EDUCATIONAL PROGRAM

6B07220 Technology of food products (by industry)
code and name of the educational program

Level: *Bachelor's*

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

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

Астана-2025

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Preface

The educational program «6B07220 Technology of food products (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, approved by the order of the Deputy Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan «Atameken» dated 30.05.2023 № 100: «Production of meat and meat products», «Production of milk and dairy products»

The educational program «6B07220 Technology of food products (by industry)» was approved at the meeting of the Council on Academic Quality on «27» 03 202 5, protocol No. 4
Chairman L.K. Baibolova _____

The educational program «6B07220 Technology of food products (by industry)» was approved at the meeting of the Commission on Academic Quality of the Faculty on «29» 11 202 4, protocol No. 2
Chairman G.S. Zhunussova _____

The educational program «6B07220 Technology of food products (by industry)» was developed and discussed at the meeting of the department «Technology and Standartization» dated «21» 10 202 4, protocol No. 3
Head of the department S.B. Baitukenova _____

Approval sheet

Educational program «6B07220 - Technology of food products (by industry)»

AGREED:

Vice-Rector for Administrative Affairs	PP	E.Askarbekov	"27" 03 2025year
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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	6B072 Industrial and manufacturing branches
Number and name of the group of educational programs	B068 Food production
Code and name of the educational program (EP	6B07220 Technology of food products (by industry)
Educational program profile	Higher engineering education
Goal of the educational program	Training of competitive, professional personnel in the field of food production and public catering, with professional and social competencies that meet the requirements of the modern economy and market
Completion criterion of an educational program	240 academic credits
Language of instruction of the educational program	Russian, kazakh
Distinctive features of the educational program	No
Partner University	No

2 Qualification characteristics of a graduate of an educational program

Degree awarded	Bachelor of engineering and technology in the educational program «6B07220 Technology of food products (by industry)»
Field of professional activity	- organizational and managerial - production and technological - scientific research - design
Types of professional activities	Production and technological -improvement of technological processes and organization of food production and catering; - control and evaluation of the quality of manufactured food products for compliance with the requirements of regulatory documents; Organizational and managerial - management, organization and application of technological schemes for the production of food and processing industry products at enterprises; Project information -design and reconstruction of food production and catering enterprises;

	Scientific research -study, analysis and application of domestic and foreign experience, information in the field of science and innovation in the food industry.
Object of professional activity	Enterprises producing meat, dairy, fish and other food products, as well as catering enterprises. Scientific research and design organizations.
Functions of professional activity	-monitoring and ensuring compliance with the parameters of technological processes of production, prompt identification and elimination of the causes of their violations; -carrying out physico-chemical quality control of raw materials, auxiliary materials, containers, semi-finished products and finished products in accordance with regulatory documentation; -control of technological processes in food production; -control of compliance with recipes and technological modes of food production in food processing plants and catering establishments; -control over the operation of technological equipment in food production and catering enterprises; -development of new technologies and a range of food products; -organization and planning of production efficiency improvement in food production and catering enterprises; -control over compliance with sanitary standards and requirements in food production and catering establishments; -development of regulatory and technical documentation for food production and catering enterprises

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	33
Component of choice	54
Professional practice	7
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 «Modern aspects of the application of artificial intelligence»

Name of disciplines	Workload in academic credits

Introduction to Artificial Intelligence	5
Development of artificial neural networks	5
Artificial intelligence in the management of object	5
Total	15

5 Competency map of the educational program «6B07220-Technology of food products (by industry)»

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
	LO_1	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
	LO_2	Applies methods of mathematical analysis, general laws of mechanics and engineering for the successful study of major disciplines and use in professional activities
	LO_3	Applies theoretical and practical skills (basic sanitary norms and regulations) to solve professional tasks in the field of food production
	LO_4	Uses the fundamental laws of natural sciences and genres of academic writing in industrial and research activities during further education
	LO_5	Possesses learning skills to solve specific professional tasks related to the production of finished goods at food enterprises and to use artificial intelligence technologies for making informed decisions, planning economic needs, and enhancing the competitiveness and sustainability of the enterprise in the market
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 activ-ity.
Professional skills (Hardskills)	LO_6	Synthesizes knowledge and a clear understanding of professional competencies in the field of quality assessment and control of raw materials and finished

		products in accordance with regulatory requirements, and also develops new functional food products based on advanced food industry technologies
	LO 7	Uses professional and scientific skills to solve practical tasks related to improving the efficiency of food production, transportation logistics, and storage of products at food enterprises, with the application of artificial intelligence technologies
	LO 8	Organizes production and modern technological processes for the manufacturing of high-quality products at food industry and public catering enterprises, applying energy-efficient technologies for ecosystem restoration, ensuring a balance between the economy, social development of society, environmental preservation, and the protection of human life and health.
	LO 9	Uses professional and practical skills necessary for developing process flow diagrams and design solutions taking into account sanitary standards, production logistics and modern requirements for food enterprises, as well as effective work in the food industry and public catering.

6 Learning outcomes of the educational program and modules

Key competencies	Learning Outcomes (LO) for the educational program	Name of module	Learning outcomes for the module	Name of disciplines that form learning outcomes
Behavioral skills and 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.	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 communication in Kazakh, Russian, and foreign languages.	Foreign language
				Kazakh (Russian) language
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.		Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Information and communication technologies
Professional skills (Hardskills)	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	Module 1 Man and Society – the foundation of worldview and socio-political knowledge	He applies knowledge of economics and law, as well as business and financial literacy skills in his professional activities.	Module of economic, legal and environmental knowledge (Fundamentals of Economics and Entrepreneurship. Ecology and life safety. Fundamentals of law and anti-corruption culture. Methods of scientific research)
	LO2 Applies methods of mathematical analysis, general laws of mechanics and engineering for the successful study of major	Module 3 Engineering and Mathematics Department	Applies mathematical analysis methods and general laws of mechanics and engineering to successfully study the relevant disciplines.	Higher mathematics

	disciplines and use in professional activities		Demonstrates knowledge of the theoretical foundations of mechanics and engineering sciences, their basic concepts and laws governing mechanical processes	Engineering Computer Graphics
	LO3 Applies theoretical and practical skills (basic sanitary norms and regulations) to solve professional tasks in the field of food production	Module 4 Training and production	Describes microbiological criteria for the safety of raw materials, semi-finished products and finished products, as well as sanitary and hygienic requirements for the maintenance of food and catering enterprises	Microbiology sanitation and hygiene in food production/ Technical microbiology
			Demonstrates knowledge of the theoretical foundations of inorganic and organic chemistry	General chemistry
			Demonstrates knowledge of the types of food industry and catering enterprises, the organization of work of the enterprise and its structural divisions	Educational practice
	LO4 Uses the fundamental laws of natural sciences and genres of academic writing in industrial and research activities during further education	Module 5 Natural Science	Demonstrates knowledge of the theoretical foundations of inorganic, organic, analytical and physico-colloidal, food chemistry, their basic concepts and laws, also applies the laws of physics and chemistry, processes, phenomena, theories and complex relationships between them in food production enterprises	Physcolloidal and analytical chemistry/ Inorganic chemistry
				Food chemistry/ Food biochemistry
			Demonstrates knowledge of the fundamentals of scientific research, and also uses the genres of academic writing in presenting information.	Basics of research
	LO5 Possesses learning skills to solve specific professional tasks related to the production of finished goods at food enterprises and to use artificial intelligence technologies for making informed decisions, planning economic needs, and enhancing the competitiveness and sustainability of the enterprise in the market	Module 6 Organizational and technological	Applies the laws of mechanics, processes, phenomena, theories and complex dependencies between them in food production enterprises to successfully study the relevant disciplines.	Processes and vehicles of food productions / Heat and mass exchange processes
			Demonstrates knowledge of the classification and assortment of food products, characterizes the properties of food products, their changes during the movement of goods, conducts an examination of food products using regulatory documents	Merchandizing of food products
			He applies advanced physical methods and methods of engineering rheology in food production technology, and also demonstrates knowledge in the field of improving technology and methods of food processing based on theoretical and practical justification of the adequacy of the component composition and rational use of raw materials.	Physical methods of treatment of products/ Modern methods of food processing
			Demonstrates knowledge of the current state of the food industry and catering, technology of food production and catering products, and also	General food technology / Food industry technology/

			draws up a technological scheme for food production using regulatory documentation and regulations in food production.	Introduction to Artificial Intelligence
			He is able to analyze the production level, evaluate the efficiency of the enterprise, develop cost planning strategies and optimize business processes to increase the competitiveness and sustainability of the enterprise in the market.	Economics and enterprise planning
			Demonstrates skills in food production, operation of technological equipment in the food industry and catering enterprises	Industrial practice 1
	LO6 Synthesizes knowledge and a clear understanding of professional competencies in the field of quality assessment and control of raw materials and finished products in accordance with regulatory requirements, and also develops new functional food products based on advanced food industry technologies	Module 7 Research	Uses various methodologies, studies and determines the quality of raw materials and semi-finished products in order to ensure the production of high-quality food products	Control and estimation of quality of raw material and food products/Quality and safety of food products
			Analyzes the physical and chemical properties of food products, regulatory and technical documentation used in certification, basic certification schemes, distinguishes between types of certification, correctly uses standards and other certification documents, identifies certified products and possesses knowledge and skills acquired through standardization, practical and laboratory research.	Standardization and certification at enterprises/ Standardization and technical regulation in the food industry
			Uses knowledge of the physico-chemical and biochemical bases of food processing, the theoretical foundations of food production technology to increase the efficiency of food production	Nutritionology/ Food additives
			Uses knowledge of the physico-chemical and biochemical bases of food raw materials for the purpose of tasting and determining the quality of food products	Food tasting/ Sensory evaluation of food products
			Demonstrates knowledge of the main provisions of the laws and technical regulations of the Customs Union, regulatory documents in the field of quality and safety of food products	Food safety / Methods of food analysis
	LO7 Uses professional and scientific skills to solve practical tasks related to improving the efficiency of food production, transportation logistics, and storage of products at food enterprises, with the application of artificial intelligence technologies	Module 8 Technological	Organizes the technological process of production in food enterprises using artificial intelligence technologies, as well as applies intelligent systems to analyze data, optimize work processes and increase production efficiency, and formulates reasoned solutions and eliminates production problems at a professional level.	Technology of industries of food products/Modern technologies in food production/ Development of artificial neural networks
			Demonstrates knowledge of the basics of refrigeration and technologies in food production using artificial intelligence technologies	Refrigeration technology/ Refrigeration and catering technology/ Artificial

				intelligence in the management of object
			Applies theoretical knowledge about long-term storage of food raw materials and foodstuffs in practice	Technology of storage of raw food products / Low temperature food technologies
			Competencies are being formed in the field of organizing production flows, logistics of raw materials and finished products, as well as the introduction of modern technological solutions to increase the competitiveness of dairy and meat industry enterprises, as well as catering enterprises.	Organization of production at enterprises of the dairy and meat industry / Organization of production of public catering enterprises
			Acquires theoretical knowledge and practical skills necessary for quality control of raw materials, semi-finished products and finished products, mastering sampling methods, instrumental and laboratory analyses, as well as regulatory and legislative requirements governing the production and control of food safety in accordance with established standards.	Technochemical control at dairy and meat industry enterprises / Technochemical control at catering establishments
			Optimizes the processes of formation and movement of logistics flows, both at the food enterprise itself and beyond	Complex logistics of food enterprises
	LO8 Organizes production and modern technological processes for the manufacturing of high-quality products at food industry and public catering enterprises, applying energy-efficient technologies for ecosystem restoration, ensuring a balance between the economy, social development of society, environmental preservation, and the protection of human life and health.		Organizes the technological process of production in food production facilities and catering establishments. Formulates arguments and solves problems of an industrial nature at a professional level. Understands the importance of principles and culture of academic integrity in the production of high-quality food products.	Technology of national and foreign cuisine/ Cuisine of the peoples of the world
			Draws up technological diagrams of food and semi-finished products production processes in food processing plants and catering establishments. Formulates arguments and solves problems of an industrial nature at a professional level. Understands the importance of principles and culture of academic integrity in the production of high-quality food products	Technology of canned food and food concentrates/ Canning technology
				Technology of meat and meat products /Production technology of national meat products
				Technology of milk and dairy products /Technology of production of fermented milk products and cheeses

			He has practical skills in the technology of catering products, understands the need to conduct technological processes from the perspective of modern ideas about the rational use of raw materials, ensuring high-quality products, their safety for the life and health of consumers	Food service technology
			Analyzes and evaluates the degree of integration of the principles of sustainable development into national strategies and business processes, including waste recycling, ecosystem restoration, disaster risk reduction, investments in the green economy, the introduction of energy-efficient technologies, as well as the impact of these factors on the quality of life, education and compliance with international environmental standards	Sustainable development, ecology and life safety
			Applies knowledge of the organization and management of technological processes of various branches of the food industry in professional activities	Industrial practice 2
	LO9 Uses professional and practical skills necessary for developing process flow diagrams and design solutions taking into account sanitary standards, production logistics and modern requirements for food enterprises, as well as effective work in the food industry and public catering.	Module 9 Production and technological	Operates the equipment of food production and catering establishments in compliance with safety regulations	Technological equipment for food production/Technological equipment of a public catering enterprise
			Participates in the design, reconstruction and equipping of food production and catering enterprises	Design of dairy and meat industry enterprises/ Design of catering establishments
			He has the skills to analyze and determine the production costs of food production and catering enterprises	Fundamentals of technological calculations at dairy and meat industry enterprises/ Basics of calculating public catering products
			Demonstrates skills in organizing work at food industry and catering enterprises	Pre-graduate practice/ Industrial practice
	LO10 Applies theoretical and practical learning skills to independently solve professional tasks at the exit and while continuing education at subsequent levels, as well as in professional activities in the food industry.	Module 10 Final assessment	Understands the goals, methodology and methods of professional activity of a technologist, engineer and head of a food production and catering company, and also applies scientific research in the field of improving food production technologies. Applies the acquired skills in preparation for continuing further education in the profile of the educational program being studied.	Final assessment

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

№	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)											
				LO GED1	LO GED2	LO GED3	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9
Cycle of general education disciplines University component/Elective component															
1	History of Kazakhstan	The program consists of five thematic blocks: Ancient people, the formation of nomadic civilization, Turkic civilization and the Great Steppe, Kazakhstan in a new era (XVIII - early XX centuries), Kazakhstan in the Soviet period, Independent Kazakhstan. The purpose of the discipline is to provide objective knowledge about the main stages in the development of the history of Kazakhstan from ancient times to the present.	5	+											
2	Philosophy	The program consists of five thematic blocks: Ancient people, the formation of nomadic civilization, Turkic civilization and the Great Steppe, Kazakhstan in a new era (XVIII - early XX centuries), Kazakhstan in the Soviet period, Independent Kazakhstan. The purpose of the discipline is to provide objective knowledge about the main stages in the development of the history of Kazakhstan from ancient times to the present.	5	+											
3	Physical Culture	This curriculum shall be aimed at the study of the general education discipline "Physical culture", providing for physical training in accordance with international standards of education. The curriculum shall determine the joint cooperation of the teacher and the student in the process of physical education throughout the training in the context of the requirements to the level of mastering of the discipline.	8	+											
4	Module of socio-political knowledge	This curriculum shall suggest the study of four scientific disciplines – sociology,	8	+											

	(political science, sociology, cultural studies, psychology)	political science, cultural studies, psychology, each of which has its own subject, terminology, and research methods. The interaction between these scientific disciplines shall be based on the principles of informational complementarity; integrity; methodological integrity of the research approaches of these disciplines; the result-oriented unity of education methodology; a single system perspective of the typology of learning outcomes as the formed abilities													
5	Information and communication technologies	The program is aimed at studying the updated content of the general educational discipline "Information and Communication Technologies" (hereinafter referred to as the Discipline), developing the ability to critically understand the role and significance of modern information and communication technologies in the era of digital globalization, forming a new "digital" thinking, acquiring knowledge and skills use of modern information and communication technologies in various activities	5			+									
6	Foreign language	This curriculum shall be designed to train students on general education discipline "Foreign language" as one of the compulsory subjects of general education course. 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 framework). Depending on the level of training, the student, at the time of completion of the course, shall reach the level B2 of common European framework of reference if the student, at	10		+										

		the start, has the level of common European framework of reference above B1													
7	Kazakh (Russian) language	This curriculum for general education discipline "Kazakh language" shall be aimed at a new format of study of language and formation of social and humanitarian outlook in the framework of the national idea of spiritual modernization. This curriculum shall be intended for development of language personality of a student capable to perform cognitive and communicative activity in the Russian language in the spheres of interpersonal, social, professional and intercultural communication in the context of implementation of the state programs of trilingualism, and spiritual modernization of the national consciousness.	10		+										
8	Module of economic, legal and environmental knowledge (Fundamentals of Economics and Entrepreneurship. Ecology and life safety. Fundamentals of law and anti-corruption culture. Methods of scientific research)	Integrated discipline covers the fundamentals of economics, entrepreneurship, law and financial literacy. Examines key economic concepts, business principles, legal aspects of business and the basics of anti-corruption culture. Examines basic principles of financial planning, personal finance and investment management. Develops skills for effective economic decision-making, legal defense, building sustainable business competences and personal financial management	5				+								
Cycle of basic disciplines University component															
9	Higher mathematics	The discipline is aimed at studying the mathematical apparatus that allows you to model and solve mathematical problems, practical problems of elements of linear and vector algebra, mathematical analysis, probability theory. After mastering the discipline, students will be able to apply	5					+							

		mathematical methods to solve problems in their professional activities.												
10	Engineering Computer Graphics	The discipline is aimed at studying the main topics related to the creation and processing of graphic images used in engineering and technical fields. The main components of graphics systems, Hardware and software for working with graphics. Students master the theoretical knowledge and practical skills necessary to work with graphical systems in the mode of solving engineering problems.	6					+						
11	Merchandizing of food products	The course program provides a system of knowledge in the field of the modern food market, as well as the latest achievements in science and technology in the production of food products, their quality and nutritional value, which contribute to the formation of a specialist in logical thinking and practical skills in assessing the quality of food products	5								+			
12	General chemistry	The purpose of studying the discipline is to form systematic knowledge about the properties, structure and chemical behavior of compounds, about the quantum-mechanical structure of atoms and molecules, about the nature of chemical bonding in compounds, as well as modern ideas about the nature of chemical bonding. The discipline covers the theoretical foundations of chemistry and how to use them in solving specific chemical and material science problems.	4						+					
13	Basics of research	It is studied in order to form knowledge about the methodological foundations of scientific knowledge, methods of theoretical and empirical research, as well as the metatheoretical level, about the elements of the theory and methodology of scientific and technical creativity, the choice of the direction of scientific research and the stages of research work, the disclosure of the main stages in the work under study and methods	5							+				

		of organization of scientific research													
14	Economics and enterprise planning	The course is aimed at studying the basics of economics and enterprise planning, developing skills to assess the technical and economic level of production, analyzing product quality indicators and the effectiveness of the enterprise. Students master the methods of planning resource and labor costs, as well as develop strategies to increase productivity, optimize business processes and increase competitiveness in order to achieve maximum efficiency and sustainability of the enterprise in market conditions	3								+				
15	Sustainable development, ecology and life safety	The course is aimed at forming a systemic understanding of the principles of ensuring balance between economy, social development of society, preservation of environment, protection of life and human health. Develops skills of effective management of energy and waste in the circular economy in the development of national strategies and implementation of business processes; analysis, forecasting and minimization of technological, natural and social risks; Sustainable lifestyle and responsible attitude to one's own security.	5											+	
Cycle of basic disciplines Elective component															
16	Food chemistry	The discipline is studied in order to deepen students" knowledge, which forms the theoretical and practical basis for special food technology courses in accordance with modern scientific achievements and the study of the main groups of food substances, physico-chemical properties and changes.	5							+					
17	Food biochemistry	The discipline is studied in order to form a system of knowledge, skills and abilities among students on the issues of biochemical processes associated with human nutrition, and the characteristic transformations occurring in plant and animal organisms, as	5							+					

		well as in the process of their life, storage and processing of agricultural products. Result of the discipline:													
18	Physcolloidal and analytical chemistry	The purpose of the discipline is to master modern methods of substance analysis, to study the directions and speed of chemical processes. Students can analyze chemicals, calculate chemical formulas and reaction equations, use the properties of dispersed and colloidal systems to optimize the technological process, mathematical processing and generalization of data	5							+					
19	Inorganic chemistry	The discipline is aimed at developing students' knowledge about the theoretical foundations of inorganic chemistry, the essence of chemical processes and the basic laws of their occurrence. Students can determine the types of chemical reactions, the properties of elements and their compounds; understand the general laws of chemical processes and the chemical properties of substances.	5							+					
20	General food technology	The discipline is studied with the aim of training specialists with theoretical knowledge and practical skills in the field of catering, the use of modern technologies and methods of processing raw materials, as well as the introduction of artificial intelligence to optimize production, quality control and improve technological processes in the food industry.	5								+				
21	Food industry technology	It is trained in order to form knowledge about the main priority areas for the development of the market and the raw material base of food production, about the technology for the production of meat, fish, dairy, egg products, canned fruits and vegetables, as well as studying the classification, assortment, technology for the production of food products	5								+				
22	Standardization and certification at	he discipline is formed in order to study the basic principles and position of certification	5									+			

	enterprises	and standardization in the Republic of Kazakhstan, areas of application of certification, certification schemes and systems, rules and procedures for certification of products and services, scientific and technical support, as well as the rules for maintaining the Register, requirements for inspection control, appeals.													
23	Standardization and technical regulation in the food industry	It is studied in order to demonstrate knowledge in the field of technical regulation, standardization and quality management, and to have an idea of technical regulatory legal acts on the issues of standardization and quality of products, works, services, as well as the formation of practical skills and abilities in assessing the conformity of products.	5									+			
24	Control and estimation of quality of raw material and food products	The discipline is studied with the aim of teaching future specialists the theoretical foundations and practical skills for controlling the quality of products produced in food production and sold at mass catering enterprises - meat, milk, canned food, semi-finished products, culinary and confectionery products, drinks, as well as to form fundamental knowledge, necessary for the assimilation of professional disciplines.	5									+			
25	Quality and safety of food products	Trained in order to form the necessary theoretical knowledge about the main food toxicants, their degree of danger to the human body, methods and methods for monitoring the safety indicators of food raw materials and food products, acquiring basic knowledge, skills and abilities in the field of assessing the safety of food products and food raw materials.	5									+			
26	Food tasting	The discipline is studied in order to form students' theoretical and practical knowledge and master the basic techniques of scientifically based tasting analysis to ensure objective and reproducible results in the sensory evaluation of food, as well as to have	5									+			

		a holistic understanding of the methods of sensory, organoleptic analysis of food.													
27	Sensory evaluation of food products	It is studied with the aim of training highly qualified specialists with deep knowledge in the theoretical aspects of the problem of tasting analysis of food products and public catering products and owning the main methodological techniques in practical application, as well as identifying food products and public catering products using sensory analysis.	5									+			
28	Microbiology, sanitation and hygiene in food production	The discipline is studied in order to form knowledge in the field of organizing the sanitary examination of food products and protecting the human body from the influence of harmful environmental factors, as well as demonstrating skills in the field of microbiological control of the food industry and the knowledge system in general microbiology.	4						+						
29	Technical Microbiology	The discipline is formed with the aim of studying microorganisms in production processes and in the transformation of substances in nature, the causes of human alimentary diseases and the organization of measures for their prevention, the development of effective sanitary control methods, as well as the development of simple and differential staining methods, methods of cultivating microorganisms.	4						+						
30	Processes and vehicles of food productions	It is studied with the aim of teaching the student the rational choice of structures, the calculation of machines and apparatus for certain technological processes, as well as the method of expedient industrial operation of them, aimed at achieving maximum productivity at minimum cost and high quality of finished products, as well as to study the basic processes, apparatus and machines of food technologies.	5								+				
31	Heat and mass exchange processes	The purpose of the discipline is to provide students with knowledge about heat and	5								+				

		mass transfer processes in the processing of plant and animal raw materials, the formation of students' readiness to apply knowledge, skills and abilities in professional activities in the field of implementation of food production processes carried out using heat and mass transfer processes and equipment that part of the technological lines.													
32	Physical methods of treatment of products	The purpose of the course is to study the issues of using a number of physical processing methods in the food industries: electric current of high and ultrahigh frequency, infrared radiation, electric fields, contact processing method, ultrasound, as well as pulsed methods and engineering physical and chemical mechanics of food production.	5								+				
33	Modern methods of food processing	The purpose of mastering the discipline is to study modern methods of food processing, arming future technologists systematized knowledge in the field of studying the properties of raw materials and food products, measurement methodology and instrumentation for determining the physical and chemical properties of food products, mastering practical skills and abilities, understanding the need to conduct technological processes from the standpoint of modern technologies.	5								+				
34	Nutritionology	The purpose of the discipline is the assimilation of theoretical knowledge and the formation of skills in the field of rational nutrition, the role of nutrition in the life of the body, as well as mastering methods for studying the actual nutrition of various population groups, scientifically based skills in developing new food products with nutraceuticals.	5									+			
35	Food additives	It is studied with the aim of developing students' theoretical knowledge and practical skills in the field of using food additives,	5									+			

		which allow the future specialist to qualifiedly identify food additives, as well as in studying the regulatory and legislative framework in the field of using food additives, in mastering the rules of labeling, methods of control and detection of food food additives.													
36	Technology of industries of food products	It is trained to familiarize with the branches of the food industry, including the basics of the production of milk and meat products, vegetable fats, canning of fruits and vegetables and other products, as well as with modern achievements in the field of nutrition, studying the course is necessary for the formation of highly qualified specialists in the field of food production.	5										+		
37	Modern technologies in food production	The discipline is studied in order to demonstrate general ideas about the technology of food products, raw materials of animal and vegetable origin used in the production of food products, its properties, assortment and production technology, and the application of the acquired skills and abilities in practical activities.	5										+		
Cycle of major disciplines University component															
38	Food service technology	The aim of the discipline is knowledge of the primary processing of raw materials in catering establishments, the main technological processes used for the preparation of dishes, the nutritional value of products, the range and technological properties of raw materials, their relationship with the chemical composition and the formation of new properties of products in the process of culinary processing and the ability to draw up a technological map for the preparation of a dish.	5											+	
39	Complex logistics of food enterprises	The course program includes knowledge about the logistics of food enterprises, the basics of logistics management, the	5										+		

		development of logistics in the food industry, the formation of international logistics systems, areas of production as an area of application of logistics, as well as the study of transport support for business and its development trends, the method of calculating the supply of raw materials and products.													
Cycle of major disciplines Elective component															
40	Refrigeration technology	It is studied with the aim of developing knowledge about the methods and modes of refrigeration technology for food products, as well as physical, chemical, biochemical changes in food products during refrigeration processing, as well as mastering practical skills in determining operating parameters, quality indicators of chilled and frozen products, studying the influence of refrigeration processing and storage food products.	5											+		
41	Refrigeration and catering technology	The purpose of the discipline is the acquisition and development of knowledge by students in the field of refrigeration technology and technology, taking into account the technological, technical and environmental aspects of production, as well as in the practical preparation of students to solve both specific production problems and to develop promising issues related to refrigeration.	5											+		
42	Technology of meat and meat products	It is studied in order to develop knowledge about the directions of development of the meat industry: reception, maintenance, transportation of livestock and poultry, slaughter and processing and the study of technological processes of meat production, the requirements of regulatory documents for the quality of processed products of livestock and poultry, as well as secondary products of processed meat raw materials.	5												+	

43	Production technology of national meat products	It is studied in order to form theoretical and practical foundations for the technology of production of national meat products, to have an idea of the general methods of preparing national meat semi-finished products, dishes, assortment, the effect of heat treatment on the quality of national meat products, the study of regional features of the preparation of national meat products, as well as the importance meat in the diet.	5											+	
44	Technology of milk and dairy products	The purpose of the discipline is the development of technological processes for the production of dairy products, the study of the requirements for the quality of raw materials and finished products, the acquisition of theoretical knowledge and practical skills for their further use in professional activities	5											+	
45	Technology of production of fermented milk products and cheeses	It is trained to acquire theoretical knowledge, practical skills and abilities necessary for technological activities in the field of production of national dairy products, to study the range and regional features of the preparation of national dairy and sour-milk products, as well as to have an idea of scientific problems and development prospects in the field of the dairy industry.	5											+	
46	Technology of canned food and food concentrates	The purpose of the discipline is to provide students with a sufficiently extensive and in-depth set of knowledge in the field of technology and methods of food preservation, as well as the study of technological processes for the production of canned food and various types of food concentrates, provided for long-term storage of canned food.	5											+	
47	Canning technology	It is studied with the aim of acquiring knowledge and skills in the field of theory, methods and means of food preservation, studying the production technology of the main types of canned meat, dairy products, the essence of individual operations of	5											+	

		technological processes, ways to intensify them, the relationship of technology, technological equipment and control systems.													
48	Technology of storage of raw food products	The discipline is taught with the aim of developing students" theoretical knowledge on the storage and transportation of various groups of food raw materials, studying the storage capacity of food products, organizing the basics of storage: types, types of warehouses, methods, methods and modes of storage, transportation of various groups of food products, as well as the ability to predict rational shelf life of raw materials depending on the quality and production conditions.	5										+		
49	Low temperature food technologies	The purpose of the discipline is knowledge of the physical processes of cooling, freezing, thawing and refrigerated storage for food products, methods for obtaining low temperatures, the processes of warming and defrosting products, compressor, evaporator, condenser, as well as the application of theoretical knowledge about the long-term storage of food raw materials and food products in practice	5										+		
50	Organization of production at enterprises of the dairy and meat industry	The discipline is studied in order to develop practical skills in organizing production and managing production processes at dairy and meat industry enterprises, studying the structure, regulatory, technological documentation and reference material for enterprises, as well as analyzing the economic activities of dairy and meat industry enterprises.	5										+		
51	Organization of production of public catering enterprises	The discipline is studied in order to gain knowledge on the organization of production at public catering enterprises necessary for practical activities in the conditions of market relations and the organization of a competitive enterprise, as well as to teach students as future economic	5										+		

		managers of public catering enterprises to economically correctly make management decisions in the field of production organization.													
52	Technology of national and foreign cuisine	It is studied in order to familiarize students with the technology of cooking dishes of national and foreign cuisine and food processing methods, to form knowledge about the range of culinary products and cooking technology of characteristic dishes, culinary products of various national cuisines, the ability to compile technological documentation in accordance with the requirements of current regulatory documents.	5											+	
53	Cuisine of the peoples of the world	The purpose of the discipline is to form students' knowledge about the culture and food traditions of the peoples of Kazakhstan, the CIS countries, Europe, America and the Middle East, as well as the acquisition of knowledge in the development and formation of the culinary arts of foreign countries, the study of national character traits reflected in culinary preferences.	5											+	
54	Technological equipment for food production	It is studied with the aim of teaching the student the rational choice of structures, the calculation of machines and apparatus for certain technological processes, as well as the method of expedient industrial operation of them, aimed at achieving maximum productivity at minimum cost and high quality of finished products, as well as to study the basic processes, apparatus and machines of food technologies.	5												+
55	Technological equipment of a public catering enterprise	The purpose of the discipline is to study the totality of scientific and technical information reflecting the entire arsenal of technical means designed to perform technological processes of mechanical and thermal processing of raw materials, food preparation, transportation and sale, as well as to provide students with theoretical	5												+

		knowledge and practical skills in the operation and use of technological equipment.													
56	Technochemical control at dairy and meat industry enterprises	The discipline is studied in order to develop skills in organizing and implementing input quality control of raw materials, production control of semi-finished products, process parameters and quality management of dairy and meat products, mastering methods for determining quality indicators and organizing a laboratory for technochemical control.	5									+		
57	Technochemical control at catering establishments	The discipline is taught in order to study the theoretical foundations and practical methods of technochemical quality control of food products in public catering enterprises, considering modern physico-chemical, organoleptic and instrumental methods of analyzing raw materials, semi-finished products and ready meals in accordance with the requirements of regulatory documentation and mastering methods for assessing safety and quality indicators.	5									+		
58	Fundamentals of technological calculations at dairy and meat industry enterprises	The purpose of the discipline is to study the general provisions on the organization of meat and dairy enterprises, pricing and calculation, the form of documents used in enterprises of the meat and dairy industries, maintaining current reporting documents for the acceptance of raw materials and the release of finished products, drawing up commodity reports, reports on the movement of containers and equipment , inventory of products in production.	5											+
59	Basics of calculating public catering products	The purpose of the discipline is to study the principles of calculating the cost of dishes and finished products in the field of public catering, basic calculation methods, features of price formation, accounting for raw materials and regulatory documents regulating pricing, as well as the formation	5											+

		of students" practical skills in calculating and making informed managerial decisions in the field of nutrition.													
60	Food safety	The course program consists of developing knowledge, skills and abilities in assessment safety and quality of raw materials, materials, finished animal products and of plant origin at the stages of production and storage, as well as the study of the main legislative acts determining food safety products.	5									+			
61	Methods of food analysis	The purpose of the discipline is to gain knowledge in the field of the composition of food objects, their properties, methods of analysis of macro- and micronutrients, the formation of knowledge and skills in the field of modern methods of comprehensive assessment of the quality, nutritional value and properties of food products to obtain complete, environmentally friendly products with a wide range of consumer properties.	5									+			
62	Design of dairy and meat industry enterprises	The purpose of the discipline is to study the basics of designing meat and dairy industry enterprises, the principles of designing individual production facilities, the relationships between them, the technological structure of the enterprise, the composition and types of projects, design stages, the basics of technological calculations, using modern digital technologies and artificial intelligence to optimize design and automate technological processes.	5												+
63	Design of catering establishments	The purpose of the discipline is to study the principles and methodology, design stages, including the choice of a concept, calculation of production capacities, zoning of premises, selection of technological equipment and ensuring sanitary and hygienic standards, as well as the development of projects for catering enterprises taking into account economic,	5												+

		technological and environmental requirements.													
Minor															
64	Introduction to Artificial Intelligence	The discipline is aimed at studying the basic concepts, methods and technologies used in modern artificial intelligence systems. The course covers artificial neural networks, machine learning, deep learning, as well as applied algorithms and models used in various fields such as computer vision, natural language processing, robotics, and game art. At the end of the course, students are able to analyze and solve problems using artificial intelligence methods.	5								+				
65	Development of artificial neural networks	The discipline focuses on the study of methods for creating and training neural networks, which are mathematical models that mimic the work of the human brain. During the course of studying this discipline, students will learn about various types of neural networks, their structures and learning algorithms. Upon completion of the course, students will be able to create, train and apply neural networks to solve various tasks in the field of artificial intelligence and machine learning.	5										+		
66	Artificial intelligence in the management of object	The discipline studies the basic concepts and principles of artificial intelligence systems, as well as their application in object management. Methods and technologies of artificial intelligence for effective management of objects. Upon completion of the course, students gain the skills and knowledge necessary for successful management of facilities using	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$_{OOK1}$	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 and research project, content analysis, abstract, report, creative work, essay justification, research project, case analysis, testing, and others.	Interactive lecture (problem lecture, discussion lecture, conference lecture, consultation lecture, "Press conference" lecture, "Questions-answers-discussion" lecture), seminar and others.
LO$_{OOK2}$	Capable of interpersonal social and professional communication in Kazakh, Russian, and foreign languages.	Simulator, case task, creative task, project, testing, etc.	Interactive lecture, seminar (seminar "Problem identification", seminar "Problem solving", seminar "Problem solving application") and others.
LO$_{OOK3}$	Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Business and/or role-playing, creative assignment, testing, etc.	Communicative and activity-based approach to language acquisition, practical methods, interactive lecture, seminar, etc.
LO 1	He applies knowledge of economics and law, as well as business and financial literacy skills in his professional activities.	An essay, creative assignments, a test, a presentation, a business game, etc.	Interactive lecture, seminar (seminar "Problem identification", seminar "Problem solving", seminar "Problem solving application"), analysis of texts of different genres and others.
LO 2	Applies mathematical analysis methods and general laws of mechanics and engineering to successfully study the relevant disciplines. Demonstrates knowledge of the theoretical foundations of mechanics and engineering sciences, their basic concepts and laws governing mechanical processes	Colloquium, multi-level tasks and assignments, testing, etc.	Case task (analysis of specific situations), project method (development and transformation of one's own experience and competence) and others
LO 3	Describes microbiological criteria for the safety of raw materials, semi-finished products and finished products, as well as sanitary and hygienic requirements for the maintenance of food and catering enterprises Demonstrates knowledge of the theoretical foundations of inorganic and organic chemistry Demonstrates knowledge of the types of food industry and catering enterprises, the organization of work of the enterprise and its structural divisions	Multi-level tasks and assignments, laboratory work with physical or virtual equipment	Understanding and interpreting the meanings of a text based on cognitive modeling of its content and the context of its functioning and a test, a blitz survey, etc.
LO 4	Demonstrates knowledge of the theoretical foundations of inorganic,	Laboratory work with physical or virtual	Competence-based learning, role-playing

	organic, analytical and physico-colloidal, food chemistry, their basic concepts and laws, also applies the laws of physics and chemistry, processes, phenomena, theories and complex relationships between them in food production enterprises	equipment, colloquium, testing, and others.	games and educational discussions in various formats, and others.
	Demonstrates knowledge of the fundamentals of scientific research, and also uses the genres of academic writing in presenting information.		
LO 5	Applies the laws of mechanics, processes, phenomena, theories and complex dependencies between them in food production enterprises to successfully study the relevant disciplines.	A project, laboratory work with physical or virtual equipment, a colloquium, tests, etc.	Project method, case analysis and interactive lecture, brainstorming
	Demonstrates knowledge of the classification and assortment of food products, characterizes the properties of food products, their changes during the movement of goods, conducts an examination of food products using regulatory documents		
	He applies advanced physical methods and methods of engineering rheology in food production technology, and also demonstrates knowledge in the field of improving technology and methods of food processing based on theoretical and practical justification of the adequacy of the component composition and rational use of raw materials.		
	Demonstrates knowledge of the current state of the food industry and catering, technology of food production and catering products, and also draws up a technological scheme for food production using regulatory documentation and regulations in food production.		
	He is able to analyze the production level, evaluate the efficiency of the enterprise, develop cost planning strategies and optimize business processes to increase the competitiveness and sustainability of the enterprise in the market.		
	Demonstrates skills in food production, operation of technological equipment in the food industry and catering enterprises		
LO 6	Uses various methodologies, studies and determines the quality of raw materials and semi-finished products in order to ensure the production of high-quality food products	Report, communication, educational and research project, creative work, research project, case analysis, analytical review, testing, others	A case task (analyzing specific situations), a project method (building on and transforming one's own experience), and others.
	Analyzes the physical and chemical properties of food products, regulatory and technical documentation used in certification, basic certification schemes, distinguishes between types of certification, correctly uses standards and other certification documents, identifies certified products and possesses knowledge and skills acquired through standardization, practical and laboratory research.		

	Uses knowledge of the physico-chemical and biochemical bases of food processing, the theoretical foundations of food production technology to increase the efficiency of food production		
	Uses knowledge of the physico-chemical and biochemical bases of food raw materials for the purpose of tasting and determining the quality of food products		
	Demonstrates knowledge of the main provisions of the laws and technical regulations of the Customs Union, regulatory documents in the field of quality and safety of food products		
LO 7	Organizes the technological process of production in food enterprises using artificial intelligence technologies, as well as applies intelligent systems to analyze data, optimize work processes and increase production **efficiency**, and formulates reasoned solutions and eliminates production problems at a professional level.	Laboratory work with physical or virtual equipment, blitz survey, testing, etc.	Project method, case analysis, interactive lecture, seminar (seminar "Problem identification", seminar "Problem solving", seminar "Problem solving application"), practical methods, interactive lecture, seminar and others.
	Demonstrates knowledge of the basics of refrigeration and technologies in food production using artificial intelligence technologies		
	Applies theoretical knowledge about long-term storage of food raw materials and foodstuffs in practice		
	Competencies are being formed in the field of organizing production flows, logistics of raw materials and finished products, as well as the introduction of modern technological solutions to increase the competitiveness of dairy and meat industry enterprises, as well as catering enterprises.		
	Acquires theoretical knowledge and practical skills necessary for quality control of raw materials, semi-finished products and finished products, mastering sampling methods, instrumental and laboratory analyses, as well as regulatory and legislative requirements governing the production and control of food safety in accordance with established standards.		
	Optimizes the processes of formation and movement of logistics flows, both at the food enterprise itself and beyond		
LO 8	Organizes the technological process of production in food production facilities and catering establishments. Formulates arguments and solves problems of an industrial nature at a professional level. Understands the importance of principles and culture of academic integrity in the production of high-quality food products.	Multi-level tasks and assignments, colloquium, laboratory work with physical or virtual equipment, oral interview, tests, and others.	Interactive lecture, seminar, brainstorming and project method, case study
	Draws up technological diagrams of food and semi-finished products production processes in food processing plants and catering		

	establishments. Formulates arguments and solves problems of an industrial nature at a professional level. Understands the importance of principles and culture of academic integrity in the production of high-quality food products		
	He has practical skills in the technology of catering products, understands the need to conduct technological processes from the perspective of modern ideas about the rational use of raw materials, ensuring high-quality products, their safety for the life and health of consumers		
	Analyzes and evaluates the degree of integration of the principles of sustainable development into national strategies and business processes, including waste recycling, ecosystem restoration, disaster risk reduction, investments in the green economy, the introduction of energy-efficient technologies, as well as the impact of these factors on the quality of life, education and compliance with international environmental standards		
	Applies knowledge of the organization and management of technological processes of various branches of the food industry in professional activities		
LO 9	Operates the equipment of food production and catering establishments in compliance with safety regulations	Report, communication, educational and research project, creative work, research project, case analysis, analytical review, testing, others	Analytical review, testing, seminar, brainstorming and interactive lecture.
	Participates in the design, reconstruction and equipping of food production and catering enterprises		
	He has the skills to analyze and determine the production costs of food production and catering enterprises		
	Demonstrates skills in organizing work at food industry and catering enterprises		
LO 10	Understands the goals, methodology and methods of professional activity of a technologist, engineer and head of a food production and catering company, and also applies scientific research in the field of improving food production technologies. Applies the acquired skills in preparation for continuing further education in the profile of the educational program being studied.	Report, communication, educational and research project, creative work, research project, and others.	Case analysis, analytical review, testing.

9 Correlation of learning outcomes of the educational program with the labor functions of professional standards

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
Production of meat and meat products 30.05.2023 № 100	Chief Technologist (Manufacturing industry)	LF1. Organizational and production	Task 1: Performing organizational and production work	LO 8 Organizes production and modern technological processes for the manufacturing of high-quality products at food industry and public catering enterprises, applying energy-efficient technologies for ecosystem restoration, ensuring a balance between the economy, social development of society, environmental preservation, and the protection of human life and health.
		LF2.Administrative control	Task 1: Conducting production control	LO 7 Uses professional and scientific skills to solve practical tasks related to improving the efficiency of food production, transportation logistics, and storage of products at food enterprises, with the application of artificial intelligence technologies
		Requirements for personal competencies: The ability to make decisions		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.
Production of milk and dairy products 30.05.2023 № 100	Chemical technologist	LF1. To control the technological process and the output of finished products to production	Task 1: Conducting the production control process	LO 8 Organizes production and modern technological processes for the manufacturing of high-quality products at food industry and public catering enterprises, applying energy-efficient technologies for ecosystem restoration, ensuring a balance between the economy, social development of society, environmental preservation, and the protection of human life and health.
		Requirements for personal competencies: Analytical thinking, efficiency, working for results		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.

10 Graduate model

GRADUATE MODEL			
Professional standard (Production of meat and meat products) (Production of milk and dairy products)	Competencies (soft skills, digital skills)		
	Attributes of a graduate	knowledge	Skills
	Strives for continuous personal development and professional development; I am ready to justify the adoption of a specific technical solution in the development of new technological processes for food production; Analyzes and evaluates the effectiveness of the production activity control system; Knows how to plan the development strategy of a catering company, taking into account multiple factors; Owns the regulatory framework in the field of production; Able to show leadership skills; He is able to conduct research according to a given methodology and analyze the results of experiments.; Carries out the search, selection and use of new information in the field of food industry development; Evaluates the effectiveness of marketing activities to promote products to the market	Guidance materials on production planning and operational production management, fundamentals of labor legislation of the Republic of Kazakhstan, SanPiN requirements, labeling and product storage. Organization of production planning at enterprises. Product nomenclature, types of work performed: fundamentals of production technology. Current standards and technical specifications for the technical documentation being developed, and the procedure for their registration. Economics and organization of production, labor and management. Specialization of workshops, sites, and production links between them. The main technological equipment and the principles of its operation. Organization of production warehouses, transportation and loading and unloading operations at the enterprise.	Manage the development of production plans and schedules for sites, workshops and production in general, as well as their adjustments during the planned period. Organization of measures to improve production planning and process. Physico-chemical control of raw materials, finished products and technological process. Ensuring compliance of manufactured products with established quality standards. Maintaining established production and laboratory documentation. To organize operational control over the provision of production with technical documentation, materials, equipment, tools, etc. Monitor the state of completeness of work-in-progress, finished products, compliance with established inventory standards and calendar schedules in the work of workshops and sites. Monitor employees' compliance with labor protection rules and regulations, industrial and labor discipline, and internal labor regulations.
	Professional skills (Hardskills)		

	Uses professional and scientific skills to solve practical problems related to improving the efficiency of food production, complex logistics and product storage in food enterprises using artificial intelligence technologies. Organizes the production and modern technological processes for the production of high-quality products in the food industry and catering enterprises using energy-efficient technologies to restore ecosystems, ensure a balance between the economy, social development of society, environmental conservation, protection of human life and health. Uses professional and practical skills necessary for the development of technological schemes and design solutions, taking into account sanitary standards, production logistics and modern requirements for food enterprises, as well as effective work in the field of food industry and catering.

типтік оқу жоспары Типичный учебный план Typical curriculum

6B07220 Азық-түлік өнімдері технологиясы (салалар бойынша) 6B07220 Технология продовольственных продуктов (по отраслям)/ 6B07220 Technology of food products (by industry)

Модульдің № № модуля Module №	Пәннің № № дисциплины Discipline №	ОҚУ ПӘНДЕРІНІҢ АТАУЫ НАЗВАНИЕ УЧЕБНЫХ ДИСЦИПЛИН NAME OF TEACHING DISCIPLINES	Оқыту курсының пәннің компоненті (ЖК, ПК) Цикл учебных дисциплин (обязательный компонент, компонент по выбору) Educational discipline cycle	Оқу пәнінің коды Код учебной дисциплины Educational discipline code	Семестр семестр	Кредиттер саны Количество кредитов Number of credits	Курстық жұмыс (жоба) Курсовой проект (работа) Course work (project)	Барлық көлем Total volume					ОӨЖ СРОП IWST	ОБӨЖ СРО ИВ IWS	Семестр бойынша оқыту								Оқыту тілі: Білім беру бағдарламасы тәрбиелеу тілінде екінші тілде оқытылатын топтарда Язык обучения: по образовательной программе преподавания на языке обучения, в котором язык не английский языке Language of education (for bilingual education programs in the language learning in the second language, in English)
								Барлығы Total hours	Аудиториялық оқу жұмысының көлемі / Академические часы / Academic hours						1 ОҚЖЖ 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	7 академиялық кезең Academic period	8 академиялық кезең Academic period	
									Барлық аудит сағат Всего час. Total hours	оның ішінде: в том числе: including:					Семестрлердің апталары саны								
										Д ДЗ Les	СӨЖ СРО SIW	ЗС ЛЗ SW			15	15	15	15	15	15	15	15	
															апталық аудиториялық сағат аудиторных часов в неделю								
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		**Ақпараттық-коммуникативтік модуль / Информационно- коммуникационный модуль / Information and Communication Module**																					
	1	Қазақ (Орыс) тілі Казахский (Русский) язык Kazakh (Russian) language	ЖБП (МК) ООД (ОК) GED (CC)	K(R)Ya 1105-25 (1) K(R)Ya 1105-25 (1) K(R)Ya 1105-25 (1)	1	5		150	45		45		15	90	0 + 3 + 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Шетел тілі Иностранный язык Foreign language	ЖБП (МК) ООД (ОК) GED (CC)	IYa 1104-25 (1) IYa 1104-25 (1) IYa 1104-25 (1)	1	5		150	45		45		15	90	0 + 3 + 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Шетел тілі Иностранный язык Foreign language	ЖБП (МК) ООД (ОК) GED (CC)	IYa 1104-25 (2) IYa 1104-25 (2) IYa 1104-25 (2)	2	5		150	45		45		15	90		0 + 3 + 0							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	4	Қазақ (Орыс) тілі Казахский (Русский) язык Kazakh (Russian) language	ЖБП (МК) ООД (ОК) GED (CC)	K(R)Ya 1105-25 (2) K(R)Ya 1105-25 (2) K(R)Ya 1105-25 (2)	2	5		150	45		45		15	90		0 + 3 + 0							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	5	Ақпараттық-коммуникациялық технологиялар Информационно-коммуникационные технологии Information and communication technologies	ЖБП (МК) ООД (ОК) GED (CC)	IKT 1108-25 IKT 1108-25 IKT 1108-25	2	5		150	45	15		30	15	90		1 + 0 + 2							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**25**		**750**	**225**	**15**	**180**	**30**	**75**	**450**									
Модуль / Module № 2		**Адам және қоғам – дүниетанымның және қоғамдық-саяси білімнің негізі / Человек и общество- основа мировоззренческих и социально- политических знаний / Man and Society – the**																					
	1	Қазақстан тарихы История Казахстана History of Kazakhstan	ЖБП (МК) ООД (ОК) GED (CC)	IK 1101-25 IK 1101-25 IK 1101-25	1	5		150	45	30	15		15	90	2 + 1 + 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CC)	FK 1106-25 (1) FK 1106-25 (1) FK 1106-25 (1)	1	2		60	30		30			30	0 + 2 + 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Экономика, кәсіпкерлік, құқық және қаржылық сауаттылық модулі (экономика және кәсіпкерліктің 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, basics of law and anti-corruption culture, basics of financial literacy)	ЖБП (ЖК) ООД (ВК) GED (UC)	MEPPFG 1107-25 MEPPFG 1107-25 MEPPFG 1107-25	2	5		150	45	30	15		15	90		2 + 1 + 0							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	4	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GED (CC)	FK 1106-25 (2) FK 1106-25 (2) FK 1106-25 (2)	2	2		60	30		30			30		0 + 2 + 0							Білім алушының таңдауы бойынша По выбору обучающегося By student's option

	5	Әлеуметтік-саясаттану 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) GER (CS)	MSPZ 2103-25 MSPZ 2103-25 MSPZ 2103-25	3	8		240	120	60	60		15	105			4 - 4 - 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	6	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GER (CS)	FK 1106-25 (3) FK 1106-25 (3) FK 1106-25 (3)	3	2		60	30		30			30			0 - 2 - 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	7	Философия Философия Philosophy	ЖБП (МК) ООД (ОК) GER (CS)	Fil 2102-25 Fil 2102-25 Fil 2102-25	4	5		150	45	30	15		15	90				2 - 1 - 0					Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	8	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GER (CS)	FK 1106-25 (4) FK 1106-25 (4) FK 1106-25 (4)	4	2		60	30		30			30				0 + 2 - 0					Білім алушының таңдауы бойынша По выбору обучающегося By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**31**		**930**	**375**	**150**	**225**	**0**	**60**	**495**									
		Оқу-өндірістік / Учебно- производственный / Training and production																					
Модуль / Module № 3	1	Жалпы химия Общая химия General chemistry	БП (ЖК) БД (ВК) BD (UC)	OH 1201-25 OH 1201-25 OH 1201-25	1	4		120	45	15	15	15	15	60	1 - 1 - 1								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Тамақ өнімдерін өндіруде микробиологиялық санитария және гигиена Микробиология санитария и гигиена в пищевом производстве Microbiology sanitation and hygiene in food production	БП (ТК) БД (КВ) BD (EC)	MSGPP 1201-25 MSGPP 1201-25 MSGPP 1201-25	1	4		120	45	15	30		15	60	1 + 2 - 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Техникалық микробиология Техническая микробиология Technical microbiology		TM 1201-25 TM 1201-25 TM 1201-25																			
	4	Оқу практикасы Учебная практика Educational practice	БП (ЖК) БД (ВК) BD (UC)	UP 25 (TPP) UP 25 (TPP) UP 25 (TPP)	2	2		60	0							2 апта недель / weeks							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**10**		**300**	**90**	**30**	**45**	**15**	**30**	**120**									
		Инженерлік-математикалық / Инженерно-математический / Engineering and Mathematics Department																					
Модуль / Module № 4	1	Жоғары математика Высшая математика Higher mathematics	БП (ЖК) БД (ВК) BD (UC)	Vmat 1201-25 Vmat 1201-25 Vmat 1201-25	1	5		150	45	15	30		15	90	1 + 2 - 0								Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Инженерлік және компьютерлік графика Инженерная и компьютерная графика Engineering Computer Graphics	БП (ЖК) БД (ВК) BD (UC)	IKG 2210-25 IKG 2210-25 IKG 2210-25	2	6		180	60	30	30		15	105		2 - 2 - 0							Білім алушының таңдауы бойынша По выбору обучающегося By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**11**		**330**	**105**	**45**	**60**	**0**	**30**	**195**									
		Жаратылыстану-ғылыми / Естественно-научный / Natural Science																					
Модуль / Module № 5	1	Ғылыми зерттеу негіздері Основы научных исследований Basics of research	БП (ЖК) БД (ВК) BD (UC)	ONI 2204-25 ONI 2204-25 ONI 2204-25	3	5		150	45	15	30		15	90			1 - 2 - 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Бейорганикалық химия Неорганическая химия Inorganic chemistry	БП (ТК) БД (КВ) BD (EC)	NH 2206-25 NH 2206-25 NH 2206-25	3	5		150	45	15	15	15	15	90			1 - 1 - 1						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Аналитикалық және физколлоидтық химия Аналитическая и физколлоидная химия Physcolloidal and analytical chemistry		AFH 2206-25 AFH 2206-25 AFH 2206-25																			
	4	Тағам биохимиясы Биохимия пищевых продуктов Food biochemistry	БП (ТК) БД (КВ) BD (EC)	BPP 2205-25 BPP 2205-25 BPP 2205-25	4	5		150	45	30	15		15	90				2 - 1 - 0					Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	5	Тағам химиясы Пищевая химия Food chemistry		PH 2205-25 PH 2205-25 PH 2205-25																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**15**		**450**	**135**	**60**	**60**	**15**	**45**	**270**									

Модуль / Module № 6																								
Ұйымдастыру-технологиялық / Организационно- технологический / Organizational and technological																								
	1	Азық-түлік өнімдерінің тауартануы Товароведение продовольственных продуктов Merchandizing of food products	БП (ЖК) БД (ВК) BD (UC)	TPP 2205-25 TPP 2205-25 TPP 2205-25	3	5		150	45	15	15	15	15	90			1 + 1 + 1						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Өнімдерді өңдеудің заманауи физикалық әдістері Современные методы обработки продуктов Modern methods of food processing	БП (ТК) БД (КВ) BD (EC)	SMOP 2203-25 SMOP 2203-25 SMOP 2203-25	3	5		150	45	30	15		15	90			2 + 1 + 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Өнімдерді физикалық өңдеу әдістері Физические методы обработки продуктов Physical methods of treatment of products		FMOP 2203-25 FMOP 2203-25 FMOP 2203-25																			
	4	Кәсіпорындағы экономика және жоспарлау Экономика и планирование на предприятии Economics and enterprise planning	БП (ЖК) БД (ВК) BD (UC)	EPP 2205-25 EPP 2205-25 EPP 2205-25	4	3		90	30	15	15		15	45			1 + 1 + 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	5	Өндірістік практика 1 Производственная практика 1 Industrial practice 1	БП (ЖК) БД (ВК) BD (UC)	PP 1-25 (TPP) PP 1-25 (TPP) PP 1-25 (TPP)	4	5		150	0								5 апта недель weeks						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	6	Тағам өндірісінің үрдістері және аппараттары Процессы и аппараты пищевых производств Processes and vehicles of food productions	БП (ТК) БД (КВ) BD (EC)	PAPP 2204-25 PAPP 2204-25 PAPP 2204-25	4	5		150	45	30	15		15	90			2 + 1 + 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	7	Тамақ өндірісінің жылу және масса алмасу процестері Тепло-масса обменные процессы пищевых производств Heat and mass exchange processes of food production		TMOPPP 2204-25 TMOPPP 2204-25 TMOPPP 2204-25																			
	8	Тамақ өнеркәсібінің технологиясы Технология пищевой промышленности Food industry technology	БП (ТК) БД (КВ) BD (EC)	TPP 2205-25 TPP 2205-25 TPP 2205-25	4	5		150	45	30	15		15	90			2 + 1 + 0						Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	9	Жасанды интеллектке кіріспе Введение в Искусственный интеллект Introduction to Artificial Intelligence		VII 2205-25 VII 2205-25 VII 2205-25																			
	10	Азық-түлік өнімдерінің жалпы технологиясы Общая технология продовольственных продуктов General food technology		OTPP 2205-25 OTPP 2205-25 OTPP 2205-25																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**28**		**840**	**210**	**120**	**75**	**15**	**75**	**405**										
Зерттеу / Исследовательский / Research																								
	1	Шикізат және азық-түлік өнімдерінің сапасын бақылау және бағалау Контроль и оценка качества сырья и продовольственных продуктов Control and estimation of qualits of raw material and food products	БП (ТК) БД (КВ) BD (EC)	KOKSPP 3207-25 KOKSPP 3207-25 KOKSPP 3207-25	5	5		150	45	15	15	15	15	90					1 + 1 + 1				Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Тамақ өнімдерінің сапасы мен қауіпсіздігі Качество и безопасность продовольственных продуктов Quality and safety of food products		KBPP 3207-25 KBPP 3207-25 KBPP 3207-25																			

Модуль / Module № 7	3	Тамақ өнеркәсібіндегі стандарттау және техникалық реттеу Стандартизация и техническое регулирование в пищевой промышленности Standardization and technical regulation in the food industry	БП (ТК) БД (КВ) BD (EC)	STRPP 3208-25 STRPP 3208-25 STRPP 3208-25	5	5		150	45	15	30		15	90					1 + 2 + 0				Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	4	Кәсіпорындардағы стандарттау және сертификаттау Стандартизация и сертификация на предприятиях Standardization and certification at enterprises		SSP 3208-25 SSP 3208-25 SSP 3208-25																			
	5	Тағамдық қоспалар Пищевые добавки Food additives	БП (ТК) БД (КВ) BD (EC)	PD 3209-25 PD 3209-25 PD 3209-25	5	5		150	45	30	15		15	90					2 + 1 + 0				Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	6	Нутрициология Нутрициология Nutritional		N 3209-25 N 3209-25 N 3209-25																			
	7	Тағамды сенсорлық бағалау Сенсорная оценка пищевых продуктов Sensory evaluation of food products	БП (ТК) БД (КВ) BD (EC)	SOPP 3211-25 SOPP 3211-25 SOPP 3211-25	6	5		150	45	15	30		15	90						1 + 2 + 0			Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	8	Дәм сараптау Дегустация пищевых продуктов Food tasting		DPP 3211-25 DPP 3211-25 DPP 3211-25																			
	9	Тамақ өнімдерін талдау әдістері Методы анализа пищевых продуктов Methods of food analysis	БеП (ТК) ПД (КВ) PD (EC)	MAPP 3304-25 MAPP 3304-25 MAPP 3304-25	6	5		150	45	15	30		15	90						1 + 2 + 0			Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	10	Азық-түлік қауіпсіздігі Безопасность пищевых продуктов Food safety		BPP 3304-25 BPP 3304-25 BPP 3304-25																			
Барлығы модуль бойынша / Итого по модулю			**Total for module**			**25**		**750**	**225**	**90**	**120**	**15**	**75**	**450**									
				Технологиялық / Технологический / Technological																			
	1	Азық-түлік өнімдері салаларының технологиясы Технология отраслей продовольственных продуктов Technology of industries of food products	БП (ТК) БД (КВ) BD (EC)	TOPP 3210-25 TOPP 3210-25 TOPP 3210-25	5	5		150	45	15	30		15	90					1 + 2 + 0				Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	2	Тамақ өндірісіндегі заманауи технологиялар Современные технологии в пищевом производстве Modern technologies in food production		STPP 3210-25 STPP 3210-25 STPP 3210-25																			
	3	Жасанды нейрондық желілерді әзірлеу Разработка искусственных нейронных сетей Development of artificial neural networks		RINS 3210-25 RINS 3210-25 RINS 3210-25																			
	4	Тұрақты даму, экология және тіршілік қауіпсіздігі Устойчивое развитие, экология и безопасность жизнедеятельности Sustainable development, ecology and life safety	БП (ЖК) БД (ВК) BD (UC)	UREBZh 3207-25 UREBZh 3207-25 UREBZh 3207-25	6	5		150	45		45		15	90						0 + 3 + 0			Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	5	Тамақ өнімдерін сақтау технологиясы Технология хранения пищевых продуктов Technology of storage of raw food products	БеП (ТЕ) ПД (ОБ)	THPP 3301-25 THPP 3301-25 THPP 3301-25	5	5		150	45	30	15		15	90					2 + 1 + 0				Білім алушының таңдауы бойынша По выбору обучающегося

Модуль / Module № 8

6	Төмен температурадағы тағамдық технологиялар Низкотемпературные технологии пищевых продуктов Low temperature food technologies	PD (EC)	NTPP 3301-25 NTPP 3301-25 NTPP 3301-25																		Бойынша таңдауы бойынша По выбору обучающегося By student's option
7	Сүт және ет өнеркәсібі кәсіпорындарында өндірісті ұйымдастыру Организация производства на предприятиях молочной и мясной промышленности Organization of production at enterprises of the dairy and meat industry	БеП (ТК) ПД (КВ) PD (EC)	OPPMMP 3302-25 OPPMMP 3302-25 OPPMMP 3302-25	5	5		150	45	15	30		15	90					1 + 2 + 0				Бойынша таңдауы бойынша По выбору обучающегося By student's option
8	Қоғамдық тамақтандыру кәсіпорындарының өндірісін ұйымдастыру Организация производства предприятий общественного питания Organization of production of public catering enterprises		OPPOP 3302-25 OPPOP 3302-25 OPPOP 3302-25																		
9	Өндірістік практика 2 Производственная практика 2 Industrial practice 2	БеП (ЖК) ПД (ВК) PD (UC)	PP 2-25 (TPP) PP 2-25 (TPP) PP 2-25 (TPP)	6	5		150	0										5 апта недель weeks			Бойынша таңдауы бойынша По выбору обучающегося By student's option
10	Тоназытқыш өндірісінің технологиясы Технология холодильных производств Refrigeration technology	БеП (ТК) ПД (КВ) PD (EC)	THP 3303-25 THP 3303-25 THP 3303-25	6	5		150	45	30	15		15	90					2 + 1 + 0				Бойынша таңдауы бойынша По выбору обучающегося By student's option
11	Қоғамдық тамақтандырудағы тоназытқыш техникасы және технологиясы Холодильная техника и технология предприятий общественного питания Refrigeration and catering technology		HTTPOP 3303-25 HTTPOP 3303-25 HTTPOP 3303-25																		
12	Объектілерді басқарудағы жасанды интеллект Искусственный интеллект в управлении объектами Artificial intelligence in the management of object		IIUO 3303-25 IIUO 3303-25 IIUO 3303-25																		
13	Әлем халықтарының тағамдары Кухня народов мира Cuisine of the peoples of the world	БеП (ТК) ПД (КВ) PD (EC)	KNM 3305-25 KNM 3305-25 KNM 3305-25	6	5		150	45	15	30		15	90					1 + 2 + 0				Бойынша таңдауы бойынша По выбору обучающегося By student's option
14	Ұлттық және шетел тағамдарының технологиясы Технология национальной и зарубежной кухни Technology of national and foreign cuisine		TNZK 3305-25 TNZK 3305-25 TNZK 3305-25																		
15	Қоғамдық тамақтану өнімдерінің технологиясы Технология продуктов общественного питания Food service technology	БеП (ЖК) ПД (ВК) PD (UC)	TPOP 4301-25 TPOP 4301-25 TPOP 4301-25	1	5		150	45	15	15	15	15	90						1 - 1 - 1		Бойынша таңдауы бойынша По выбору обучающегося By student's option
16	Азық-түлік кәсіпорындарының кешенді логистикасы Комплексная логистика пищевых предприятий Complex logistics of food enterprises	БеП (ЖК) ПД (ВК) AS (UC)	KLPP 4302-25 KLPP 4302-25 KLPP 4302-25	7	5		150	45	15	30		15	90						1 - 2 - 0		Бойынша таңдауы бойынша По выбору обучающегося By student's option

17	Ұлттық ет өнімдерін өндіру технологиясы Технология производства национальных мясных продуктов Production technology of national meat products	БеП (ТК) ПД (КВ) PD (EC)	TPNMP 4308-25 TPNMP 4308-25 TPNMP 4308-25	7	5		150	45	15	15	15	15	90								1 - 1 - 1		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
18	Ет және ет өнімдерінің технологиясы Технология мяса и мясных продуктов Technology of meat and meat products		TMMP 4308-25 TMMP 4308-25 TMMP 4308-25																				
19	Ашыған сүт өнімдері мен ірімшіктерді өндіру технологиясы Технология производства кисломолочных продуктов и сыров Technology of production of fermented milk products and cheeses	БеП (ТК) ПД (КВ) PD (EC)	TPKMPS 4309-25 TPKMPS 4309-25 TPKMPS 4309-25	7	5		150	45	15	15	15	15	90								1 - 1 - 1		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
20	Сүт және сүт өнімдерінің технологиясы Технология молока и молочных продуктов Technology of milk and dairy products		TMMP 4309-25 TMMP 4309-25 TMMP 4309-25																				
21	Сүт және ет өнеркәсібі кәсіпорындарындағы техникалық бақылау Технохимический контроль на предприятиях молочной и мясной промышленности Technochemical control at dairy and meat industry enterprises	БеП (ТК) ПД (КВ) PD (EC)	TKPMMP 4307-25 TKPMMP 4307-25 TKPMMP 4307-25	7	5		150	45	15	30		15	90								1 - 2 - 0		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
22	Қоғамдық тамақтандыру кәсіпорындарындағы техникалық бақылау Технохимический контроль на предприятиях общественного питания Technochemical control at catering establishments		TKPOP 4307-25 TKPOP 4307-25 TKPOP 4307-25																				
23	Консервілеу технологиясы Технология консервного производства Canning technology	БеП (ТК) ПД (КВ) PD (EC)	TKP 4311-25 TKP 4311-25 TKP 4311-25	8	5		150	45	15		30	15	90									1 + 0 - 2	Білім алушының таңдауы бойынша По выбору обучающегося By student's option
24	Консервілер және азық-түлік концентраттарының технологиясы Технология консервов и пищеконцентратов Technology of canned food and food concentrates		TKP 4311-25 TKP 4311-25 TKP 4311-25																				
Барлығы модуль бойынша Итого по модулю / Total for module					**65**		**1950**	**540**	**195**	**270**	**75**	**180**	**1080**										
Өндірістік-технологиялық / Производственно-технологический / Production and technological																							
1	Тамақ өнімдерін өндірудің технологиялық жабдықтары Технологическое оборудование пищевых производств Technological equipment for food production	БеП (ТК)	TOPP 4306-25 TOPP 4306-25 TOPP 4306-25																				

Модуль / Module № 9	2	Қоғамдық тамақтандыру кәсіпорындарының технологиялық жабдықтары Технологическое оборудование предприятия общественного питания Technological equipment of a public catering enterprise	БеП (ТК) ПД (КВ) PD (EC)	ТОРОР 4308-25 ТОРОР 4308-25 ТОРОР 4308-25	7	5		150	45	15	30		15	90							1 + 2 + 0		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	3	Диплом алдындағы практика Өндірістік практика Преддипломная практика Производственная практика Pre-graduate practice Industrial practice	БеП (ЖК) ПД (ВК) PD (UC)	PDP PP 25 (TPP) PDP PP 25 (TPP) PDP PP 25 (TPP)	8	7		210	0												7 апта недель weeks	Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	4	Сүт және ет өнеркәсібі кәсіпорындарындағы технологиялық есептеулердің негіздері Основы технологических расчетов на предприятиях молочной и мясной промышленности Fundamentals of technological calculations at dairy and meat industry enterprises	БеП (ТК) ПД (КВ) PD (EC)	OTRPMMP 4310-25 OTRPMMP 4310-25 OTRPMMP 4310-25	8	5		150	45	15	30		15	90							1 + 2 + 0		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	5	Қоғамдық тамақтану өнімдерін калькуляциялау негіздері Основы калькуляции продукции общественного питания Basics of calculating public catering products		OKPOP 4310-25 OKPOP 4310-25 OKPOP 4310-25																			
	6	Сүт және ет өнеркәсібі кәсіпорындарын жобалау Проектирование предприятий молочной и мясной промышленности Design of dairy and meat industry enterprises	БеП (ТК) ПД (КВ) PD (EC)	PPMMP 4312-25 PPMMP 4312-25 PPMMP 4312-25	8	5		150	45	15	30		15	90							1 + 2 + 0		Білім алушының таңдауы бойынша По выбору обучающегося By student's option
	7	Қоғамдық тамақтандыру кәсіпорындарын жобалау Проектирование предприятий общественного питания Design of catering establishments		PPOP 4312-25 PPOP 4312-25 PPOP 4312-25																			
Барлығы модуль бойынша / Итого по модулю / Total for module						**22**		**660**	**135**	**45**	**90**	**0**	**45**	**270**									
Модуль / Module №	**Қорытынды аттестация / Итоговая аттестация / Final assessment**																						
	1	Қорытынды аттестаттау Итоговая аттестация Final assessment			8	8		240													8 апта недель weeks	
Барлығы модуль бойынша / Итого по модулю / Total for module						**8**		**240**	**0**	**0**	**0**	**0**	**0**	**0**									
БАРЛЫҒЫ МОДУЛЬДАР БОЙЫНША / ИТОГО ПО МОДУЛЯМ / TOTAL FOR						**240**		**7200**	**2040**	**750**	**1125**	**165**	**615**	**3735**									

«6В07220 – Азық-түлік өнімдері технологиясы (салалар бойынша)» білім беру бағдарламасына

Сараптама

«К.Құлажанов атындағы Қазақ технология және бизнес университеті» АҚ ұсынған «6В07220 – Азық-түлік өнімдері технологиясы (салалар бойынша)» білім беру бағдарламасы 2025–2026 оқу жылына арналған және сараптауға ұсынылды.

Аталған бағдарлама Қазақстан Республикасы Ғылым және жоғары білім министрлігінің бұйрығымен бекітілген Жоғары білім берудің мемлекеттік жалпыға міндетті стандартының талаптарына толық сәйкес келеді.

Білім беру бағдарламасының құрылымы тамақ және қайта өңдеу өнеркәсібі саласының экономикалық даму деңгейін, заманауи ғылым жетістіктерін, қоғам қажеттіліктерін және еңбек нарығындағы нақты сұранысты ескере отырып жасалған. Сонымен қатар, бағдарлама мазмұны тамақ өнімдерін өндіру саласында кәсіби құзыретті мамандарды даярлауға бағытталған.

Оқу жүктемесінің жалпы көлемі 240 академиялық кредитті құрайды. Бұл көлем студенттерге техника және технология бакалаврының кәсіби құзыреттерін меңгеруге қажетті теориялық және практикалық білімді толықтай игеруге мүмкіндік береді. Бағдарлама аясында оқытылатын пәндер студенттердің кәсіби даярлығын жан-жақты қамтамасыз етуге арналған.

Білім беру бағдарламасына енгізілген жаңа пәндер – «Тамақ өнеркәсібіндегі стандарттау және техникалық реттеу», «Сүт және ет өнеркәсібі кәсіпорындарында өндірісті ұйымдастыру» және «Сүт және ет өнеркәсібі кәсіпорындарын жобалау» – салалық бағыттағы білім мазмұнын тереңдетуге ықпал етеді және болашақ мамандардың кәсіби біліктілігін арттыруға бағытталған.

«6В07220 – Азық-түлік өнімдері технологиясы (салалар бойынша)» білім беру бағдарламасы жұмыс берушілердің ұсыныстары мен университеттің профессорлық-оқытушылық құрамының ғылыми-әдістемелік кеңестерін ескере отырып әзірленген.

Осы бағдарлама техника және технология бакалаврларын кәсіби даярлау процесінде пайдалануға ұсынылады және тағам өнімдері технологиясы саласында бәсекеге қабілетті мамандарды даярлауға бағытталған.

«Нәтиже» Сүт Фабрикасы» ЖШС
технология және даму
жөніндегі директоры **Баширова Ж.К.**

К.Құлажанов атындағы Қазақ технология және бизнес университеті» АҚ-ның «6В07220 – Азық-түлік өнімдері технологиясы» (салалар бойынша)» білім беру бағдарламасына 2025-2026 оқу жылына арналған

Сын пікір

Қазақстан Республикасының тамақ өнеркәсібі - экономиканың стратегиялық салаларының бірі, сондықтан оның дамуының жоғары деңгейін қамтамасыз ету, тамақ және қайта өңдеу саласы кәсіпорындары жұмысының тиімділігін арттыру қазіргі уақытта неғұрлым маңызды міндет болып табылады.

«6В07220 - Азық-түлік өнімдері технологиясы (салалар бойынша)» білім беру бағдарламасы Қазақстан Республикасы Ғылым және жоғары білім министрлігінің 2022 жылғы 20 шілдедегі № 2-бұйрығымен бекітілген Жоғары білімнің/Жоғары оқу орнынан кейінгі білімнің мемлекеттік жалпыға міндетті стандартына сәйкес, сондай-ақ «Атамекен» Қазақстан Республикасы Ұлттық кәсіпкерлер палатасы Басқарма Төрағасы орынбасарының 2023 жылғы 30 мамырдағы № 100 бұйрығымен бекітілген кәсіби стандарттар негізінде әзірленген:

- Ет және ет өнімдерін өндіру;
- Сүт және сүт өнімдерін өндіру;

6В07220 – «Азық-түлік өнімдері технологиясы» (салалар бойынша) білім беру бағдарламасының элективті пәндер каталогы базалық және бейіндік пәндер циклдерін таңдау бойынша курстарды қамтиған.

Құрастырылған пәндер каталогы техника ғылымдарының бакалавры дәрежесін алуға білім алушының құзыреттілігін қалыптастыру үшін оқу бағдарламасының оқу жүктемелерінің көлемін (кредиті саны) толық қамтыған және білім алушылардың даярлық деңгейіне және оқу мерзіміне қойылатын талаптарды айқындап құрастырылған.

6В07220 – «Азық-түлік өнімдері технологиясы» (салалар бойынша) білім беру бағдарламасының жұмыс оқу жоспары бойынша білім алушылардың деңгейінің оқып аяқтауы бойынша алған білімін іскерлік, дағды және құзыреттілік деңгейін толық сипаттайды, академиялық кредиттерде қалыптасқан оқыту нәтижелеріне, сонымен қатар оқу процесінде жинаған теориялық білімдерін бекіту, дағдыларды, құзыреттер мен оқыған білім беру бағдарламасы бойынша практикалық кәсіби қызмет тәжірибесін алу мақсатында, сондай-ақ озық тәжірибені меңгеруде өндірістік практикасы өткізілуіне негізделген. Білім беру бағдарламасының игерудің жалпы кредит

саны 240 кредитте белгіленген. ББББ жаңарту үшін келесі пәндерді «Сүт және ет өнеркәсібі кәсіпорындарындағы технохимиялық бақылау», «Қоғамдық тамақтандыру кәсіпорындарындағы технохимиялық бақылау», «Инженерлік және компьютерлік графика», сонымен қатар жұмыс оқу жоспарларына жасанды интеллект модульдерін енгізу.

Жалпы білімалушы оқу процесінде алған білімді, шеберлік пен дағдыны кәсіби қызметте практикалық тұрғыда пайдалана білу қабілеті толық қарастырған және құрастырылған білім беру бағдарламасы ҚР МЖМБС талаптарына сәйкес келе отырып, «6В07220 – Азық-түлік өнімдері технологиясы (салалар бойынша)» ББББ бойынша білім алушыны даярлауда толық пайдалануға мүмкін.

Сын пікір беруші:
«НӘРЛІ ЛТД» ЖШС
басшысы **Сыдыков Данияр Бахтиярович**

Экспертное заключение
на образовательную программу бакалавриата
«6В07220 Технология продовольственных продуктов
(по отраслям)» АО «Казахский университет технологии и бизнеса
имени К. Кулажанова» 2025-2026 учебный год

На экспертизу представлена ОП по направлению подготовки «6В07220 - Технология продовольственных продуктов (по отраслям)».

Образовательная программа зарегистрирована в Реестре ОП «Единая платформа высшего образования» с регистрационным номером 6В07200119 от 02.09.2019 (дата обновления 29.05.2024).

Имеет лицензию на направление подготовки №KZ43LAM00000589 от 19.02.2025 г.

Данная ОП «6В07220 Технология продовольственных продуктов» (по отраслям) соответствует основным требованиям Государственного общеобразовательного стандарта высшего образования, утвержденного приказом Министра образования и науки Республики Казахстан от 20 июля 2022 года №2.

Целью образовательной программы является подготовка конкурентоспособных, профессиональных кадров в сфере пищевых производств и общественного питания, обладающих профессиональными и социальными компетенциями, отвечающих требованиям современной экономики и рынка.

Объем кредитов ОП, выделяемый на изучение учебных дисциплин, достаточен для формирования компетенции бакалавра техники и технологии направления «6В07220 Технология продовольственных продуктов (по отраслям)» и предполагает обеспечение глубоких теоретических знаний и практического навыка по выбранной образовательной программе. Трудоемкость освоения ОП установлена в объеме 240 кредитов.

Образовательная программа разработана с учетом следующих Профессиональных стандартов:

- «Производство мяса и мясопродуктов» от 30.05.2023;
- «Производство молока и молочных продуктов» от 30.05.2023.

Учебный план ОП разработан на основании модульной системы изучения дисциплин, включающих в себя обязательные, базовые и профилирующие дисциплины, и формирующих общекультурные и профессиональные компетенции.

Результаты обучения (всего 8) составлены согласно таксономии Блума и охватывают следующие компетенции:

- поведенческие навыки и личностные качества (Softskills);
- цифровые компетенции (Digital skills);
- профессиональные навыки (Hardskills).

Описание дисциплин представлено для 55 наименований базовых и профильных дисциплин. Согласно актуализации основных требований Государственного общеобразовательного стандарта высшего образования,

утвержденного приказом Министра образования и науки Республики Казахстан от 20 июля 2022 года №2 (с изменениями на 2024 год) включены дисциплины как «Основы научных исследований», «Основы финансовой грамотности».

Актуальность представляют дисциплины по выбору, которые представлены в образовательной программе с учетом состоянии и развития пищевой промышленности в нашей стране, такие как «Нутрициология пищевых продуктов», «Низкотемпературные технологии пищевых продуктов», «Технология производства национальных молочных продуктов» и др.

Рекомендации:

- согласно актуализации основных требований Государственного общеобразовательного стандарта высшего образования, утвержденного приказом Министра образования и науки Республики Казахстан от 20 июля 2022 года №2 (с изменениями на 2025 год) https://adilet.zan.kz/rus/docs/V2200028916:

1) согласно пункта 20 пересмотреть описания дисциплин (где это может быть применимо) с целью освоения компетенций по применению искусственного интеллекта.

2) согласно пункта 22 рассмотреть внедрение в ОП микроквалификаций, нано-кредитов и наращиваемых степеней с возможностью признания путем их сертификации в соответствии с Законом Республики Казахстан "О профессиональных квалификациях" с учетом Атласа новых профессий и компетенций, востребованных на рынке труда Казахстана и Регионального стандарта.

- актуализировать и пересмотреть использование Профессиональных стандартов по пищевой промышленности https://atameken.kz/ru/services/16-professionalnyye-standarty-i-tsentry-sertifikatsii-nsk в разработке ОП.

На основании проведенного анализа можно сделать заключение о том, что ОП по направлению «6В07220 Технология продовольственных продуктов (по отраслям)» АО «Казахский университет технологии и бизнеса имени К. Кулажанова», в целом, соответствует требованиям ГОСО РК, требованиям рынка труда и позволит выпускникам реализовать приобретенные знания в дальнейшей профессиональной деятельности.

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