EDUCATIONAL PROGRAM

7M07239 Technology of food products (by industry)

Level: Master's

Approved
by the Board of Directors of JSC
«K.Kulazhanov KazUTB» "02.09" 2025,
protocol No. 3

Recommended
by the Academic Council of JSC
«K.Kulazhanov KazUTB» "28.08" 2025,
protocol No. 8

Astana – 2025

CONTENT

Preface

The educational program 7M07239 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 and also based on professional standards.:

1. "Production of meat and meat products"
2. Teacher (faculty) of organizations of higher and (or) postgraduate education.

The educational program 7M07239 Technology of food products (by industry)" was approved at the meeting of the Council on Academic Quality on "27" 03 2025, protocol No. 4

Chairman L.Baibolova _____
S.N.P. Signature

The educational program 7M07239 Technology of food products (by industry)" was approved at the meeting of the Commission on Academic Quality of the Faculty on "29" 11 2024, protocol No. 2

Chairman G.Zhunussova _____
S.N.P. Signature

The educational program 7M07239 Technology of food products (by industry)" was developed and discussed at the meeting of the department "Technology and standardization" dated "21" 10 2024, protocol No. 3

Head of the department S.Baitukenova _____
S.N.P. Signature

Approval sheet

Educational program "7M07239 Technology of food products (by industry)"

AGREED:

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1 Passport of the educational program

International Standard Classification of Education (ISCED) level	7
National Qualification Framework (NQF) level	7
Sectoral Qualifications Framework (SQF) level	7
Code and name of the field of education	7M07 - Engineering, manufacturing and construction industries
Direction of training	7M072 - Industrial and manufacturing branches
Number and name of the group of educational programs	M111 - Food production
Code and name of the educational program (EP	7M07239 Technology of food products (by industry)
Educational program profile	Scientific & pedagogical direction
goal of the educational program	Training of highly qualified specialists in the field of food technology, possessing professional competencies, capable of solving modern scientific, pedagogical and practical problems of the food industry
completion criterion of an educational program	At least 120 academic credits, including all types of student's academic activities
language of instruction of the educational program	Kazakh, Russian
Distinctive features of the educational program	-
Partner University	-

2 Qualification characteristics of a graduate of an educational program

Degree awarded	Master in the educational program 7M07239 Food Technology (by industry)
Field of professional activity	- food industry branches; - scientific research organizations; - enterprises of various forms and types of ownership; - education and science (higher education institutions, colleges)
Types of professional activities	Organizational and managerial: - management of the activities of catering enterprises, meat, fish, dairy, canning industry, - development and implementation of the latest progressive forms of management; Production and technological: - organization of work of all divisions of food industry enterprises; Scientific research: - scientific research in the field of technology and food production Pedagogical: - implementation of educational services in the field of education and science (higher education institutions, colleges)
Object of professional activity	all branches of the food industry, research institutes, organizational and management institutions, universities, colleges
Functions of professional activity	- management of the production and economic activities of a food industry enterprise in accordance with the legislation; - development and implementation of the latest progressive forms of management; - organization of the company's production activities; - implementation of academic, research, scientific, methodological and social activities in the OVPO; - socialization of learning youth.

3 Requirements for the content of the educational program

Name of cycles and disciplines	Workload in academic credits
Cycle of basic disciplines (BD)	**35**
University componen, including pedagogical practice	20
Component of choice	15
Cycle of major disciplines (MD)	**53**
University component	15
Component of choice	25
Research practice	13
Master's student's research work	**24**
Research work of a master's student, including an internship and completion of a master's thesis	24
Final certification (FE)	**8**
Preparation and defense of a Master's thesis (PDMT)	8
Total	**120**

4 Competency map of the educational program «7M07239 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 3	Applies knowledge of the methodological foundations of higher school pedagogy, professional knowledge and skills in the training and socialization of students
	LO 4	Applies knowledge in the field of psychology in solving managerial tasks and planning professional and personal development
	LO 1	Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity
Digital competencies (Digital skills)	LO 10	It uses modern research methods, information technologies, artificial intelligence and equipment for scientific research and development of technological processes in food production
	LO 7	Develops recommendations for technological and biotechnological processes for the production of functional, specialized and herodietic food products, enzyme preparations, food additives and bioproducts
	LO 8	Develops innovative food technologies based on scientific knowledge, best practices and prospects for the development of the food industry

Professional skills (Hardskills)	LO 2	Conducts research based on a holistic systemic scientific outlook using knowledge of the history and philosophy of science
	LO 5	Uses quantitative and qualitative methods, modern equipment for scientific research in food production
	LO 6	Evaluates the safety of food products and raw materials, as well as the content of contaminants, biological agents and chemicals in them
	LO 9	Takes measures to introduce and accelerate the development of new technological processes in the production of waste and secondary raw materials for the production of finished products and the development of new products
	LO 11	Analyzes the production and technological potential of meat and dairy products, technological processes using biotechnological methods for the production of food products of animal and vegetable raw materials and products of their processing
	LO 12	He is able to manage the production and economic activities of a food industry enterprise, manage production and design new lines of the food industry

5 Learning outcomes of the educational program and modules

Key com-petencies	Learning Outcomes (LO) for the educational program	Name of module	Learning outcomes for the module	Name of disciplines that form learning outcomes
Behavioral skills and personality traits (Softskills)	LO 1 Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity	The module of basic disciplines	Applies the techniques of logical analysis of scientific texts in a foreign language and demonstrates knowledge of modern methods and technologies of professional communication in a foreign language	Foreign language (professional)
Professional skills (Hardskills)	LO 2 Conducts research based on a holistic systemic scientific outlook using knowledge of the history and philosophy of science	The module of basic disciplines	Demonstrates knowledge of the main stages of the formation and development of science and world philosophical thought; understanding the professional and social necessity of their own scientific work	History and philosophy of science
Behavioral skills and personality traits (Softskills)	LO 3 Applies knowledge of the methodological foundations of higher school pedagogy, professional knowledge and skills in the training and socialization of students	The module of basic disciplines	Carries out educational, scientific, methodological, scientific and educational activities at the university	Pedagogical practicum
Behavioral skills and personality traits (Softskills)	LO 4 Applies knowledge in the field of psychology	The module of basic disciplines	Describes the content of psychological personality traits in the design of future professional activities. Demonstrates the	Management psychology

	in solving managerial tasks and planning professional and personal development		ability to apply knowledge of psychology for the purpose of self-knowledge and the knowledge of others	
Professional skills (Hardskills)	LO 5 Uses quantitative and qualitative methods, modern equipment for scientific research in food production	Methodology of scientific research in the field of food industry	Formation of students' skills to apply quantitative and qualitative methods, as well as modern equipment for scientific research in the field of food production. The module examines the methods of analysis of raw materials and products, physico-chemical and biochemical processes occurring during the processing of food raw materials, as well as the basics of planning and conducting experiments with subsequent interpretation of the results.	Methods of research of food raw materials and products Physico-chemical and biochemical processes in food production Scientific research and organization of the experiment Scientific bases of food production
Professional skills (Hardskills)	LO 6 Evaluates the safety of food products and raw materials, as well as the content of contaminants, biological agents and chemicals in them	Modern trends in the food industry	The module develops students' skills in applying quantitative and qualitative methods and modern equipment to study the contamination factors of food raw materials and products, as well as evaluating the effectiveness of barrier technologies in ensuring food safety. The module examines the sources of microbiological and chemical contamination, methods for its detection and control, as well as scientific approaches to the development and implementation of barrier solutions aimed at preserving the quality and safety of food products at all stages of production..	Barrier technologies in food production Contamination of food raw materials and food products
Professional skills (Hardskills)	LO 7 Develops recommendations for	Food technology	The module is aimed at developing students' competencies in the field of developing recommendations for the organization of	Biotechnological methods for increasing the nutritional value of meat and dairy products

	technological and biotechnological processes for the production of functional, specialized and herodietic food products, enzyme preparations, food additives and bioproducts		technological and biotechnological processes in the production of functional, specialized and herodietic food products, as well as enzyme preparations. Modern approaches to the creation of products with specified properties, the selection of raw materials, the use of biotechnological methods, including fermentation and the use of probiotic cultures, are being studied. Special attention is paid to the scientific substantiation of formulations and technological regimes, taking into account the physiological needs of various population groups.	Technology of functional and specialized food products Biotechnologies in food production Technology of production of enzyme preparations Specialized food products of animal and vegetable origin продуктов Technology of food bioproducts Technology of herodietic nutrition products
Professional skills (Hardskills)	LO 8 Develops innovative food technologies based on scientific knowledge, best practices and prospects for the development of the food industry	Modern trends in the food industry	Formation of students' knowledge and skills necessary for the development and implementation of innovative technologies in the food industry. Modern methods and technical solutions for processing food raw materials, trends and prospects for the development of the industry, as well as examples of advanced domestic and foreign experience are considered. Special attention is paid to the application of scientific achievements and technological innovations to create competitive, safe and high-quality food products.	Innovative equipment and technologies in the food industry Innovative technologies for processing food raw materials
Professional skills (Hardskills)	LO 9 Takes measures to introduce and accelerate the development of new technological processes in the production of	Food technology	The module is aimed at developing students' practical skills and theoretical knowledge in the field of product quality assurance and management, the development of new types of food products and effective recycling of waste and recycled materials. In the course	Ensuring the quality of products of processing industries Product quality management Technology of waste and secondary raw materials processing New product development technology

	waste and secondary raw materials for the production of finished products and the development of new products		of the study, modern technologies for the disposal and reuse of raw materials, methods for improving the economic and environmental efficiency of production, as well as the stages of design and implementation of new products are considered. Special attention is paid to the development of innovative technological solutions that contribute to the expansion of the product range and the sustainable development of the food industry.	
Digital competencies (Digital skills)	LO 10 It uses modern research methods, information technologies, artificial intelligence and equipment for scientific research and development of technological processes in food production	Methodology of scientific research in the field of food industry	The module is aimed at developing students' skills in applying modern scientific research methods, digital technologies, including elements of artificial intelligence, and specialized equipment for solving technological problems in the food industry. The discipline examines the physico-chemical and biochemical foundations of food processes, innovative approaches to processing raw materials, methods of planning and conducting experiments, as well as the development and optimization of technological solutions using information systems. Special attention is paid to the integration of scientific knowledge and digital tools into the process of creating safe and efficient food production technologies.	Physico-chemical and biochemical processes in food production Innovative technologies for processing food raw materials Innovative equipment and technologies in the food industry Scientific research and organization of the experiment Scientific bases of food production
Professional skills (Hardskills)	LO 11 Analyzes the production and technological potential of meat and dairy products,	Food technology	The module is aimed at developing students' competencies in the field of analysis and application of biotechnological methods to increase the nutritional value and sustainability of the production of products	Biotechnological methods for increasing the nutritional value of meat and dairy products Biotechnologies in food production

	technological processes using biotechnological methods for the production of food products of animal and vegetable raw materials and products of their processing		from animal and vegetable raw materials. Technologies of bioconversion, fermentation, the use of microbiological and enzyme preparations, as well as rational approaches to the processing of waste and secondary raw materials are being studied. Special attention is paid to assessing the production and technological potential of meat and dairy products and developing biotechnological solutions to improve the quality, safety and biological value of products.	Technology of waste and secondary raw materials processing
Professional skills (Hardskills)	LO12 He is able to manage the production and economic activities of a food industry enterprise, manage production and design new lines of the food industry	Food technology	The module is aimed at training specialists who are able to effectively organize and manage production processes in the food industry. The discipline examines modern approaches to ensuring and controlling product quality, technology for creating functional and herodietic products, features of food bio-products production, as well as methods for developing and introducing new types of products. Special attention is paid to the management of production and economic activities, technical and technological design of new production lines and optimization of technological processes, taking into account modern requirements and industry trends.	Ensuring the quality of products of processing industries Product quality management Technology of food bioproducts Technology of herodietic nutrition products New product development technology

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 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10	LO 11	LO 12
Цикл базовых дисциплин Вузовский компонент/ Компонент по выбору															
1	Foreign language (professional)	The purpose of the course is to acquire and improve competence in accordance with international standards of foreign language education, allowing the use of a foreign language as a means of communication in the intercultural, professional and scientific activities of the future master. The study of the discipline contributes to the training of highly qualified specialists who are able to compete in the labor market.	4	+											
2	History and philosophy of science	The purpose of studying the discipline is to philosophically comprehend science, comprehend the factual and ideological content of the stages of its development with the further use of acquired knowledge and skills in theoretical and practical professional activities. The course focuses on analyzing the main philosophical and methodological problems that arise in	4		+										

		science at the present stage of its development, and gaining insight into the trends in the historical development of science.													
3	Higher school pedagogy	The purpose of the discipline is the formation of basic knowledge and skills of scientific research, their practical use in real pedagogical activity as a necessary basis for the formation of a comprehensively developed, socially active, creatively thinking individual. The content of the discipline is focused on the formation of pedagogical competence in the field of pedagogy of higher school, the creation of a systematic view of the development of pedagogy of higher school as a sphere of scientific knowledge.	4			+									
4	Management psychology	The purpose of the discipline is aimed at creating holistic ideas about the role of the human factor in management processes and its psychological mechanisms, systematizing theoretical and methodological approaches to the management process, and developing a systematic vision of the problem of human management in an organization. The content of the discipline allows us to develop psychological tools for effective management of leadership in a modern organization, which is important in the system of basic professional training of future specialists.	4				+								

5	Biotechnological methods for increasing the nutritional value of meat and dairy products	The purpose of the discipline is to study modern biotechnological methods used in the meat and dairy industry. The course provides students with knowledge about the prospects and effectiveness of using biotechnological processes to increase the nutritional value of meat and dairy products. Promotes the development of modern methods of evaluation and selection of a rational method of technological processing of meat and dairy raw materials. Develops skills in analyzing the effectiveness of the use of biological products in technological processes of processing meat and dairy raw materials	5							+						
6	Methods of research of food raw materials and products	The purpose of the discipline: the development of modern methods of research of food raw materials and products. The discipline forms knowledge about modern methods of evaluating the properties of raw materials and food products to ensure high quality of finished products. Students will acquire skills in applying instrumental analysis methods for a comprehensive study of the structure, composition and properties of food raw materials and products, will be able to carry out measurements and observations, describe and analyze the results of research on the properties of raw materials and food, as well as assess the quality and rational use of food raw materials.	5					+								

7	Ensuring the quality of products of processing industries	The purpose of the discipline is to study the issues of ensuring the quality of products of processing industries in accordance with new approaches and management principles. The course forms scientific knowledge about ensuring the quality control of food processing industries. Within the framework of the discipline, students will master innovative technologies for the production of products of processing industries, acquire skills in analyzing modern, highly effective methods for determining the quality of products, will be able to evaluate food safety standards and systems, regulatory and technical documentation required for food products of processing industries.	5									+			+
8	Technology of functional and specialized food products	The purpose of the course is to master new technologies for the development of functional and specialized food products. The course provides students with fundamental knowledge about modern scientific achievements in the study of technology for functional and specialized products. Promotes the development of skills in food quality research based on the modeling of biocatalytic, chemical, biochemical, and microbiological processes. Students will be able to develop new and improve traditional technologies of products with a given composition and properties	5							+					

9	Product quality management	The purpose of the discipline: to study issues in the field of expert assessment of quality, control and safety of food products. The discipline forms fundamental knowledge on ensuring the quality and safety of food products within the framework of the requirements of international and domestic standards and legislation. Students will be able to analyze food pollution monitoring systems and evaluate modern highly effective analytical methods for determining the quality and safety of food products	5					+				+			+
10	Physico-chemical and biochemical processes in food production	The purpose of the discipline: the study of physico-chemical and biochemical processes, technological modes, conditions of processing and storage of raw materials and food products. The discipline forms fundamental knowledge about modern scientific achievements in the field of biochemistry of food products and their physico-chemical properties. Students will be able to evaluate the technological process of production, identify changes in basic substances during the technological processing of products and apply modern methods of food analysis to determine the qualitative and quantitative characteristics of food products:	5					+					+			
11	Pedagogical practicum	The purpose of undergraduates' pedagogical practice is to develop the pedagogical skills and competencies	4	+												

		necessary for the organization and management of the educational process at the university. The master's student learns all forms of organization of higher education, compiles lecture notes, develops seminars, practical and laboratory classes, SRO. Conducts educational work among students													
Цикл профилирующих дисциплин Вузовский компонент/Компонент по выбору															
12	Barrier technologies in food production	The purpose of the course is to study combined biophysical technologies, identify the sources of barriers and their impact on food quality. The discipline promotes the development of methods for assessing the protection of a product from damaging factors, modern software and technical means of information technology. Develops students' measurement skills to assess the quality of raw materials, semi-finished products and identify barrier indicators of finished products	5						+						
13	Biotechnologies in food production	The purpose of the course is to familiarize with the principles of application of biotechnological processes in the food industry. The discipline forms a system of knowledge among students about the latest concepts of the use of enzyme preparations, microbiological starter cultures, food additives in the production of food using biological agents. Students	5							+				+	

		will be able to analyze the effectiveness of choosing optimal solutions when creating products, taking into account the requirements of quality, reliability, life safety and environmental cleanliness of production.														
14	Technology of production of enzyme preparations	The purpose of the course: to study the principles and features of the technology of production of enzyme preparations for the food industry. The discipline forms theoretical and practical knowledge about the basic concepts, classification, nomenclature and specificity of enzyme preparations. Students will be able to analyze the use of enzymes and enzyme preparations as effective biocatalysts in the food industry and apply biotechnological techniques in organizing modern production, forming an assortment and ensuring the biological usefulness of the product	5							+						
15	Innovative equipment and technologies in the food industry	The purpose of the discipline: to study the issues of innovative development of food industry enterprises. The course builds knowledge about scientific research to improve engineering and technology, improve the quality and yield of products in food enterprises. Students will be able to master modern innovative food production techniques and technologies; acquire skills in analyzing the main factors of the industry's susceptibility to innovation; will	5								+		+			

		be able to evaluate the introduction of innovative techniques and technologies into production.													
16	Innovative technologies for processing food raw materials	The purpose of the discipline is to study the issues of ensuring the quality of products of processing industries in accordance with new approaches and management principles, including the use of artificial intelligence technologies. The course builds scientific knowledge about ensuring the quality control of food products in processing industries using intelligent monitoring and data analysis systems. Within the framework of the discipline, students will master innovative technologies for the production of products from processing industries, acquire skills in analyzing modern, highly effective methods for determining product quality, and will be able to evaluate food safety standards and systems, as well as regulatory and technical documentation required for food products from processing industries.	5								+		+		
17	Contamination of food raw materials and food products	The purpose of the discipline: to study topical issues of contamination of food products and food raw materials with contaminants, modern methods of decontamination. The discipline forms students' scientific knowledge about the types of toxic substances entering food, the prevention of contaminants entering food	5						+						

		and methods of their prevention. Students will be able to analyze the main ways of contamination of food products and food raw materials with dangerous substances, acquire skills to assess the priority of pollutants entering the body and the risk to human health.													
18	New product development technology	The purpose of the discipline is to form a systematic understanding of the processes, methods and technologies of new product development. This course provides students with knowledge about the selection of initial components, recipe management, process design, and the creation of competitive food products that meet current consumer requirements and modern technological capabilities of the industry. In the course of their studies, undergraduates will master modern approaches to the technological development of new food products: from forming an idea and designing a recipe to selecting raw materials, choosing optimal technological modes and scaling production.	5									+			+
19	Scientific research and organization of the experiment	The purpose of the course is to master the modern methodology for developing research programs using equipment and methods for studying the properties of raw materials, semi-finished products and finished products. The discipline forms fundamental knowledge about the	5					+					+		

		achievements of science and innovative technology in the field of food industry. Promotes the development of skills in mastering the latest methods, planning tools, organization of experiments using modern information technologies, statistical methods of analysis and interpretation of experimental data.													
20	Scientific bases of food production	The purpose of studying the discipline is to acquire knowledge in the field of food production, the development of new technological processes for the production of food products. The discipline forms scientific knowledge on food production, substantiation of technical decision-making in the development of new technological processes for food production. Students will acquire the skills of scientific approaches to food development, will be able to analyze technical means and technologies taking into account the environmental consequences of their use.	5					+					+		
21	Specialized food products of animal and vegetable origin	The purpose of the discipline: to study the scientific foundations and processes of production of specialized products of animal and vegetable origin. The discipline forms a system of knowledge among students about modern problems and prospects of food production technology. Promotes the development of skills in the development of technological schemes for	5							+					

		obtaining specialized food products from animal and plant sources												
22	Technology of waste and secondary raw materials processing	The purpose of the discipline: to study issues in the field of resource-saving technologies. The discipline forms a system of knowledge among students about modern methods of recycling waste and secondary raw materials used in the food industry. As part of the course, students will acquire skills in assessing the safety of waste and secondary raw materials of the food industry and their rational use for the development of new functional food products	5									+		+	
23	Technology of food bioproducts	The purpose of the discipline: to obtain scientific knowledge about modern concepts in the field of food bioproduct technology, innovative methods for developing bioproduct technologies and studying their qualitative indicators. This course forms students' knowledge about the prospects for the production of food bioproducts, the features of the technology of production of freeze-dried bioproducts, organically grown food. The discipline develops students' skills in mastering methods and techniques for managing technological processes for obtaining high-quality biologically complete products, analyzing innovative trends in the production of food bioproduct	5							+				+	

24	Technology of herodietic nutrition products	The purpose of the discipline: the study of scientifically based technologies of herodietic nutrition products. The discipline forms theoretical knowledge about current trends, ways of creating and directions of development of new generations of products of a herodietic profile. Students will be able to analyze the development and main technological processes of the production of products for herodietic nutrition and evaluate the quality of food for the elderly.	5							+					+
25	Research practicum	The undergraduate's research practice is conducted in order to familiarize himself with the latest theoretical, methodological and technological achievements of domestic and foreign science. The master's student learns modern scientific research methods, analyzes, processes and interprets experimental data.	13												
26	The scientific research work of a master"s student	Purpose: to systematize the theoretical base, to develop the skills of conducting scientific research on the topic of the dissertation. Undergraduates master modern research methods in the field of food safety, prepare scientific and technical reports, and work on writing and publishing articles.	24												
27	Final assessment	Preparation and defense of a master's thesis	8												

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 1	Uses modern methods and technologies of scientific and professional communication in a foreign language in the field of professional activity	Discussion	Oral interview
LO 2	Conducts research based on a holistic systemic scientific outlook using knowledge of the history and philosophy of science	Interactive lecture	Control work
LO 3	Applies knowledge of the methodological foundations of higher school pedagogy, professional knowledge and skills in the training and socialization of students	Interactive lecture	Test
LO 4	Applies knowledge in the field of psychology in solving managerial tasks and planning professional and personal development	Essay	Report
LO 5	Uses quantitative and qualitative methods, modern equipment for scientific research in food production	Method projects	Project protection
LO 6	Evaluates the safety of food products and raw materials, as well as the content of contaminants, biological agents and chemicals in them	Multi-level tasks and assignments	Solving situational problems
LO 7	Develops recommendations for technological and biotechnological processes for the production of functional, specialized and herodietic food products, enzyme preparations, food additives and bioproducts	Brainstorming	Protection of computational and graphical work
LO 8	Develops innovative food technologies based on scientific knowledge, best practices and prospects for the development of the food industry	Brainstorming	The Colloquium
LO 9	Takes measures to introduce and accelerate the development of new technological processes in the production of waste and secondary raw materials for the production of finished products and the development of new products	Analysis cases	Solving situational problems
LO 10	It uses modern research methods, information technologies, artificial intelligence and equipment for scientific research and development of technological processes in food production	Multi-level tasks and assignments	Solving situational problems
LO 11	Analyzes the production and technological potential of meat and dairy products, technological processes using biotechnological methods for the production of food	Analysis cases	Solving situational problems

	products of animal and vegetable raw materials and products of their processing		
LO 12	He is able to manage the production and economic activities of a food industry enterprise, manage production and design new lines of the food industry	Brainstorming	Protection of computational and graphical work

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

Name of the professional standards used	Professions at level 6 and/or 7 of the SQF	Labor functions	Tasks	Learning outcomes for the educational program
Professional standard: "Production of meat and meat products"	General manager	LF 1. Manage production and economic activities	Task 1. Implementation of enterprise management Task 2. Maintaining a set of measures to control the company's divisions	LO 12 He is able to manage the production and economic activities of a food industry enterprise, manage production and design new lines of the food industry
Professional standard: Teacher (faculty) of organizations of higher and (or) postgraduate education	Teacher, assistant in the field of education, OVPO	LF 1. Training LF 2. Conducting scientific research; LF 3. Carrying out scientific and methodological work; LF 4. Socialization of learning youth	Task 1. Ensuring the required level of academic competencies of students Task 2. Ensuring the integration of science, higher education and the labor market Task 3. Scientific and methodological support of macro-processes of OVPO Task 4. Promotion of social values among students	LO 3 Applies knowledge of the methodological foundations of higher school pedagogy, professional knowledge and skills in the training and socialization of students

10 Graduate model

GRADUATE MODEL			
Professional standard *(indicate the name of the PS)*	Competencies (soft skills, digital skills)		
	Attributes of a graduate	knowledge	Skills
	Specify specific attributes for the EP, developed on the basis of competencies and learning outcomes	*Provide specific information and standards used in individual and professional activitie*	*Specify specific actions controlled by the employee that comply with the requirements of the activity standards*
	Professional skills (hard skills)		
	Specify specific requirements for the level of qualifications and competence		

Типы компетенций	Описание компетенций
1. Поведенческие навыки и личностные качества (Softskills)	- критическое и творческое мышление; - управленческие и коммуникативные навыки; - ответственность и самоорганизация; - командная работа; - системное мышление
2. Цифровые компетенции (Digital skills)	- владение программными языками; - понимание архитектуры программного обеспечения; - автоматизации процессов с помощью компьютерных технологий.
3. Профессиональные компетенции	- разрабатывает технологии функциональных и специализированных пищевых продуктов на основе

(Hardskills)	моделирования технологических процессов; - применяет современные аналитические, расчетные, экспериментальные программы и методики для оценки качества пищевой продукции, компонентов, сырья и процессов производства; - проводит научные исследования в области производства продуктов питания с использованием новейших инновационных разработок; - организация безопасности технологических процессов на пищевых предприятиях - владеет современными способами переработки отходов сырья и рационального использования в пищевой промышленности для разработки различных пищевых продуктов.

АО «Казахский университет технологии и бизнеса имени К. Кулажанова» Рабочий учебный план	РУП 10-10.170-2021 Редакция 1	

ТИПИЧНЫЙ УЧЕБНЫЙ ПЛАН

ОБРАЗОВАТЕЛЬНАЯ ПРОГРАММА 7М07239 ТЕХНОЛОГИЯ ПРОДОВОЛЬСВТЕННЫХ ПРОДУКТОВ (по отраслям)

Модульдің №/ № модуля / Module №	Пәндердің № / № дисциплины / Discipline №	ОҚУ ПӘНДЕРІНІҢ АТАУЫ НАИМЕНОВАНИЕ УЧЕБНЫХ ДИСЦИПЛИН NAME OF TEACHING DISCIPLINES	Оқу пәндерінің циклы (міндетті компонент / таңдау компоненті) Цикл учебных дисциплин (обязательный компонент / компонент по выбору) Educational disciplines cycle (compulsory component / component of choice)	Оқу пәндерінің коды Код учебной дисциплины Educational discipline code	Семестр / semester	Кредиттер саны Количество кредитов Number of credits	Курстық жұмыс (жоба) Курсовая работа (проект) Course work (project)	Білім алушылардың жұмыс уақытының бюджеті сағатпен Бюджет рабочего времени (час) Budget of working time (hours)							Семестр бойынша бөлу Распределение по семестрам Distribytion of semesters				Оқыту тілі (үш тілде білім беру бағдарламасы бойынша: оқыту тілінде, екінші тілде, ағылшын тілінде) / Язык обучения (для программы трехязычного образования: на языке обучения, на втором языке, на английском языке) / Language of education (for trilingual education programs: in the language learning in the second language, in English)
								Барлық сағат / Всего часов / Total hours	Аудиториялық жұмыс / Аудиторная работа / Class work				ОБӨЖ / СРОП / IWST	БАӨЖ / СРО / IWS	1 КУРС / YEAR		2 КУРС / YEAR		
									Барлық аудит. сағат Всего аудит. часов Total classroom hours	оның ішінде / в том числе / including					1 Академиялық кезең / Academic period	2 Академиялық кезең / Academic period	3 Академиялық кезең / Academic period	4 Академиялық кезең / Academic period	
										Д / ЛК / Lec	СПС / СПЗ / SPL	ЛС / ЛЗ / LC			Семестрдағы апталар саны / Недель в семестре / Weeks in a semester		Семестрдағы апталар саны / Недель в семестре / Weeks in a semester		
															15	15	15	15	
															аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week		аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Модуль / Module № 1		**Базалық пәндер модулі / Модуль базовых дисциплин / The module of basic disciplines**																	
	1	Шет тілі (кәсіби) Иностранный язык (профессиональный) Foreign language (professional)	БП (ЖК) БД (ВК) BS (UC)	IYa (P) 5201-25 IYa (P) 5201-25 IYa (P) 5201-25	1	4		120	45		45		15	60	0 + 3 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	2	Жоғары мектептің педагогикасы Педагогика высшей школы Higher school pedagogy	БП (ЖК) БД (ВК) BS (UC)	PVSh 5202-25 PVSh 5202-25 PVSh 5202-25	1	4		120	45	30	15		15	60	2 + 1 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	3	Басқару психологиясы Психология управления Management psychology	БП (ЖК) БД (ВК) BS (UC)	PU 5203-25 PU 5203-25 PU 5203-25	1	4		120	45	30	15		15	60	2 + 1 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	4	Ғылым тарихы мен философиясы История и философия науки History and philosophy of science	БП (ЖК) БД (ВК) BS (UC)	IFN 5204-25 IFN 5204-25 IFN 5204-25	1	4		120	45	30	15		15	60	2 + 1 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	5	Педогогикалық практика Педагогическая практика Pedagogical practicum	БП (ЖК) БД (ВК) BS (UC)	PedP 5205-25 PedP 5205-25 PedP 5205-25	2	4		120	0							4 апта / недель / weeks			Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**20**		**600**	**180**	**90**	**90**	**0**	**60**	**240**					
		Тамақ өнеркәсібінің заманауи бағыттары / Современные направления пищевой промышленности / Modern trends in the food industry																	
	1	Ет-сүт өнімдерінің тағамдық құндылығын жоғарылатудың биотехнологиялық әдістері Биотехнологические методы повышения пищевой ценности мясо-молочной продукции Biotechnological methods for increasing the nutritional value of meat and dairy products	БП (ТК) БД (КВ) BS (ES)	BMPPZMP 5207-25 BMPPZMP 5207-25 BMPPZMP 5207-25	1	5		150	45	30	15		15	90	2 + 1 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	2	Функционалдық және мамандырылған тамақ өнімдерінің технологиясы Технология функциональных и специализированных пищевых продуктов Technology of functional and specialized food products		TFSPP 5207-25. TFSPP 5207-25. TFSPP 5207-25.															

Модуль / Module № 2	3	Тамақ өндірісіндегі тоскауылдар технологиясы Барьерные технологии в пищевых производствах Barrier technologies in food production	БеП (ЖК) ПД (ВК) AS (UC)	BTPP 5309-25. BTPP 5309-25. BTPP 5309-25.	2	5		150	45	30	15		15	90		2 + 1 + 0			Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	4	Тамақ өндірісіндегі биотехнологиялар Биотехнологии в пищевом производстве Biotechnologies in food production	БеП (ЖК) ПД (ВК) AS (UC)	BPP 5308-25 BPP 5308-25 BPP 5308-25	2	5		150	45	30	15		15	90		2 + 1 + 0			Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	5	Жаңа өнімдерді әзірлеу технологиясы Технология разработки новых продуктов New product development technology	БеП (ТК) ПД (КВ) AS (ES)	TRNP 6312-25 TRNP 6312-25 TRNP 6312-25	3	5		150	45	30	15		15	90			2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	6	Өсімдік және жануартекті мамандырылған тамақ өнімдері Специализированные пищевые продукты животного и растительного происхождения Specialized food products of animal and vegetable origin		SPPZRP 6312-25 SPPZRP 6312-25 SPPZRP 6312-25															
	7	Тамақ шикізаттарын өңдеудің инновациялық технологиялары Инновационные технологии переработки пищевого сырья Innovative technologies for processing food raw materials	БеП (ТК) ПД (КВ) AS (ES)	ITPPS 6314-25 ITPPS 6314-25 ITPPS 6314-25	3	5		150	45	30	15		15	90			2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	8	Тамақ өндірісі саласындағы инновациялық техника мен технологиялар Инновационные техники и технологии в пищевой отрасли Innovative equipment and technologies in the food industry		ITTPO 6314-25 ITTPO 6314-25 ITTPO 6314-25															
Барлығы модуль бойынша / Итого по модулю / Total for module						**25**		**750**	**225**	**150**	**75**	**0**	**75**	**450**					
Модуль / Module № 3	**Тамақ өнеркәсібі саласындағы ғылыми зерттеулердің әдістемесі / Методология научных исследований в области пищевой промышленности / Methodology of scientific research in the field of food industry**																		
	1	Тамақ өндірісіндегі физика-химиялық және биохимиялық процестер Физико-химические и биохимические процессы в пищевых производствах Physico-chemical and biochemical processes in food production	БП (ТК) БД (КВ) BS (ES)	FBPPP 5205 -25 FBPPP 5205 -25 FBPPP 5205 -25	2	5		150	45	30	15		15	90		2 + 1 + 0			Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	2	Тамақ шикізаттары мен өнімдерді зерттеу әдістері Методы исследования пищевого сырья и продуктов Methods of research of food raw materials and products		MIPSP 5205 -25 MIPSP 5205 -25 MIPSP 5205 -25															
	3	Ғылыми зерттеулер және эксперименті ұйымдастыру Научные исследования и организация эксперимента Scientific research and organization of the experiment	БеП (ТК) ПД (КВ) AS (ES)	NIOE 5311 -25 NIOE 5311 -25 NIOE 5311 -25	1	5		150	45	30	15		15	90	2 + 1 + 0				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	4	Тамақ өнімдерін өндірудің ғылыми негіздері Научные основы производства пищевых продуктов Scientific bases of food production		NOPPP 5311 -25 NOPPP 5311 -25 NOPPP 5311 -25															
	5	Зерттеу практикасы Исследовательская практика Research practicum	БеП (ЖК) ПД (ВК) AS (UC)	IP 6303-25 IP 6303-25 IP 6303-25	4	13		390	0									13 апта / неделя / weeks	Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	6	Магистранттың ғылыми-зерттеу жұмысы Научно-исследовательская работа магистранта The scientific research work of a master"s student	ҒЗЖ (ЖК) НИР (ВК) RW (UC)	NIRM 5401-25 NIRM 5401-25 NIRM 5401-25	1	4		120	0						4 апта / неделя / weeks				Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	7	Магистранттың ғылыми-зерттеу жұмысы Научно-исследовательская работа магистранта The scientific research work of a master's student	ҒЗЖ (ЖК) НИР (ВК) RW (UC)	NIRM 5402-25 NIRM 5402-25 NIRM 5402-25	2	6		180	0							6 апта / неделя / weeks			Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option

	8	Магистранттың ғылыми-зерттеу жұмысы Научно-исследовательская работа магистранта The scientific research work of a master's student	ҒЗЖ (ЖК) НИР (ВК) RW (UC)	NIRM 6403-25 NIRM 6403-25 NIRM 6403-25	3	5		150	0							5 апта / недель / weeks		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	9	Тағылымдамадан өту мен магистрлік диссертацияны орындауды қамтитын магистранттың ғылыми-зерттеу жұмысы Научно-исследовательская работа магистранта, включая прохождение стажировки и выполнение магистерской диссертации The scientific research work of a master's student, including the completion of an internship and the preparation of a master's thesis	ҒЗЖ (ЖК) НИР (ВК) RW (UC)	NIRM 6404-25 NIRM 6404-25 NIRM 6404-25	4	9		270	0								9 апта / недель / weeks	Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
Барлығы модуль бойынша / Итого по модулю / Total for module						**47**		**1410**	**90**	**60**	**30**	**0**	**30**	**180**					
Модуль / Module № 4	**Азық-түлік технологиясы / Технология продуктов питания / Food technology**																	
	1	Өнім сапасын басқару Управление качеством продукции Product quality management	БП (ТК) БД (КВ) BS (ES)	UKP 5206 -25 UKP 5206 -25 UKP 5206 -25	2	5		150	45	30	15		15	90		2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	2	Қайта өңдеу өндірістері өнімдерінің сапасын қамтамасыз ету Обеспечение качества продуктов перерабатывающих производств Ensuring the quality of products of processing industries		OKPPP 5206 -25 OKPPP 5206 -25 OKPPP 5206 -25														
	3	Ферменттік препараттарды өндіру технологиясы Технология производства ферментных препаратов Technology of production of enzyme preparations	БеП (ЖК) ПД (ВК) AS (UC)	TPFP 6310-25 TPFP 6310-25 TPFP 6310-25	3	5		150	45	30	15		15	90		2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	4	Тамақ шикізаты мен тамақ өнімдерінің контаминациясы Контаминация пищевого сырья и пищевых продуктов Contamination of food raw materials and food products	БеП (ТК) ПД (КВ) AS (ES)	KPSPP 6316 -25 KPSPP 6316 -25 KPSPP 6316 -25	3	5		150	45	30	15		15	90		2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	5	Тағамдық биоөнімдер технологиясы Технология пищевых биопродуктов Technology of food bioproducts		TPB6313-25 TPB6313-25 TPB6313-25														
	6	Геродиеталық тамақ өнімдерінің технологиясы Технология продуктов геродиетического питания Technology of herodietic nutrition products	БеП (ТК) ПД (КВ) AS (ES)	TPGP 6315-25 TPGP 6315-25 TPGP 6315-25	3	5		150	45	30	15		15	90		2 + 1 + 0		Білім алушының таңдауы бойынша/ По выбору обучающегося/ By student's option
	7	Қалдықтарды және қайталама шикізатты қайта өңдеу технологиясы Технология переработки отходов и вторичного сырья Technology of waste and secondary raw materials processing		TPOVS 6315-25 TPOVS 6315-25 TPOVS 6315-25														
Барлығы модуль бойынша / Итого по модулю / Total for module						**20**		**600**	**180**	**120**	**60**	**0**	**60**	**360**					
Модуль / Module № 5	**Қорытынды аттестация / Итоговая аттестация / Final assessment**																	
	1	Қорытынды аттестаттау (Магистрлік диссертацияны ресімдеу және қорғау) (МДРҚ) Итоговая аттестация (Оформление и защита магистерской диссертации) (ОиЗМД) Final assessment (Preparation and defense of a master's thesis) (PDMT)			4	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 MODULES						**120**		**3600**	**675**	**420**	**255**	**0**	**225**	**1230**					

EXPERT OPINION

for the educational program 7M07239 "Technology of food products (by industry) (scientific and pedagogical direction)

in the field of training M111 Food production

Name of the organization of the partner company for the development of the educational program: Astana branch of LTD Kazakh Research Institute of Processing and Food Industry

The educational program 7M07239 "Technology of food products (by industry) (scientific and pedagogical direction) is aimed at training qualified specialists with competencies in the field of development, organization and control of technological processes of food production. The program meets the urgent needs of the agro-industrial complex, the food and processing industry, ensuring the graduation of highly qualified personnel.

The content of the program fully corresponds to the National Qualification Framework, the industry qualification framework and professional standards used in the OP - "Production of meat and meat products", "Teacher (faculty) of higher and (or) postgraduate education". Compulsory disciplines are included in the OP, as well as a variable part that ensures the individualization of educational modules.

The subjects studied are focused on the formation of competencies that are in demand in modern production conditions, including knowledge of functional and specialized food technology, innovative approaches to the development of formulations and technologies, product quality management, and others.

The program pays special attention to practical training. The educational process includes teaching and research practices, scientific internships and research activities in cooperation with partner enterprises. This contributes to the formation of professional skills among undergraduates and preparation for the scientific and industrial environment.

The educational program 7M07239 "Technology of food products (by industry) (scientific and pedagogical direction) meets the current requirements of the State Educational Standard and professional standards, is focused on training competitive specialists in the field of the food industry and is recommended for implementation in the stated format.

The reviewed educational program 7M07239 "Technology of food products (by industry) (scientific and pedagogical direction) provides comprehensive training for specialists with modern professional competencies necessary for successful activities in the field of food production and development.

It is recommended to continue developing practice-oriented modules, expand partnerships with the industry, and strengthen the participation of undergraduates in international scientific and educational projects.

Expert
Acting Director
Astana branch
LTD "Kazakh Research
Institute of processing
and Food Industry" Alzhaksina N.E.

Expert opinion

for the educational program 7M07239 Food Technology (by industry)

in the field of training M111 Food production

Name of the organization of the partner company for the development of the educational program: "SPE Innovator" LLP

The educational program "7M07239 Technology of food products (by industry)" has been developed in accordance with the State Mandatory Standard of Higher Education, approved by the order of the Ministry of Education and Science of the Republic of Kazakhstan and complies with regulatory legal acts regulating the professional activities of the NRC, ORC and labor functions.

The educational program "7M07239 Food technology (by industry)" corresponds to the current level of development of the food and processing industries, spheres of social activity, the level and achievements of modern science and technology, as well as the requests and needs of employers in the field of food and processing industries.

The disciplines contained in the educational programs provide an opportunity for in-depth study and acquisition of knowledge in the field of food technology. According to the structure of the EP, they are built on a modular principle based on a competency-based approach, and are logically designed. In terms of their content, the EP disciplines are relevant, structured, and the generalized work functions of graduates are presented in accordance with professional standards. The conditions for the implementation of the educational program, the personnel conditions for the implementation, the logistical and educational conditions meet the requirements.

According to the EP, students are recommended to study the following disciplines "Technology of new products", therefore, we recommend that they be included in the catalog of elective subjects.

Based on the above, I believe that this EP is relevant, their content corresponds to the priority area in the field of food technology. The educational program "7M07239 Food Technology (by industry)" meets the requirements.

The expert

Director of "SPE Innovator" LLP Iskakova D.M.