monitoring tools. Upon completion, students analyze risks to minimize losses using assessment methods, regulatory requirements, and digital management systems	5									+					
18	Agricultural Product Safety	This discipline is designed to develop knowledge about the safety and quality control of agricultural products. It covers standards (HACCP, ISO, organic, and export), laboratory analysis methods, and certification requirements. Upon completion of this discipline, students monitor product safety to ensure compliance with standards, using safety, organic, and export standards	5									+					

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
19	Introduction to Artificial Intelligence (Minor)	The discipline is aimed at forming fundamental knowledge about the principles and methods of artificial intelligence and the application of intelligent technologies in solving professional tasks. The content covers the stages of the development of artificial intelligence, the fundamentals of machine learning, elements of neural networks, data processing methods, intelligent systems, and the areas of application of artificial intelligence technologies. As a result of studying the discipline, the student applies artificial intelligence technologies in various fields of professional activity.	5							+							
20	Qualimetry	This discipline is designed to develop knowledge and skills in quantitatively assessing the quality of products and processes. It covers qualimetric methods, constructing quality indicators, and standardizing them. Upon completion of this discipline, students will evaluate the quality of objects for decision-making purposes using qualimetric methods and models	5					+									
21	Classification and Coding of Food Products	This discipline is designed to master the systematization and identification of food products. The content covers classifiers (TN VED, OKP codes), barcoding, code structure, and assignment rules. Upon completion	4						+								

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		of the discipline, the student will classify food products by TN VED codes to automate accounting and traceability using unified coding systems															
22	Methods and Tools of Agricultural Product Quality Management	This discipline is designed to develop knowledge of agricultural product quality management methods and tools. It covers process organization (sample preparation, laboratory control, HACCP) and the application of regulatory requirements. Upon completion of this discipline, students monitor product safety using practical experience, quality management methods, and the regulatory framework	5									+					
23	Methods and Means of Measurement Using Artificial Intelligence	This discipline is designed to automate measurement processes using AI technologies. The discipline covers intelligent sensors, machine vision, neural network signal processing, and error prediction. Upon completion of this discipline, students will optimize measurement procedures to improve their accuracy and speed using AI algorithms	5								+						
24	Quality Research Methods	This discipline is designed to master modern methods for assessing product quality. The content covers organoleptic, physicochemical, microbiological, and instrumental analytical methods. Upon completion	5							+							

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		of this discipline, students conduct quality testing to confirm product conformity using laboratory equipment and methods															
25	Management Systems Methods	This discipline is designed to develop knowledge about the methods of operating and improving management systems. The discipline covers tools for analyzing, evaluating, and improving processes. Upon completion of this discipline, students apply management systems methods to improve performance, using analytical tools and approaches	5										+				
26	Metrology	This discipline is studied to ensure the uniformity and required accuracy of measurements. The content covers physical quantities, standards, measuring instruments, measurement methods, errors, and result processing. Upon mastering the discipline, students competently perform measurements to control product parameters using verified instruments and metrological rules	5							+							
27	Data Processing in Quality Management Processes	This discipline is designed to develop knowledge of data processing in quality management processes. It covers methods for collecting, analyzing, and interpreting data to establish monitoring processes for production at various stages using cloud-based systems.	5									+					

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		Upon completion of this discipline, students process data to make decisions during product tracking using a data analysis system and digital tools															
28	Basics of Product and Document Identification	This discipline is designed to develop methods for recognizing the authenticity of goods and accompanying documents. The content covers types of counterfeiting, verification of markings, certificates, and declarations, as well as identification based on product characteristics. As a result of the training, the student establishes the authenticity of products and accompanying documents to ensure their compliance with requirements, using methods of identification, labeling analysis, and documentation verification	5								+						
29	Licensing Basics	This discipline is designed to teach the procedures for obtaining permits for specific types of activities. The content covers the regulatory framework, license types, applicant requirements, application stages, and compliance monitoring. Upon completion of the discipline, students will prepare licensing documentation for legally conducting business, using regulations and legislation	5					+									

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
30	Fundamentals of Technical Regulation and Metrology	This discipline is designed to develop basic knowledge of the legal framework for ensuring the uniformity of measurements and quality. The discipline covers technical regulations, key aspects of metrological control, standardization, and conformity assessment. Upon completion of this discipline, students will apply the legal framework of technical regulation to the metrological control of products, using the legislation of the Republic of Kazakhstan	5							+							
31	Patent Protection	The discipline is aimed at creating competencies in the field of legal protection of technical solutions and the results of intellectual activity. The content of the discipline includes objects of patent law, criteria for patentability, search for patent information, structure of a patent application, design of a description and claims. Mastering the discipline provides the ability to determine the patentability of decisions and execute patent documentation.	5					+									
32	Confirmation of Compliance	This discipline is designed to master procedures for confirming product compliance with mandatory requirements of the Republic of Kazakhstan and the Eurasian Economic Union. The content covers confirmation forms (certification,	4						+								

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		declaration), procedures, registration in the Unified Register, and inspection control. Upon completion of the discipline, the student will organize the conformity confirmation procedure for product market approval, using the regulatory framework															
33	Development of Artificial Neural Networks (Minor)	The discipline is aimed at forming theoretical knowledge and practical skills in the development and application of artificial neural networks for intelligent information processing. The content covers the principles of construction and functioning of artificial neural networks, the main neural network architectures, training methods, data preparation and processing, and tools for developing neural network models. As a result of studying the discipline, the student develops neural networks to solve problems of data processing and intelligent systems.	5									+					
34	Management Systems Standards	This discipline is designed to develop knowledge of management system standards and the principles of their application. The discipline covers the requirements of international standards, as well as the structure and implementation of management systems. Upon completion of this discipline,	5										+				

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		students develop and implement management systems to improve efficiency, utilizing the requirements of the standards															
35	Statistical Methods of Product and Process Quality Management	This discipline is designed to develop knowledge of statistical methods for managing product and process quality. It covers methods of statistical analysis, process control, and regulation. Upon completion of this discipline, students apply statistical methods to improve quality using data analysis and processing tools	5									+					
36	Food Containers	This discipline is designed to select the optimal packaging for preserving the quality of food products. It covers container types (glass, metal, polymers, cardboard), their properties, safety requirements, and labeling. Upon completion of this discipline, students will select the appropriate packaging for a specific product to ensure its safety, using regulatory documents	5								+						
37	Packaging and Labeling of Goods	This discipline is designed to understand packaging and product identification requirements. It covers types of packaging materials, markings (including barcodes, symbols, and labels), and information application rules. Upon completion of this discipline, students will be able to identify	5								+						

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		products by markings to ensure traceability and consumer protection, using regulatory documents.analysis, label development and compliance															
38	Educational and Research Work of the Student	This discipline is designed to develop skills in independent scientific research. The content covers problem definition, literature review, methods of data collection and processing, and presentation of results. Upon completion of the discipline, students conduct academic research to solve a professional problem using scientific methods and information technology	5					+									
39	Adulteration of Food Products	This discipline is designed to develop methods for identifying and preventing food counterfeiting. The discipline covers the types of counterfeiting (product range, quality, and quantity), detection methods, and the regulatory framework. Upon completion of this discipline, students will recognize signs of counterfeiting to protect consumer rights using organoleptic and laboratory methods	5								+						
40	Digital Research and Artificial Intelligence in the Field of Technical Regulation	This discipline is designed to digitalize conformity assessment, standardization, and metrology processes. The content covers the latest advances in digital research, artificial intelligence, and data analysis for standardization,	5					+									

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		metrology, and certification. As a result of the training, students model technical regulation processes for scientific research using AI algorithms and digital platforms															
Cycle of major disciplines University component/Elective component																	
41	Product Testing, Control and Safety	This discipline is designed to develop knowledge about testing, monitoring, and ensuring product safety across industries. It covers testing methods, non-destructive testing, regulatory requirements, and documentation management. Upon completion of this discipline, students monitor the quality of work and materials to ensure compliance with requirements, using testing methods and regulatory documents	5												+		
42	Metrological Ensuring of Production	This discipline is designed to develop knowledge of metrological support for production and the uniformity of measurements. It covers methods for verifying and calibrating measuring instruments and managing measurement processes. Upon completion of this discipline, students will ensure measurement accuracy for product quality using metrological methods and regulatory requirements	5							+							
43	Accreditation of	This discipline is designed to develop knowledge of accreditation	5											+			

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
	Conformity Assessment Bodies and Testing Laboratories	procedures for conformity assessment bodies and testing laboratories. It covers accreditation requirements, competence assessment criteria, and international standards. Upon completion of this discipline, students assess the compliance of organizations to confirm their competence using regulatory requirements and accreditation procedures															
44	Audit Quality in the Food Industry	This discipline is designed to develop skills for objectively assessing management systems for compliance with standards. The discipline covers audit methodology, nonconformity management, corrective actions, and management review. Upon completion, students will organize audits to ensure product safety, using risk-based approaches and the regulatory framework of the food industry	5												+		
45	Quality Audit of Agricultural Products	This discipline is designed to develop knowledge about agricultural product quality auditing. It covers audit methods, conformity assessment, and documentation analysis for agricultural products. Upon completion of this discipline, students will conduct audits to assess product quality using regulatory requirements and control	5												+		

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		methods															
46	Hygiene Basics and Food Safety	This discipline is designed to develop knowledge of hygiene principles and food safety. It covers sanitary and hygienic requirements, risk factors, and safety control methods. Upon completion of this discipline, students will ensure food safety to protect consumers using hygiene standards and control methods	5											+			
47	State Control and Supervision in the Field of Technical Regulation	This discipline is designed to develop knowledge of state control and supervision in the field of technical regulation. It covers the functions of control bodies, the regulatory framework, and methods for verifying compliance. Upon completion of this discipline, students will implement control and supervision to ensure compliance with technical regulations, using regulatory documents and verification procedures	5													+	
48	State Supervision in the Field of Standardization, Certification and Metrology	This discipline is designed to develop knowledge of government oversight in the areas of standardization, certification, and metrology. It covers the functions of oversight bodies, control methods, and the regulatory framework. Upon completion of this discipline, students will conduct oversight to ensure compliance with	5												+		

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		requirements using regulatory documents and control methods															
49	Artificial Intelligence in Object Management (Minor)	The discipline is aimed at forming knowledge and skills in the application of artificial intelligence methods for the analysis, modeling, and control of technical and information objects. The content covers methods and algorithms of artificial intelligence in control systems, intelligent decision-making methods, data processing and analysis, and the application of machine learning and intelligent systems. As a result of studying the discipline, the student applies artificial intelligence technologies in object control systems.	5									+					
50	Control in the Field of Technical Regulation	This discipline is designed to develop knowledge about control in the field of technical regulation. It covers types of control, technical regulation requirements, and compliance verification procedures. Upon completion of this discipline, students will implement controls to ensure compliance with requirements using regulatory documents and verification methods	5													+	
51	International and Regional Standardization	This discipline is designed to develop knowledge of international and regional standardization. It covers the activities of international and regional organizations, as well	5											+			

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		as the development and application of standards. Upon completion of this discipline, students will apply standards to ensure the harmonization of requirements, using international and regional regulatory documents															
52	International Standardization and Certification	This discipline is designed to develop knowledge of international standardization and certification of products and services. It covers international standards of various countries, certification procedures (import and export of goods), and the activities of organizations under international agreements. Upon completion of this discipline, students will apply international requirements to ensure compliance during the import and export of goods, using standards and certification procedures	5											+			
53	Methods of Agricultural Product Analysis	This discipline is designed to develop skills in agricultural product analysis methods. It covers physicochemical, microbiological, and organoleptic methods of analysis. Upon completion of the discipline, students analyze products to assess their quality using modern methods and laboratory equipment	5										+				
54	Organization of Testing Laboratory	This discipline is designed to develop knowledge about the organization of testing laboratories. It	5											+			

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
	Activities	covers structure, process management, and equipment and personnel requirements. Upon completion of this discipline, students will organize laboratory operations to ensure the reliability of results, using regulatory requirements and control methods															
55	Conformity Assessment	This discipline is designed to develop knowledge of the procedures and forms for assessing the conformity of products and processes. It covers regulatory requirements, testing methods, certification and declaration, accreditation of entities performing conformity assessment, and the certification of expert auditors. Upon completion of this discipline, students assess the conformity of objects to ensure quality and safety using regulatory documents and testing methods	5										+				
56	Training of Specialists in the Field of Technical Regulation	This discipline is designed to develop students' professional competencies in the field of technical regulation. It covers training specialists in technical regulation, including standardizers, conformity assessors, and metrologists. Upon completion of this discipline, students develop a resume, systematizing their knowledge in the field of technical regulation and	5													+	

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		demonstrating their professional skills through practical experience															
57	Professional Skills of Expert Auditors	This discipline is designed to develop students' professional skills as auditors. It covers the certification procedure for auditors, requirements for auditors, and the functional responsibilities of auditors. Upon completion of this discipline, students prepare for certification by developing a resume and documenting their work experience, using regulatory requirements and professional standards	5													+	
58	Development and Implementation of Integrated Management Systems	This discipline is designed to develop knowledge about the development and implementation of integrated management systems. It covers the principles of integrating quality, environmental, and safety systems, as well as their documentation and implementation. Upon completion of this discipline, students implement integrated management systems to improve organizational performance, using international standards	5											+			
59	Certificates of Origin	This discipline is designed to develop knowledge of the procedures for obtaining and applying certificates of origin for goods. It covers the types of certificates, legal requirements, and procedures for confirming product	5										+				

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
		origin. Upon completion of this discipline, students will be able to obtain and apply certificates of origin to confirm the legitimacy and quality of goods, using regulatory documents and certification rules															
60	Food Safety Management System	This discipline is designed to develop knowledge in food safety management systems. It covers HACCP, laboratory testing, sample preparation, sanitary requirements, and risk management. Upon completion of this discipline, students will monitor product safety to prevent risks using analytical methods, laboratory diagnostics, and regulatory requirements	5										+				
61	Customs Control of Food Safety	This discipline is designed to develop knowledge of customs control of food safety. It covers customs procedures, safety requirements, and control methods for moving products across borders. Upon completion of this discipline, students will be able to implement controls to ensure food safety using customs regulations and regulatory documents	5												+		
62	Technical Regulation And Standardization Of Agricultural	This discipline is designed to develop knowledge of technical regulation and standardization of agricultural products within the Eurasian Economic Union (EAEU). The discipline covers EAEU	5										+				

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
	Products Within The EAEU	technical regulations, conformity assessment, the manufacturer register, and product requirements. Upon completion of this discipline, students apply EAEU requirements to ensure product compliance, using regulatory documents and assessment procedures															
63	Technology for the Development of Standards and Documents for Food Products	This discipline is designed to develop knowledge of the technology for developing standards and documents for food products. It covers the development and updating of standardization documents, including design (technological) documentation, as well as the work of technical committees for standardization (TC, MTC, ISO/IEC TC). Upon completion of the discipline, students develop standardization documents for food products using regulatory requirements and methodological approaches	5													+	
64	Technology for the Development of Standards and Documents for the Standardization of Agricultural	This discipline is designed to develop knowledge of the technology for developing standards and documents for standardizing agricultural products. The discipline covers the development rules, structure, and format of regulatory documents. Upon completion of this discipline, students develop standards for agricultural products	5													+	

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)													
				LO GED1	LO GED2	LO GED3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO 10	
	Products	using regulatory requirements and methodological approaches															
65	Quality Control	This discipline is designed to develop knowledge of quality management and production process coordination. It covers planning, process monitoring, logistics, and data analysis. Upon completion, students manage processes to improve efficiency using digital platforms, analytical methods, and production knowledge	5											+			
66	Quality Expertise of Agricultural Products	This discipline is designed to develop knowledge and skills in agricultural product quality assessment. It covers quality assessment methods, defect identification, and regulatory requirements. Upon completion of this discipline, students will conduct product quality assessments to evaluate their compliance using analytical methods and standards	5												+		
67	Expertise of Food Products	This discipline is designed to develop knowledge and skills in food product testing. It covers quality assessment methods, counterfeit identification, and regulatory requirements. Upon completion of this discipline, students conduct tests to determine product quality and safety using analytical methods and regulatory documents	5												+		

8 Alignment of planned learning outcomes with assessment technologies and teaching methods within the module

Learning Outcomes (LO) Number	Planned learning outcomes for the module	Assessment technologies (tools)	Methods of learning and teaching
LO GED1	Applies the fundamental laws of Kazakhstan's history, philosophy, and socio-political knowledge for effective socialization and adaptation in changing socio-cultural conditions, shaping a personality capable of mobility in the modern world, critical thinking, and physical self-improvement.	Educational research project, content analysis, abstract, report, creative work, essay-substantiation, analytical review, scientific research project, case analysis, testing, others.	Interactive lecture (problem lecture, discussion lecture, lecture-conference, lecture-consultation, lecture "Press conference", lecture "Questions-answers-discussion"), seminar and others.
LO GED2	Capable of interpersonal social and professional communi-cation in Kazakh, Russian, and foreign languages	Тренажер, кейс-задача, творческое задание, проект, тестирование и т.д.	Simulator, case task, creative assignment, project, testing, etc.
LO GED3	Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Business and/or role-playing game, creative task, testing, etc.	Communicative and activity-based approach to language acquisition, practical methods, interactive lectures, seminars, etc.
LO1	Apply knowledge of economics and law, as well as entrepreneurship and financial literacy skills in professional activities	Writing essays, analyzing texts of different genres, creative tasks demonstrating the ability to correctly express one's thoughts, tests, presentations, business games, etc.	Interactive lecture, seminar (seminar "Identifying the problem", seminar "Solving the problem", seminar "Application of the solution to the problem") and others.
LO2	Demonstrates knowledge of mathematics for successful study of specialized disciplines, and applies the acquired knowledge in practice to solve educational, practical and professional problems in the studied field.	Colloquium, multi-level tasks and assignments, testing, etc.	Case study (analysis of specific situations), project method (development and transformation of one's own experience and competence), and others.
	Applies methods of searching for sources containing scientific, technical and patent information. Knows modern approaches to organizing research work; methods and protection of		

	intellectual property, copyright and patent law. Able to plan his/her individual research activities; formulate the goal and objectives, object and subject, research hypothesis; process the obtained results, analyze and comprehend them taking into account the available data.		
LO3	Demonstrates knowledge in the field of standardization and certification. Applies skills of knowledge on the use of the information base of standardization, documents in the field of certification, forms the collection and interpretation of information in practice when developing standards.	Multi-level tasks and assignments, work with physical or virtual equipment, test, blitz survey, etc.	Understanding and interpreting the meanings of a text based on cognitive modeling of its content and the context of its functioning, etc.
	Demonstrates and applies knowledge of the types of food production enterprises, knowledge of the organization of work of their structural divisions in accordance with regulatory documents. Apply theoretical and practical knowledge obtained during training to solve educational, practical and professional problems in production and subordinate organizations		
LO4	Applies knowledge and understanding of facts, phenomena, theories and complex relationships between them in the area of study. Demonstrates knowledge of verification, calibration, metrological certification of measuring instruments, analysis of measurement schemes for various physical quantities, processing of measurement results and analysis of their reliability, measurement errors. Applies theoretical and practical knowledge of control and measuring equipment, carries out verification, calibration, repair and adjustment of measuring instruments.	Practical work with physical or virtual equipment, colloquium, testing and others.	Competency-based learning, role-playing games and educational discussions of various formats, and others.
	Demonstrates knowledge of the principles of technical regulation and aspects of metrological support, methods for assessing the quality of products and processes, as well as knowledge of the basics of artificial intelligence		
	Applies effective economic planning of enterprise activities		
	Demonstrates learning skills to solve educational, practical and professional problems.		

LO5	Apply knowledge of legislative requirements governing the packaging and labeling process. Be able to identify the types of packaging materials used for food safety, know the requirements for the processes of creating, using, storing, transporting and disposing of packaging. Read and evaluate information on product labels, identify labels for reliable information, and be able to formulate and compile label information.	Report, message, educational research project, creative work, colloquium, case analysis, analytical review, testing, other	Case study (analysis of specific situations), project method (development and transformation of one's own experience) and others
	Demonstrates to students the skills and knowledge to effectively identify counterfeit products and documents; differentiate between genuine and counterfeit products, use tools and methods to verify the authenticity of products, and methods to detect counterfeit documents		
LO6	Collects and interprets information and data to analyze risks of potentially hazardous factors (biological, chemical, physical) that arise during the production of food products. Identifies and eliminates these risks. Forms scientific judgments for the purpose of establishing critical control limits (based on HACCP principles) in food production. Develops mechanisms and methodologies for instrumental research to determine the quality of food products	Multi-level tasks and assignments, colloquium, work with physical or virtual equipment, oral survey, tests and others.	Interactive lecture, seminar, case study (analysis of specific situations).
	Demonstrates knowledge of the main technical and design characteristics of products, principles and methods of assessing their quality management, as well as the specifics of the database and expert systems for selecting quality indicators.		
	Applies principles of sustainable development, environmental responsibility and life safety.		
	Applies knowledge of the organization and control of work in the field of conformity assessment, knows the legislative framework of the Republic of Kazakhstan, as well as the forms, schemes and procedure for conformity assessment. Possesses skills in analyzing the state of production, including technological processes, analyzing the results of measurements and quality control of products, as well as managing and		

	processing statistical data on product quality at all stages of production and its implementation		
LO7	Apply methods of implementing a management system for the relevant profiles of the organization, optimizing processes and increasing the efficiency of enterprises, and interpret production processes with the requirements of the functional standard of the management system by industry to improve the quality of products and services, reduce risks and satisfy stakeholders	Multi-level tasks and assignments, colloquium, work with physical or virtual equipment, oral survey, tests and others.	Interactive lecture, seminar, case study (analysis of specific situations).
	Demonstrates knowledge of the basic provisions of the laws and technical regulations of the Customs Union, regulatory documents in the field of quality and safety of food products, and is able to apply HACCP principles in food industry enterprises		
LO8	Knows the requirements of the legislation on accreditation of the Republic of Kazakhstan, has knowledge of the subjects, processes, criteria and procedures of accreditation. Demonstrates theoretical knowledge and basic skills in conducting documentary examination of accreditation materials; in on-site inspection during accreditation, inspection check; as an observer during control tests, research, witness assessments	Multi-level tasks and assignments, colloquium, work with physical or virtual equipment, oral survey, tests and others.	Interactive lecture, seminar, case study (analysis of specific situations).
	Formulates arguments and solves problems in the field of technical regulation at the international level, and uses learning skills to independently continue further education in the field of national and international standardization and certification.		
	Knows the principles of creating and implementing integrated quality and safety management systems, and also studies hygienic requirements and methods for ensuring food safety at all stages of production and circulation		
	Possesses sufficient skills in handling modern technology, is able to use knowledge and understanding of facts, phenomena, theories and complex relationships between them, information and digital technologies in the field of professional activity.		

	Demonstrates learning skills to solve educational, practical and professional problems.		
LO9	Possesses skills in planning and processing the results of tests for reliability and the impact of external factors, makes decisions on the quality of products based on test results	Educational research project, content analysis, abstract, report, creative work, essay-substantiation, analytical review, scientific research project, case analysis, testing, others.	Interactive lecture (problem lecture, discussion lecture, lecture-conference, lecture-consultation, lecture "Press conference", lecture "Questions-answers-discussion"), seminar and others.
	Masters methods of examination of food products, including meat and milk, to assess their quality, safety and compliance with regulatory requirements. Applies the main methods and techniques for assessing the quality of food products, including organoleptic, physical and chemical quality indicators (description of procedures) and working instructions (protocols), labeling, quality gradations and product range.		
	Demonstrates and applies knowledge in the field of legislative framework for technical regulation. Collects and interprets information on the safety of food products, the specifics of auditing and customs control of the system of state regulation of foreign trade activities, as well as state supervision services in the field of certification and declaration of goods.		
LO10	Apply knowledge based on advanced achievements at a professional level to develop new and revise existing standards, specifications and other documents on standardization and certification, taking into account scientific considerations. Possesses professional knowledge to participate in the development of draft standards, methodological and regulatory materials, technical documentation and their practical implementation (methods of academic writing). Monitors compliance with established requirements, current norms and rules.	Educational research project, content analysis, abstract, report, creative work, essay-substantiation, analytical review, scientific research project, case analysis, testing, others.	Interactive lecture (problem lecture, discussion lecture, lecture-conference, lecture-consultation, lecture "Press conference", lecture "Questions-answers-discussion"), seminar and others.
	Demonstrates knowledge aimed at preventing, identifying, and suppressing violations of the legislation of the Republic of Kazakhstan in the field of technical regulation in order to ensure the safety of technical regulation objects and the reliability of their compliance assessment.		

	Demonstrates knowledge in the professional area of a specialist in the process of training, retraining and advanced training, training, certification and certification of personnel in the field of technical regulation: experts in conformity assessment, accreditation assessors, measuring instrument verifiers; technical experts in standardization and accreditation, and other specialists in accordance with current requirements and areas of activity in the field of technical regulation		
	Demonstrates skills in organizing work at food industry and public catering enterprises in the field of technical regulation		
LO11	Understands the goals, methodology and methods of professional activity of an engineer, production manager and standardization and certification organization, and applies scientific research in this area. Apply acquired skills in preparation for continuing further education in the profile of the studied educational program	Working with physical or virtual equipment, report.	Practical training, seminar.

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

(The design layout is landscape)

Name of the professional standards used	Professions at level 6 and/or 7 of the SQF	Labor functions	Tasks	Learning outcomes for the educational program
Metrology July 23, 2025 No. 214-HK	Metrology Engineer	Metrological control	Skill 1: Organization of work on monitoring the condition of measuring instruments and automation	LO 3 Conducts analysis of measurement results and quality control of products in order to substantiate their compliance with the requirements of technical regulations and standards
		Ensuring measurement accuracy	Skill 1: Organizing Work to Ensure Measurement Accuracy Skill 2: Conducting Work to Control the Quality of Measurement Results	LO 4 Monitors the condition of measuring instruments using basic artificial intelligence algorithms, organizes metrological work aimed at improving the accuracy of measurements and the efficiency of production and economic processes

10 Graduate model

GRADUATE MODEL			
	Competencies (soft skills, digital skills)		
	Attributes of a graduate	knowledge	Skills
Professional Standard: "Metrology"	High professionalism in the field of standardization and certification; analytical thinking; ability to manage a team, leadership skills;	General professional knowledge and knowledge in the field of standardization, certification and metrology: knowledge of the main Laws "On technical regulation", "On accreditation in the field of conformity	Apply regulatory documents in the development, implementation and analysis of standards; conduct preparation and support of procedures for mandatory and voluntary certification of products, services, processes, personnel and management

Atlas of New Professions: "Agricultural Export Specialist" and "Product Traceability System Engineer" Regional Atlas of New Professions: Ulytau Region — "Construction Quality Engineer" and "Agricultural Product Quality Control Specialist"; Abai Region — "Agro-safety and Product Quality Specialist"	ability to set priorities; efficiency, ability to make quick decisions; effective problem solving; responsibility	assessment", "On ensuring the uniformity of measurements", "On standardization" and other legislative documents in the field of activity of the applicant; national and international regulatory legal acts, methodological documentation regulating the quality and safety of products, processes and services; methodology for the development, approval and application of standards; procedures for certification of products, services, processes, personnel and management systems; types of measurement, methods and means of measurement; have knowledge of accreditation procedures and accreditation schemes, relevant guidelines and documents for use in the field of conformity assessment; principles of operation of testing and control and measuring equipment used in carrying out technical work and research to control the quality and safety of products, processes and services.	systems; perform measurements using various types of measuring instruments and equipment; carry out verification and calibration of measuring instruments; apply methods of statistical control and analysis of the quality of products and processes; plan, organize and control the processes of standardization, certification and metrological support; be able to apply specialized knowledge when conducting the assessment procedure, according to the scope of accreditation; assess the level of product defects, violations in a process or service and compare the obtained result with the requirements of regulatory documentation; process and analyze the results of tests and quality and safety studies (of products, processes, services)
	Professional skills (hard skills)		
	Conducts analysis of measurement results and quality control of products in order to substantiate their compliance with the requirements of technical regulations and standards Monitors the condition of measuring instruments using basic artificial intelligence algorithms, organizes metrological work aimed at improving the accuracy of measurements and the efficiency of production and economic processes		

	Applies practice-oriented activities in the development of documents on standardization and inspection control of certified products in order to achieve high quality Uses integrated processes in the activities of accreditation entities and in quality management to ensure product safety and compliance with international standardization and certification requirements Carries out traceability of processes using statistical methods of artificial intelligence models and qualimetric data of risk analysis with minimization of harmful impact on the environment, ensuring life safety and rational sustainable development Assesses the compliance of production processes with quality system requirements and HACCP principles in order to ensure product safety Performs analysis of identification characteristics of marked products using modern methods of detecting signs of counterfeiting, ensuring reliability and transparency of product authenticity control Conducts quality audits at enterprises, substantiating test results and examination of product characteristics in accordance with customs and state control requirements

11 Typical curriculum

ОҚУ ЖҰМЫС ЖОСПАРЫ / РАБОЧИЙ УЧЕБНЫЙ ПЛАН / WORKING CURRICULUM

Технологиялық факультеті факультеті
Факультет Технологический факультет
Faculty Technological
Курс / Year 0
на / for 2025-2026 оқу жылына / учебный год / academic year

Қазақ бөлімі / Казахское отделение / Kazakh group: 0 білім алушы/ обучающихся / students
Орыс бөлімі / Русское отделение / Russian group: 0 білім алушы/ обучающихся / students

Топ / группа / group _
Топ / группа / group

ОҚУ ПРОЦЕСІНІҢ ЖОСПАРЫ
ПЛАН УЧЕБНОГО ПРОЦЕССА
PLAN OF EDUCATIONAL PROCESS

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 (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) Course work (project)	Білім алушылардың жұмыс уақытының бюджеті сағатпен Бюджет рабочего времени (час) Budget of working time (hours)							Кафедра атауы / Наименование кафедры / Name of the department	Семестр бойынша бөлу Распределение по семестрам Distribution of semesters						Пән бойынша қорытынды бағалау (емтихан, дифференциалды сынақ, мемлекеттік емтихан, жоба және т.б.) / Форма итогового контроля по дисциплине (экзамен, дифференцированный зачет, государственный экзамен, проект и др.) / Final assessment form for the discipline (exam, differentiated credit, state exam, project, etc.)	Пән бойынша қорытынды бағалаудың форматы (ауызша, жазбаша, тестілік, шығармашылық және т.б.) / Форма проведения итогового контроля по дисциплине (устно, письменно, тест, творческий и т. д.) / The format of the final assessment for the discipline (orally, in writing, test, creative, etc.)
								Барлық сағат / Всего часов / Total hours	Аудиториялық жұмыс / Аудиторная работа / Class work				ОБӨЖ / СРОП / IWST	БАӨЖ / СРО / IWS		1 КУРС / YEAR		2 КУРС / YEAR		3 КУРС / YEAR			
									Барлық аудит. сағат / Всего аудит. часов / Total classroom hours	оның ішінде / в том числе / including						1 Академиялық кезең / Academic period	2 Академиялық кезең / Academic period	3 Академиялық кезең / Academic period	4 Академиялық кезең / Academic period	5 Академиялық кезең / Academic period	6 Академиялық кезең / Academic period		
										ДІ / ЛК / Lec	СТС / СТЗ / SPL	ЗС / ЛЗ / LC				Семестрдағы апталар саны / Недель в семестре / Weeks in a semester		Семестрдағы апталар саны / Недель в семестре / Weeks in a semester		Семестрдағы апталар саны / Недель в семестре / Weeks in a semester			
																15	15	15	15	15	15		
																аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week		аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week		аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Модуль / Module № 1	1	Шетел тілі Иностранный язык Foreign Language	ЖБП (МК) ООД (ОК) GED (CS)	ҰУа 1104-26 (1) ҰУа 1104-26 (1) ҰУа 1104-26 (1)	1	5		150	45		45		15	90	Барлық кафедралар Все кафедры All chairs	0 + 3 + 0						Емтихан Экзамен Examination	Аралас Комбинированный Combined
	2	Қазақ (Орыс) тілі Казахский (Русский) язык Kazakh (Russian) Language	ЖБП (МК) ООД (ОК) GED (CS)	К(Р)Уа 1105-26 (1) К(Р)Уа 1105-26 (1) К(Р)Уа 1105-26 (1)	1	5		150	45		45		15	90	Барлық кафедралар Все кафедры All chairs	0 + 3 + 0						Емтихан Экзамен Examination	Аралас Комбинированный Combined
	3	Қазақстан тарихы История Казахстана History of Kazakhstan	ЖБП (МК) ООД (ОК) GED (CS)	ІК 1101-26 ІК 1101-26 ІК 1101-26	1	5		150	45	30	15		15	90	Барлық кафедралар Все кафедры All chairs	2 + 1 + 0						Мемлекеттік экзамен Государственная аттестация Qualification examination	Ауызша Устный Oral
	4	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CS)	РһК 1107-26 (1) РһК 1107-26 (1) РһК 1107-26 (1)	1	2		60	30		30			30	Барлық кафедралар Все кафедры All chairs	0 + 2 + 0						Дифференциалдық сынақ Дифференцированный зачет Differentiated attestation	Басқа Другое More
	5	Шетел тілі Иностранный язык Foreign Language	ЖБП (МК) ООД (ОК) GED (CS)	ҰУа 1104-26 (2) ҰУа 1104-26 (2) ҰУа 1104-26 (2)	2	5		150	45		45		15	90	Барлық кафедралар Все кафедры All chairs		0 + 3 + 0					Емтихан Экзамен Examination	Аралас Комбинированный Combined
	6	Қазақ (Орыс) тілі Казахский (Русский) язык Kazakh (Russian) Language	ЖБП (МК) ООД (ОК) GED (CS)	К(Р)Уа 1105-26 (2) К(Р)Уа 1105-26 (2) К(Р)Уа 1105-26 (2)	2	5		150	45		45		15	90	Барлық кафедралар Все кафедры All chairs		0 + 3 + 0					Емтихан Экзамен Examination	Аралас Комбинированный Combined
	7	Ақпараттық-коммуникациялық технологиялар Информационно-коммуникационные технологии Information and Communication Technologies	ЖБП (МК) ООД (ОК) GED (CS)	ІКТ 1106-26 ІКТ 1106-26 ІКТ 1106-26	2	5		150	45	15		30	15	90	Барлық кафедралар Все кафедры All chairs		1 + 0 + 2					Емтихан Экзамен Examination	Компьютерлік тестілеу Компьютерное тестирование Computer testing
	8	Экономика, кәсіпкерлік, құқық және қаржылық сауаттылық модулі (экономика және кәсіпкерлік негіздері, құқық негіздері және сыбайлас жемқорлыққа қарсы мәдениет, қаржылық сауаттылық негіздері) Модуль экономики, предпринимательства, права и финансовой грамотности (основы экономики и предпринимательства, основы права и антикоррупционная культура, основы финансовой грамотности) Module of Economics, Entrepreneurship, Law and Financial Literacy (Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture, Fundamentals of Financial Literacy)	ЖБП (ЖК) ООД (ВК) GED (EC)	МЕРРFG 1101-26 МЕРРFG 1101-26 МЕРРFG 1101-26	2	5		150	45	30	15		15	90	Барлық кафедралар Все кафедры All chairs		2 + 1 + 0					Емтихан Экзамен Examination	Компьютерлік тестілеу Компьютерное тестирование Computer testing
	9	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CS)	РһК 1107-26 (2) РһК 1107-26 (2) РһК 1107-26 (2)	2	2		60	30		30			30	Барлық кафедралар Все кафедры All chairs		0 + 2 + 0					Дифференциалдық сынақ Дифференцированный зачет Differentiated attestation	Басқа Другое More
	10	Әлеуметтік-саяси білім модулі (әлеуметтану, саясаттану, мәдениеттану, психология) Модуль социально-политических знаний (политология, социология, культурология, психология) Module of Socio-Political Knowledge (Political Science, Sociology, Cultural Studies, Psychology)	ЖБП (МК) ООД (ОК) GED (CS)	MSPZ 2103-26 MSPZ 2103-26 MSPZ 2103-26	3	8		240	120	60	60		24	96	Барлық кафедралар Все кафедры All chairs			4 + 4 + 0				Емтихан Экзамен Examination	Компьютерлік тестілеу Компьютерное тестирование Computer testing
	11	Философия Философия Philosophy	ЖБП (МК) ООД (ОК) GED (CS)	Fil 2102-26 Fil 2102-26 Fil 2102-26	3	5		150	45	30	15		15	90	Әлеуметтік-гуманитарлық пәндер Социально-гуманитарных дисциплин Socio-humanitarian disciplines			2 + 1 + 0				Емтихан Экзамен Examination	Компьютерлік тестілеу Компьютерное тестирование Computer testing
	12	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CS)	РһК 1107-26 (3) РһК 1107-26 (3) РһК 1107-26 (3)	3	2		60	30		30			30	Дене шынықтыру Физическое воспитание physical education			0 + 2 + 0				Дифференциалдық сынақ Дифференцированный зачет Differentiated attestation	Басқа Другое More
	13	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CS)	РһК 1107-26 (4) РһК 1107-26 (4) РһК 1107-26 (4)	4	2		60	30		30			30	Барлық кафедралар Все кафедры All chairs				0 + 2 + 0			Дифференциалдық сынақ Дифференцированный зачет Differentiated attestation	Басқа Другое More
	14	Техникалық өлшемдер Технические измерения Technical Measurements	БП (ЖК) БД (ВК) BD (EC)	ТІ 1202-26 ТІ 1202-26 ТІ 1202-26	1	4		120	45	15	30		3	72	Технология және стандартизация Технологии и стандартизация Technology and standardization	1 - 2 + 0						Емтихан Экзамен Examination	Жазбаша Письменный Writing

	15	Жалпы өлшеу теориясы Общая теория измерений General Theory of Measurement	БП (ЖК) БД (ВК) BD (EC)	OTI 2204-26 OTI 2204-26 OTI 2204-26	1	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization	1 + 2 + 0						Емтихан Экзамен Examination	Жазбаша Письменный Writing
	16	Стандарттау Стандартизация Standardization	БП (ЖК) БД (ВК) BD (EC)	St 1203-26 St 1203-26 St 1203-26	1	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization	1 + 2 + 0						Емтихан Экзамен Examination	Жазбаша Письменный Writing
	17	Жоғары математика Высшая математика Higher Mathematics	БП (ЖК) БД (ВК) BD (EC)	VM 1201-26 VM 1201-26 VM 1201-26	1	5		150	45	15	30		15	90	Ақпараттық технология Информационные технологии Information technology	1 + 2 + 0						Емтихан Экзамен Examination	Жазбаша Письменный Writing
	18	Сапа менеджменті жүйелері Системы менеджмента качества Quality Management Systems	БП (ЖК) БД (ВК) BD (EC)	SMK 3206-26 SMK 3206-26 SMK 3206-26	2	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization		1 + 2 + 0					Емтихан Экзамен Examination	Жазбаша Письменный Writing
	19	Мамандыққа кіріспе Введение в специальность Introduction to the Specialty	БП (ЖК) БД (ВК) BD (EC)	VS (SiS) 2202-26 VS (SiS) 2202-26 VS (SiS) 2202-26	2	3		90	30	15	15		6	54	Технология және стандарттау Технология и стандартизация Technology and standardization		1 + 1 + 0					Емтихан Экзамен Examination	Жазбаша Письменный Writing
	20	Өндірістік практика 1 Производственная практика 1 Industrial Practice 1	БП (ЖК) БД (ВК) BD (EC)	PP 1 26 (SiS) PP 1 26 (SiS) PP 1 26 (SiS)	2	5		150	0						Технология және стандарттау Технология и стандартизация Technology and standardization		5 апта / недель / weeks					Практика бойынша қорытынды баға Итоговая оценка по практике Total mark on practice	Басқа Другое More
	21	Кәсіпорындағы экономика және жоспарлау Экономика и планирование на предприятии Economics and Planning at the Enterprise	БП (ЖК) БД (ВК) BD (EC)	EPP 2205-26 EPP 2205-26 EPP 2205-26	4	3		90	30	15	15		6	54	Барлық кафедралар Все кафедры All chairs				1 + 1 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	22	Тұрақты даму, экология және тіршілік қауіпсіздігі Устойчивое развитие, экология и безопасность жизнедеятельности Sustainable Development, Ecology, and Life Safety	БП (ЖК) БД (ВК) BD (EC)	UREBZh 3207-26 UREBZh 3207-26 UREBZh 3207-26	4	5		150	45	30	15		15	90	Барлық кафедралар Все кафедры All chairs				2 + 1 + 0			Емтихан Экзамен Examination	Компьютерлік тестілеу Компьютерное тестирование Computer testing
	23	Өндірісті метрологиялық қамтамасыз ету Метрологическое обеспечение производства Metrological Ensuring of Production	БеП (ЖК) ПД (ВК) PD (EC)	MOP 3301-26 MOP 3301-26 MOP 3301-26	4	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	24	Өндірістік практика 2 Производственная практика 2 Industrial Practice 2	БеП (ЖК) ПД (ВК) PD (EC)	PP 2 26 (SiS) PP 2 26 (SiS) PP 2 26 (SiS)	4	5		150	0						Технология және стандарттау Технология и стандартизация Technology and standardization				5 апта / недель / weeks			Практика бойынша қорытынды баға Итоговая оценка по практике Total mark on practice	Басқа Другое More
	25	Өнімді сынау, бақылау және қауіпсіздігі Испытание, контроль и безопасность продукции Product Testing, Control and Safety	БеП (ЖК) ПД (ВК) PD (EC)	IKBP 4302-26 IKBP 4302-26 IKBP 4302-26	5	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	26	Диплом алдындағы практика: Өндірістік практика Преддипломная практика:Производственная практика Pre-Graduate Practice / Industrial Practice	БеП (ЖК) ПД (ВК) PD (EC)	PDPPP 26 (SiS) PDPPP 26 (SiS) PDPPP 26 (SiS)	6	7		210	0						Технология және стандарттау Технология и стандартизация Technology and standardization						7 апта / недель / weeks	Практика бойынша қорытынды баға Итоговая оценка по практике Total mark on practice	Басқа Другое More
Барлығы модуль бойынша / Итого по модулю / Total for module						**118**		**3540**	**1020**	**330**	**660**	**30**	**264**	**1746**									
						/ /																	
Модуль / Module № 2	1	Тағам өнімдерін жіктеу және кодтау Классификация и кодирование пищевых продуктов Classification and Coding of Food Products	БП (ТК) БД (КВ) BD (UC)	KKPP 1201-26 KKPP 1201-26 KKPP 1201-26	1	4		120	45	15	30		3	72	Технология және стандарттау Технология и стандартизация Technology and standardization	1 + 2 + 0						Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Сәйкестікті растау Подтверждение соответствия Confirmation of Compliance		PS 1201-26 PS 1201-26 PS 1201-26																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**4**		**120**	**45**	**15**	**30**	**0**	**3**	**72**									
						/ /																	
Модуль / Module № 3	1	Лицензиялау негіздері Основы лицензирования Licensing Basics	БП (ТК) БД (КВ) BD (UC)	OL 2204-26 OL 2204-26 OL 2204-26	2	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization		1 + 2 + 0					Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Патенттану Патентоведение Patent Protection		Pat 2204-26 Pat 2204-26 Pat 2204-26																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**5**		**150**	**45**	**15**	**30**	**0**	**15**	**90**									
						/ /																	
Модуль / Module № 4	1	Техникалық реттеу саласындағы цифрлық зерттеулер және жасанды интеллект Цифровые исследования и искусственный интеллект в сфере технического регулирования Digital Research and Artificial Intelligence in the Field of Technical Regulation	БП (ТК) БД (КВ) BD (UC)	CIISTR 2202-26 CIISTR 2202-26 CIISTR 2202-26	3	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Біліктілігін оқу-зерттеу жұмыстары Учебно-исследовательская работа обучающегося Educational and Research Work of the Student		UIRO 2202-26 UIRO 2202-26 UIRO 2202-26																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**5**		**150**	**45**	**15**	**30**	**0**	**15**	**90**									
						/ /																	
Модуль / Module № 5	1	Тауарларды буып - түю және таңбалау Упаковка и маркировка товара Packaging and Labeling of Goods	БП (ТК) БД (КВ) BD (UC)	UMT 2203-26 UMT 2203-26 UMT 2203-26	3	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Азық - түлік өнімдерінің ыдыстары Тара продовольственных продуктов Food Containers		TPP 2203-26 TPP 2203-26 TPP 2203-26																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**5**		**150**	**45**	**15**	**30**	**0**	**15**	**90**									
						/ /																	
Модуль / Module № 6	1	Өнімдер мен құжаттарды сәйкестендіру негіздері Основы идентификации продукции и документов Basics of Product and Document Identification	БП (ТК) БД (КВ) BD (UC)	OPD 2205-26 OPD 2205-26 OPD 2205-26	3	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Азық-түлік өнімдерін бұрмалау Фальсификация пищевых продуктов Adulteration of Food Products		FPP 2205-26 FPP 2205-26 FPP 2205-26																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**5**		**150**	**45**	**15**	**30**	**0**	**15**	**90**									
						/ /																	
Модуль / Module № 7	1	Метрология Метрология Metrology	БП (ТК) БД (КВ)	Met 2206-26 Met 2206-26 Met 2206-26	3	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация				1 + 2 + 0			Емтихан Экзамен	Жазбаша Письменный

Модуль	2	Жасанды интеллект қолданудағы өлшеу әдістері мен құралдары Методы и средства измерений с применением искусственного интеллекта Methods and Means of Measurement Using Artificial Intelligence	[illegible] BD (UC)	MSIPII 2206-26 MSIPII 2206-26 MSIPII 2206-26										Технология и стандартизация Технология и стандартизация Technology and standardization							Емтихан Экзамен Examination	Жазбаша Письменный Writing
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 8	1	Сапаны зерттеу әдістері Методы исследования качества Quality Research Methods	БП (ТК) БД (КВ) BD (UC)	MIK 2207-26 MIK 2207-26 MIK 2207-26	3	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization			1 + 2 + 0				Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Жасанды интеллектке кіріспе (Minor) Введение в искусственный интеллект (Minor) Introduction to Artificial Intelligence (Minor)		VII 2200-26 (Minor 1) VII 2200-26 (Minor 1) VII 2200-26 (Minor 1)																				
	3	Метрология және техникалық реттеу негіздері Основы технического регулирования и метрологии Fundamentals of Technical Regulation and Metrology		OTRM 2207-26 OTRM 2207-26 OTRM 2207-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 9	1	Квалиметрия Квалиметрия Qualimetry	БП (ТК) БД (КВ) BD (UC)	Kv 3208-26 Kv 3208-26 Kv 3208-26	4	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Аумақ шаруашылығы өнімдерінің сапасын басқару әдістері мен құралдары Методы и инструменты управления качеством сельскохозяйственной продукции Methods and Tools of Agricultural Product Quality Management		MIUKSP 3208-26 MIUKSP 3208-26 MIUKSP 3208-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 10	1	Өнімдер мен процестердің сапасын басқарудың статистикалық әдістері Статистические методы управления качеством продукции и процессов Statistical Methods of Product and Process Quality Management	БП (ТК) БД (КВ) BD (UC)	SMUKPP 3209-26 SMUKPP 3209-26 SMUKPP 3209-26	4	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Сапаны басқару процестерінде деректерді өңдеу Обработка данных в процессах по управлению качеством Data Processing in Quality Management Processes		ODPUK 3209-26 ODPUK 3209-26 ODPUK 3209-26																				
	3	Жасанды нейрондық желілерді әзірлеу (Minor) Разработка искусственных нейронных сетей (Minor) Development of Artificial Neural Networks (Minor)		RINS 3200-26 (Minor 2) RINS 3200-26 (Minor 2) RINS 3200-26 (Minor 2)																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 11	1	Менеджмент жүйелерінің стандарттары Стандарты систем менеджмента Management Systems Standards	БП (ТК) БД (КВ) BD (UC)	SSM 3210-26 SSM 3210-26 SSM 3210-26	4	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Менеджмент жүйелерінің әдістері Методы систем менеджмента Management Systems Methods		MSM 3210-26 MSM 3210-26 MSM 3210-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 12	1	Тәуекел мен қауіпті факторларды талдау Анализ рисков и опасных факторов Risk and Hazard Analysis	БП (ТК) БД (КВ) BD (UC)	AROF 3211-26 AROF 3211-26 AROF 3211-26	4	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Аумақ шаруашылығы өнімдерінің қауіпсіздігі Безопасность сельскохозяйственной продукции Agricultural Product Safety		BSP 3311-26 BSP 3311-26 BSP 3311-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 13	1	Халықаралық стандарттау және сертификаттау Международная стандартизация и сертификация International Standardization and Certification	БеП (ТК) ПД (КВ) PD (UC)	MSS 3301-26 MSS 3301-26 MSS 3301-26	5	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Халықаралық және өңірлік стандарттау Международная и региональная стандартизация International and Regional Standardization		MRS 3301-26 MRS 3301-26 MRS 3301-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 14	1	Сәйкестікті бағалау Оценка соответствия Conformity Assessment	БеП (ТК) ПД (КВ) PD (UC)	OS 3302-26 OS 3302-26 OS 3302-26	5	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Шығу сертификаттары Сертификаты происхождения товаров Certificates of Origin		SPT 3302-26 SPT 3302-26 SPT 3302-26																				
	3	Объектілерді басқарудағы жасанды интеллект (Minor) Искусственный интеллект в управлении объектами (Minor) Artificial Intelligence in Object Management (Minor)		IIUO 3301-26 (Minor 3) IIUO 3301-26 (Minor 3) IIUO 3301-26 (Minor 3)																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
							/ /																	
Модуль / Module № 15	1	Сәйкестікті растау жөніндегі органдарды және сынақ зертханаларын аккредиттеу Аккредитация органов по подтверждению соответствия и испытательных лабораторий Accreditation of Conformity Assessment Bodies and Testing Laboratories	БеП (ТК) ПД (КВ) PD (UC)	AOPSIL 3203-26 AOPSIL 3203-26 AOPSIL 3203-26	5	5		150	45	15	30		15	90	Технология және стандартизация Технология и стандартизация Technology and standardization				1 + 2 + 0			Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Сынақ зертханаларының қызметін ұйымдастыру Организация деятельности испытательных лабораторий Organization of Testing Laboratory Activities		ODIL 3203-26 ODIL 3203-26 ODIL 3203-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90										
16							/ /																	

Модуль / Module №																									
	1	Азық-түлік қауіпсіздігі менеджменті жүйесі Система менеджмента безопасности пищевой продукции Food Safety Management System	БеП (ТК) ПД (КВ) PD (UC)	SMBPP 3304-26 SMBPP 3304-26 SMBPP 3304-26	5	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and stabdardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	ЕАЭО жүйесінде ауыл шаруашылығы өнімдерін техникалық реттеу және стандарттау Техническое регулирование и стандартизация сельскохозяйственной продукции в рамках ЕАЭС Technical Regulation And Standardization Of Agricultural Products Within The EAEU		EAEU 3304-26 EAEU 3304-26 EAEU 3304-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 17																									
	1	Интеграцияланған менеджмент жүйесін әзірлеу және енгізу Разработка и внедрение интегрированных систем менеджмента Development and Implementation of Integrated Management Systems	БеП (ТК) ПД (КВ) PD (UC)	RVISM 4307-26 RVISM 4307-26 RVISM 4307-26	5	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Гигиеналық негіздер және тамақ өнімдерінің қауіпсіздігі Гигиенические основы и безопасность пищевых продуктов Hygiene Basics and Food Safety		GOBPP 4307-26 GOBPP 4307-26 GOBPP 4307-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 18																									
	1	Тамақ өнімдерінің сараптамасы Экспертиза продовольственных продуктов Expertise of Food Products	БеП (ТК) ПД (КВ) PD (UC)	EPP 4308-26 EPP 4308-26 EPP 4308-26	5	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Ауыл шаруашылығы өнімдерінің сапасын сараптау Экспертиза качества сельскохозяйственной продукции Quality Expertise of Agricultural Products		EKSP 4308-26 EKSP 4308-26 EKSP 4308-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 19																									
	1	Тамақ өнімдерінің қауіпсіздігін Кедендік бақылау Таможенный контроль безопасности пищевых продуктов Customs Control of Food Safety	БеП (ТК) ПД (КВ) PD (UC)	TKBPP 4309-26 TKBPP 4309-26 TKBPP 4309-26	5	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Стандарттау, сертификаттау және метрология саласындағы мемлекеттік қадағалау Государственный надзор в области стандартизации, сертификации и метрологии State Supervision in the Field of Standardization, Certification and Metrology		GNSSM 4309-26 GNSSM 4309-26 GNSSM 4309-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 20																									
	1	Ауыл шаруашылығы өнімдері саласының аудиті Аудит качества сельскохозяйственной продукции Quality Audit of Agricultural Products	БеП (ТК) ПД (КВ) PD (UC)	AKSP 4305-26 AKSP 4305-26 AKSP 4305-26	6	5		150	45	15	30		15	90	Барлық кафедралар Все кафедры All chairs					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Тамақ өнеркәсібіндегі сапа аудиті Аудит качества в пищевой промышленности Audit Quality in the Food Industry		AKPP 4305-26 AKPP 4305-26 AKPP 4305-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 21																									
	1	Тамақ өнімдеріне арналған стандарттар мен құжаттарды әзірлеу технологиясы Технология разработки стандартов и документов на пищевую продукцию Technology for the Development of Standards and Documents for Food Products	БеП (ТК) ПД (КВ) PD (UC)	TRSDPP 4306-26 TRSDPP 4306-26 TRSDPP 4306-26	6	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Ауыл шаруашылығы өнімдерін стандарттау жөніндегі стандарттар мен құжаттарды әзірлеу технологиясы Технология разработки стандартов и документов по стандартизации сельскохозяйственной продукции Technology for the Development of Standards and Documents for the Standardization of Agricultural Products		TRSDSP 4306-26 TRSDSP 4306-26 TRSDSP 4306-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 22																									
	1	Сапаны басқару Управление качеством Quality Control	БеП (ТК) ПД (КВ) PD (UC)	UK 4310-26 UK 4310-26 UK 4310-26	6	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Ауыл шаруашылығы өнімдерін талдау әдістері Методы анализа сельскохозяйственной продукции Methods of Agricultural Product Analysis		MASP 4310-26 MASP 4310-26 MASP 4310-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 23																									
	1	Техникалық реттеу саласындағы мемлекеттік бақылау және қадағалау Государственный контроль и надзор в области технического регулирования State Control and Supervision in the Field of Technical Regulation	БеП (ТК) ПД (КВ) PD (UC)	GKNTR 4311-26 GKNTR 4311-26 GKNTR 4311-26	6	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Техникалық реттеу саласындағы бақылау Контроль в области технического регулирования Control in the Field of Technical Regulation		KOTR 4311-26 KOTR 4311-26 KOTR 4311-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
						/ /																			
Модуль / Module № 24																									
	1	Техникалық реттеу саласындағы мамандарды даярлау Подготовка специалистов в сфере технического регулирования Training of Specialists in the Field of Technical Regulation	БеП (ТК) ПД (КВ) PD (UC)	PSSTR 4312-26 PSSTR 4312-26 PSSTR 4312-26	6	5		150	45	15	30		15	90	Технология және стандарттау Технология и стандартизация Technology and standardization					1 + 2 + 0		Емтихан Экзамен Examination	Жазбаша Письменный Writing
	2	Сарапшы аудиторлардың кәсіби шеберлігі Профессиональные навыки экспертов-аудиторов Professional Skills of Expert Auditors		PNEA 4312-26 PNEA 4312-26 PNEA 4312-26																				
Барлығы модуль бойынша / Итого по модулю / Total for module						5		150	45	15	30	0	15	90											
Модуль / Module № 25		Қорытынды аттестация / Итоговая аттестация / Final assessment																							
	1	Қорытынды аттестаттау Итоговая аттестация Final certification			2	8		240												6 апта / недель / weeks			
Барлығы модуль бойынша / Итого по модулю / Total for module						126		240	0	0	0	0	0	0											
БАРЛЫҒЫ МОДУЛЬДАР БОЙЫНША / ИТОГО ПО МОДУЛЯМ / TOTAL FOR MODULES						240		3660	1035	345	690	0	333	2052											

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу 6В07525 «Стандартизация, сертификация и метрология (по отраслям)»

В рамках проведения экспертной оценки рассмотрены обновленная образовательная программа 6В07525 «Стандартизация, сертификация и метрология (по отраслям)», результаты обучения, структура учебного плана, перечень учебных дисциплин и обоснованность внесенных изменений с учетом современных требований рынка труда, отраслевых квалификаций и нормативных документов Республики Казахстан.

По итогам экспертизы следует отметить, что образовательная программа актуализирована с учетом стратегических направлений развития высшего образования, приоритетов социально-экономического развития Республики Казахстан, а также современных требований работодателей и профессионального сообщества.

Положительным аспектом является то, что при актуализации программы использованы «Атлас новых профессий и компетенций», Региональные стандарты развития компетенций, а также актуализированный профессиональный стандарт «Метролог», утвержденный приказом и.о. Министра торговли и интеграции Республики Казахстан от 23 июля 2025 года № 214-НҚ.

Особого внимания заслуживает интеграция компетенций новых и перспективных профессий в результаты обучения образовательной программы. В частности, результаты обучения приведены в соответствие с компетенциями профессии «Инженер системы прослеживания продукта», что отражено в РО 6, а также профессии «Специалист по экспорту сельхозпродукции», компетенции которой интегрированы в РО 8. Такой подход обеспечивает подготовку специалистов, обладающих компетенциями, востребованными в условиях цифровизации агропромышленного комплекса, развития экспортного потенциала и внедрения систем прослеживаемости продукции.

Следует положительно оценить использование Региональных стандартов Улытауской и Абайской областей, позволивших усилить прикладную направленность подготовки специалистов для региональной экономики. Компетенции профессий «Специалист по контролю качества сельхозпродукции», «Специалист по агробезопасности и качеству» и «Инженер строительного качества» нашли отражение в результатах обучения РО 6 и РО 9, что свидетельствует о согласовании образовательной программы с актуальными кадровыми потребностями регионов.

Значительным преимуществом программы является ее своевременная адаптация к изменениям профессионального стандарта «Метролог», что обеспечивает актуальность содержания подготовки специалистов в области метрологического обеспечения, технического регулирования и оценки соответствия.

Положительной практикой является сохранение формирования ценностей инклюзивного образования посредством дисциплин цикла общеобразовательной подготовки (социология и психология), что соответствует принципам государственной образовательной политики.

Следует отметить системный подход к совершенствованию результатов обучения. В результате внедрения положений Атласа новых профессий и региональных стандартов были актуализированы результаты обучения, а включение новых дисциплин позволило расширить содержание РО 2 и РО 7, сделав их более ориентированными на современные производственные процессы, цифровые технологии и требования международной торговли.

Отдельно необходимо отметить эффективное взаимодействие разработчиков образовательной программы с работодателями. По рекомендациям представителей отрасли в учебный план включен ряд современных дисциплин, направленных на формирование компетенций будущего инженера нового поколения.

Особенно следует подчеркнуть целесообразность включения дисциплин «Экспертиза качества сельскохозяйственной продукции», «Методы анализа сельскохозяйственной продукции» и «Сертификаты происхождения товаров».

Дисциплина «Экспертиза качества сельскохозяйственной продукции» обеспечивает формирование профессиональных компетенций по оценке качества и безопасности продукции, проведению экспертных исследований, применению современных методов контроля и интерпретации результатов испытаний. Ее содержание непосредственно способствует достижению РО 9 и отвечает современным требованиям государственного контроля качества сельскохозяйственной продукции.

Включение дисциплины «Методы анализа сельскохозяйственной продукции» является своевременным с учетом необходимости подготовки специалистов, владеющих современными лабораторными, инструментальными и аналитическими методами исследования качества продукции. Освоение данной дисциплины усиливает РО 8, формируя компетенции, необходимые при экспортной деятельности, международной сертификации и работе испытательных лабораторий.

Не менее актуальной является дисциплина «Сертификаты происхождения товаров», которая ориентирована на подготовку специалистов в области внешнеэкономической деятельности, подтверждения происхождения продукции и применения правил определения происхождения товаров в рамках международной торговли и Евразийского экономического союза. Ее включение существенно усиливает РО 7, обеспечивая выпускникам знания и практические навыки, востребованные предприятиями-экспортерами.

Представленные изменения свидетельствуют о комплексном обновлении образовательной программы на основе анализа перспектив развития отрасли, требований работодателей, профессиональных стандартов и государственных приоритетов Республики Казахстан.

Включение дисциплин «Экспертиза качества сельскохозяйственной продукции», «Методы анализа сельскохозяйственной продукции» и «Сертификаты происхождения товаров» следует признать своевременным и методически обоснованным, поскольку они обеспечивают подготовку специалистов, способных эффективно осуществлять контроль качества продукции, сопровождать экспортные процессы, проводить экспертную оценку сельскохозяйственной продукции и применять современные методы

лабораторного анализа в соответствии с требованиями национального законодательства и нормативной базы ЕАЭС.

По результатам проведенной экспертизы считаю, что внесенные изменения существенно повысили качество образовательной программы, усилили ее практическую направленность, обеспечили соответствие современным требованиям рынка труда и стратегическим направлениям развития агропромышленного комплекса Республики Казахстан.

Образовательная программа 6В07525 «Стандартизация, сертификация и метрология (по отраслям)» рекомендуется к реализации. Включение дисциплин «Экспертиза качества сельскохозяйственной продукции», «Методы анализа сельскохозяйственной продукции» и «Сертификаты происхождения товаров» считаю полностью обоснованным и необходимым для подготовки конкурентоспособных специалистов нового поколения, обладающих компетенциями в области технического регулирования, контроля качества, экспортной деятельности и обеспечения безопасности сельскохозяйственной продукции.

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политехнического института
НАО «ЗКАТУ им. Жангир хана» Джапаров Р.Ш.

Персоналмен жұмыс жөніндегі басқармасы

қолын куәландырамын,
ПЖЖ басқармасының басшысы
2026 ж. «03» 07
"ЖӘҢГІР ХАН АТЫНДАҒЫ БАТЫС ҚАЗАҚСТАН АГРАРЛЫҚ-ТЕХНИКАЛЫҚ УНИВЕРСИТЕТІ" КеАҚ

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу 6B07525 «Стандартизация, сертификация и метрология (по отраслям)»

Кафедра "Технология и стандартизация"

Технологический факультет

АО "Казахский университет технологии и бизнеса имени К. Кулажанова"

В рамках проведения экспертной оценки образовательной программы 6B07525 «Стандартизация, сертификация и метрология (по отраслям)» рассмотрены структура образовательной программы, содержание учебных дисциплин, результаты обучения, компетентностная модель выпускника, а также их соответствие современным требованиям системы высшего образования Республики Казахстан и запросам отраслевого рынка труда.

Анализ представленных материалов показывает, что образовательная программа имеет достаточное научно-методическое обеспечение, ориентирована на подготовку специалистов, способных эффективно осуществлять деятельность в области стандартизации, метрологии, сертификации, технического регулирования и управления качеством. Программа учитывает современные тенденции развития инженерного образования, включает дисциплины, направленные на формирование цифровых компетенций и практических навыков, а результаты обучения согласованы с профессиональными функциями будущего специалиста.

Следует отметить, что в последние годы агропромышленный комплекс Республики Казахстан развивается в условиях расширения взаимной торговли в рамках Евразийского экономического союза. Это обусловливает повышение требований к соблюдению единых технических регламентов ЕАЭС, применению межгосударственных стандартов, обеспечению прослеживаемости продукции, а также совершенствованию процедур оценки соответствия сельскохозяйственной продукции.

В этой связи считаю целесообразным расширить образовательную траекторию «Сельскохозяйственная отрасль» путем включения дисциплины «Техническое регулирование и стандартизация сельскохозяйственной продукции в рамках ЕАЭС».

Введение данной дисциплины позволит обеспечить более глубокую подготовку обучающихся по следующим актуальным направлениям изучения системы технического регулирования Евразийского экономического союза и применения технических регламентов ЕАЭС при производстве, переработке и обращении сельскохозяйственной продукции, а также вопросы прослеживаемости продукции, маркировки и обеспечения ее конкурентоспособности на едином рынке ЕАЭС.

Особую практическую ценность дисциплина приобретает с учетом экспортной ориентации отечественного агропромышленного комплекса. Выпускники должны уверенно ориентироваться в требованиях технических регламентов ЕАЭС, процедурах оценки соответствия и механизмах допуска продукции на единый рынок Союза. Наличие данных компетенций существенно повышает их профессиональную востребованность как на предприятиях агропромышленного комплекса, так и в органах по подтверждению

соответствия, испытательных лабораториях и государственных учреждениях, осуществляющих функции технического регулирования.

Предлагаемая дисциплина органично дополняет существующие учебные курсы по стандартизации, сертификации и управлению качеством, формируя у обучающихся комплексное понимание нормативно-правового регулирования сельскохозяйственной продукции в условиях интеграционных процессов на пространстве ЕАЭС.

С целью дальнейшего совершенствования образовательной программы рекомендуется включить дисциплину «Техническое регулирование и стандартизация сельскохозяйственной продукции в рамках ЕАЭС».

Реализация данной рекомендации позволит обеспечить соответствие содержания образовательной программы современным требованиям технического регулирования Евразийского экономического союза и усилить отраслевую направленность подготовки специалистов для агропромышленного комплекса Республики Казахстан.

В целом образовательная программа 6В07525 «Стандартизация, сертификация и метрология (по отраслям)» отвечает требованиям современной системы высшего образования Республики Казахстан, обеспечивает формирование необходимых профессиональных компетенций и ориентирована на подготовку востребованных специалистов.

Предлагаемое включение дисциплины «Техническое регулирование и стандартизация сельскохозяйственной продукции в рамках ЕАЭС» является обоснованным, своевременным и будет способствовать дальнейшему повышению качества подготовки выпускников по образовательной траектории «Сельскохозяйственная отрасль».

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Әкімшілік департаменті

САРАПТАМАЛЫҚ ҚОРЫТЫНДЫ

6В07525 Стандарттау, сертификаттау және метрология (салалар бойынша) білім беру бағдарламасына

Кафедра «Технология және стандарттау»
Технологиялық факультет
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6В07525 Стандарттау, сертификаттау және метрология (салалар бойынша) білім беру бағдарламасына сараптама жүргізу барысында бағдарламаның құрылымына, оқу жоспарының мазмұнына, оқу нәтижелеріне, түлектің құзыреттілік моделіне және олардың қазіргі заманғы жоғары инженерлік білім беру талаптарына, «Метрология» кәсіби стандартына және жұмыс берушілердің сұраныстарына сәйкестігіне талдау жасалды.

Сараптама нәтижелері бойынша білім беру бағдарламасының қисынды құрылымдалғаны, білім алушылардың жан - жақты, цифрлық және кәсіби құзыреттіліктерін дәйекті түрде қалыптастыруды қамтамасыз ететіні, сондай-ақ техникалық реттеу, стандарттау, сертификаттау, метрология және сапаны басқару жүйелерін дамытудың қазіргі үрдістеріне сәйкес келетіні анықталды.

Жасанды интеллект технологияларымен, цифрлық зерттеулермен және сапаны басқарудың заманауи әдістерімен байланысты пәндерді енгізу арқылы бағдарламаның кәсіби қызметті цифрландыруға бағытталғаны ерекше назар аударуға тұрарлық. Ұсынылған оқу нәтижелері пәндердің мазмұнымен үйлестірілген және заманауи өндіріс жағдайында жұмыс істеуге қабілетті, бәсекеге қабілетті мамандарды даярлауға бағытталған.

Сонымен қатар, білім беру бағдарламасын одан әрі жетілдіру мақсатында бірінші курс оқу жоспарына «Мамандыққа кіріспе» пәнін енгізу ұсынылады.

Бұл пәнді енгізу қажеттілігі келесі факторларға негізделген:

- білім алушыларға стандарттау, сертификаттау және метрология саласындағы маманның кәсіби қызметі туралы тұтас түсінік қалыптастыру;
- білім алушыларды техникалық реттеу, цифрлық метрология, сәйкестікті бағалау және сапаны басқаруды дамытудың заманауи бағыттарымен ерте таныстыру;
- бейінді пәндердің практикалық маңыздылығын түсіну есебінен оларды меңгеруге деген уәждемені (мотивацияны) арттыру;
- жалпы білім беретін және кәсіптік даярлық арасындағы сабақтастықты қамтамасыз ету;
- базалық және бейіндеуші циклдардың пәндерін табысты меңгеру үшін қажетті бастапқы кәсіби құзыреттіліктерді қалыптастыру.

«Мамандыққа кіріспе» пәнін енгізу таныстыру курстары мамандарды даярлаудың міндетті элементі болып табылатын университеттерде қолданылатын инженерлік білім берудің үздік тәжірибелеріне сәйкес келеді. Мұндай пәндер білім алушылардың білім беру бағдарламасына бейімделу кезеңін айтарлықтай қысқартуға мүмкіндік береді, кәсіби бірегейліктің қалыптасуына ықпал етеді және арнайы пәндерді кейіннен меңгеру сапасын арттырады.

Пәннің мазмұнын келесі бағыттарды зерттеуге бағыттаған жөн:

- Қазақстан Республикасы мен Еуропалық Одақтың техникалық реттеу жүйесінің құрылымы;
- стандарттау, метрология және сәйкестікті бағалау негіздері;
- өнім сапасын қамтамасыз етудегі стандарттау және метрология жөніндегі инженердің рөлі;
- техникалық реттеу саласында қолданылатын заманауи цифрлық технологиялар;
- кәсіби әдеп, академиялық адалдық талаптары және инженерлік қызмет мәдениеті;
- білім беру бағдарламасы түлектерінің кәсіби дамуының негізгі бағыттары.

Бұл пәнді енгізу білім алушыларда орнықты кәсібилікті қалыптастыруға, жеке білім беру траекториясын саналы түрде құруды қамтамасыз етуге және кейінгі курстарда бейінді пәндерді меңгеру тиімділігін арттыруға мүмкіндік береді.

6B07525 Стандарттау, сертификаттау және метрология (салалар бойынша) білім беру бағдарламасы жоғары білім берудің заманауи талаптарына, кәсіби стандарттарға және еңбек нарығының қажеттіліктеріне сәйкес келеді.

Бакалаврларды даярлаудың бастапқы кезеңінің міндетті пәні ретінде оқу жоспарына «Мамандыққа кіріспе» пәнін енгізу ұсынылады. Осы ұсыныста іске асыру білім беру бағдарламасының практикаға бағытталғандығын күшейтуге, білім алушылардың кәсіби уәждемесін арттыруға, кәсіби құзыреттіліктердің дәйекті түрде қалыптасуын қамтамасыз етуге және бағдарлама мазмұнын инженерлік білім берудің үздік кәсіби тәжірибелеріне жақындатуға мүмкіндік береді.

М.Х.Дулати атындағы Тараз университеті

«Текстиль, материалтану және стандартизация» кафедрасы, PhD, аға оқытушы

01.07.2026.

Ораз Г.Т.

EXPERT OPINION

for educational program 6B07525 "Standardization, Certification, and Metrology (by Industry)" in the 6B075 Standardization, Certification, and Metrology (by Industry) program

Kazakh University of Technology and Business named after K. Kulazhanov

General Description of the Program

This educational program (EP) 6B07525 "Standardization, Certification, and Metrology (by Industry)" was developed in accordance with the requirements of the State Compulsory Standard of Higher and Postgraduate Education of the Republic of Kazakhstan and the professional standard "Metrology." The program is designed to train bachelors of engineering and technology with professional competencies in standardization, certification, and metrology.

The educational program comprises 240 academic credits and meets the requirements for undergraduate programs. The program structure maintains a balance between general, foundational, and specialized training, and includes various types of professional internships and a final assessment.

Analysis of the educational program content

The educational program content is characterized by its systematic and logical sequencing of student competencies. The academic disciplines provide fundamental knowledge in mathematics, information and communication technology, economics, law, and entrepreneurship, as well as specialized knowledge in standardization, certification, metrology, technical regulation, and quality management.

A positive aspect of the program is the inclusion of disciplines related to the digitalization of professional activity and artificial intelligence technologies ("Digital research and artificial intelligence in the field of technical regulation", "Methods and means of measurement using artificial intelligence", etc.), which corresponds to modern trends in the development of engineering education and the requirements of the labor market.

Of particular note is the minor program in artificial intelligence, aimed at developing students' digital competencies and expanding their professional capabilities.

Learning Outcomes Assessment

Learning outcomes are formulated in accordance with the principles of a competency-based approach and cover:

- general and social-personal competencies;
- digital competencies;
- professional competencies in metrology, standardization, and certification;
- quality management and conformity assessment skills;
- competencies in international standardization and accreditation;
- research and analytical skills.

Learning outcomes are aligned with the curriculum disciplines and graduates' professional objectives. The presented competency map demonstrates the consistent development of essential knowledge, skills, and abilities throughout the entire training period.

The educational program includes professional internships aimed at reinforcing theoretical knowledge and acquiring practical experience in metrological support,

conformity assessment, product testing, quality management, and technical regulation.

The core curriculum focuses on solving real-world production problems, helping to prepare in-demand specialists for industrial enterprises, testing laboratories, certification and accreditation bodies, and state technical regulatory agencies.

The program's professional focus aligns with the modern economic requirements of the Republic of Kazakhstan and the Eurasian Economic Union (EAEU). Specialist training is based on the requirements of the professional standard "Metrology," ensuring that learning outcomes are aligned with the job responsibilities of metrology engineers.

The program is aimed at preparing graduates for work in national standardization and metrology bodies, conformity assessment bodies, testing laboratories, industrial enterprises and quality management system organizations.

Program Strengths

1. Compliance with the requirements of the State Educational Standard (GOS) and professional standards.
2. Competency-based learning outcomes.
3. Highly practical training.
4. Integration of digital technologies and artificial intelligence into professional activities.
5. Disciplines on international standardization, accreditation, and technical regulation of the EAEU.
6. Consistency of learning outcomes with the content of the disciplines and the graduate's professional responsibilities.
7. Focus on modern labor market requirements and the digital transformation of the industry.

Recommendations for improving the program (these focus not on criticizing the program, but on its further development in line with European best practices):

1. Expand the international component of the educational program. It is advisable to increase the number of courses covering European legislation regarding technical regulation, standardization, and conformity assessment—including requirements from the European Union, ISO, IEC, CEN, and CENELEC. This will enhance the graduates' competitiveness in the international labor market.
2. Increase the level of internationalization of the educational program. It is advisable to provide for the teaching of specific professional courses in English, the invitation of foreign lecturers and experts, and the expansion of academic mobility for students and faculty within the framework of international educational programs.
3. Continue aligning the educational program with European Standards and Guidelines for Quality Assurance in Higher Education (ESG) and the requirements of the EUR-ACE international engineering accreditation. This will create additional opportunities for the recognition of graduates' qualifications, the development of international cooperation, and the enhancement of the university's academic reputation.

Final Conclusion

Educational program 6B07525 "Standardization, Certification, and Metrology (by Industry)" meets modern higher education requirements, professional standards,

and labor market needs. The program's structure ensures the development of a set of universal, digital, and professional competencies necessary for effective work in the fields of technical regulation, standardization, certification, and metrology.

Based on the results of the examination, the educational program is recommended for implementation and can be approved without significant comments.

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International Academic Advisor Confirmation/ Шетелдік кеңесшінің қатысуы/ Участие зарубежного консультанта

Educational Program/ Білім беру бағдарламасы/ Образовательная программа	6B07525 Standardization, certification and metrology (by Industry) / 6B07525 Стандарттау, сертификаттау және метрология (салалар бойынша) / 6B07525 Стандартизация, сертификация и метрология (по отраслям)
Level/ Дәрежесі/ Уровень	6
International Academic Advisor/ Шетелдік академиялық кеңесші/ Зарубежный консультант	Plotkin Juriy Romanovich / Плоткин Юрий Романович / Плоткин Юрий Романович
Academic degree/ Ғылыми дәреже/ Ученая степень	Doctor of Engineering Sciences / Инженерлік ғылымдарының докторы / Доктор инженерных наук
Position/ Лауазымы/ Должность	Professor / Профессор / Профессор
University/ Университет/ Университет	Hochschule für Wirtschaft und Recht Berlin / Берлин экономика және құқық жоғары мектебі / Берлинская высшая школа экономики и права
Country/ Ел/ Страна	Germany / Германия / Германия

Approved/ Келісілді/ Согласовано

The educational program has been reviewed and approved. The updated content of the educational program, the sequence of courses, and the revised learning outcomes (LO) have been developed in accordance with modern academic approaches.

Білім беру бағдарламасы қарастырылып, келісілді. Білім беру бағдарламасының жаңартылған мазмұны, пәндерді оқу реттілігі және жаңартылған оқу нәтижелері (ОН) заманауи академиялық тәсілдерге сәйкес әзірленді.

Образовательная программа рассмотрена и согласована. Актуализированное содержание образовательной программы, последовательность изучения дисциплин и обновленные результаты обучения (РО) сформированы с учетом современных академических подходов.

International Academic Advisor/ Шетелдік академиялық кеңесші/ Зарубежный консультант	J. Plotkin / Ю.Плоткин / Ю.Плоткин

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International Academic Advisor Confirmation/ Шетелдік кеңесшінің қатысуы/ Участие зарубежного консультанта

Educational Program/ Білім беру бағдарламасы/ Образовательная программа	6B07525 Standardization, certification and metrology (by Industry) / 6B07525 Стандарттау, сертификаттау және метрология (салалар бойынша) / 6B07525 Стандартизация, сертификация и метрология (по отраслям)
Level/ Дәрежесі/ Уровень	6
International Academic Advisor/ Шетелдік академиялық кеңесші/ Зарубежный консультант	Irmatova Zhyldyz Kamilovna / Ирматова Жылдыз Камиловна / Ирматова Жылдыз Камиловна
Academic degree/ Ғылыми дәреже/ Ученая степень	Candidate of Technical Sciences / Техника ғылымдарының кандидаты / Кандидат технических наук
Position/ Лауазымы/ Должность	Associate Professor / Доцент / Доцент
University/ Университет/ Университет	Osh Technological University named after M.M. Adysheva / М.М. Адышев атындағы Ош технологиялық университеті / Ошский технологический университет им. М.М. Адышева
Country/ Ел/ Страна	Kyrgyz Republic / Қырғыз Республикасы / Кыргызская Республика

Approved/ Келісілді/ Согласовано

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International Academic Advisor/ Zh.Irmatova /
Шетелдік академиялық кеңесші/ Ж.Ирматова/
Зарубежный консультант Ж.Ирматова

Seal/ МО/ МП

КАДРЛАР БӨЛҮМҮ
ОТДЕЛ КАДРОВ

(Signature/ Қолы/ Подпись)

ОШСКИЙ ТЕХНОЛОГИЧЕСКИЙ УНИВЕРСИТЕТ
ПОДПИСЬ ЗАВЕРЯЮ
Начальник отдела кадров
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«02» 07 2026 ж.