S.Seifullin Kazakh Agrotechnical University

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ТЕХНИКАЛЫҚ ФАКУЛЬТЕТ ДЕКАНАТЫ

CATALOG OF ELECTIVE DISCIPLINES

For students in the direction of preparation 7M072 Manufacturing and processing
Brief description of the elective disciplines of the educational program

EPG	EP	Form of education	The name of discipline	Code of subject	Discipline cycle	Component	Number of credits	Level of training	Cafedra	Course	Academic period	Pre-requisitions	Post-requisitions	Brief content of the discipline	Key learning outcomes	Name of the alternative discipline
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Scientific basis for food production	NOPPP 5201	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	1	1	The technology of public catering, Technology of milk and dairy products, Technology of meat and meat products	Master student's research work, including implementation of master's thesis, Modern technologies for the production of meat and dairy products, Principles for developing formulations of new types of food products, Waste-free production technology of meat and dairy products	The subject of the course is the theoretical and practical basis of technology of food production from raw materials of plant and animal origin, necessary for the effective operation and but specialty, the study of the requirements for raw materials processing methods, skills in the organization and management of technological processes of food production and the solution of the problems.	Have the skills to plan and develop innovative technologies for the processing industry and food production based on scientific achievements	Nutritionology
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Nutritionology	Nut 5201	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	1	1	The technology of public catering, Technology of milk and dairy products, Technology of meat and meat products	Master student's research work, including implementation of master's thesis, Modern technologies for the production of meat and dairy products, Principles for developing formulations of new types of food products, Waste-free production technology of meat and dairy products	State policy in the field of healthy nutrition of the population of the Republic of Kazakhstan. Fundamentals of evidence-based nutrition and healthy nutrition, principles of children's, herodietic, preventive and curative nutrition. Qualitative and quantitative analysis of diets, physiological needs for energy and nutrients, a sociological survey on diet and nutrition regime. The plan of correction of the diet and diet, the implementation of the correction plan, the basic principles of a healthy diet and adequate physical activity. Prevention of food poisoning. Optimization of diets of various population groups	Have the skills to plan and develop innovative technologies for the processing industry and food production based on scientific achievements	Scientific basis for food production
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Biotechnological bases of food production	BOPP 5205	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	1	1	Chemistry, Microbiology, Chemistry and biochemistry of food	Master student's research work, including implementation of master's thesis, Modern technologies for the production of meat and dairy products, Promising technologies of deep processing of vegetable raw materials and the production of biofuels	General biotechnological scheme of production of microbial synthesis products. Preparation of enzyme preparations and their application in the food industry. Deep processing of grain raw materials to produce organic acids, alcohols, servants, amino acids, vitamins. Deep processing of animal products. The use of lactic acid bacteria in the production of cheese, dairy products, conservation. Deep processing of meatand fish products. Microbial-protein	Have the skills to plan and develop innovative technologies for the processing industry and food production based on scientific achievements	Microbiological methods of food quality control

M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Microbiological methods of food quality control	MMKKPP 5205	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	1	1	Chemistry, Microbiology, Chemistry and biochemistry of food	Innovative storage technology of processing plant products, Master student's research work, including implementation of master's thesis, Methods for analyzing products of deep processing of vegetable raw materials and biofuels, Methods for assessing the quality of processing products	The influence of microorganisms, technological modes, conditions of processing and storage of raw materials on the quality of food products. Modern achievements of microbiology and biotechnology in the food industry. Research of microorganisms and enzyme preparations improving biotechnological processes in food production. Specialized theoretical and practical knowledge for microbiological research. Modern methods of microbiological analysis of food products.	Have the skills to plan and develop innovative technologies for the processing industry and food production based on scientific achievements	Biotechnological bases of food production
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Food safety: inspection, sanitation and HACCP	BPPISN 5206	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Veterinary sanitation	1	1	Microbiology, Chemistry and biochemistry of food, Technochemical control, quality assessment and safety of meat and dairy products	Master student's research work, including implementation of master's thesis, Methods for analyzing products of deep processing of vegetable raw materials and biofuels, Methods for assessing the quality of processing products	Concepts of food safety. Law of the Republic of Kazakhstan on food safety. Basic concepts, principles and characteristics of the HACCP system. HACCP quality system in the world practice. The system of ensuring food safety on farms. Development and implementation of HACCP for meat and dairy enterprises. Risk analysis in the Implementation of HACCP	To apply knowledge of methodology and methods of experimental research in production and scientific activities	Food safety control and quality standards
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Food safety control and quality standards	KBPPNIK 5206	BS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	1	1	Microbiology, Chemistry and biochemistry of food, Technochemical control, quality assessment and safety of meat and dairy products	Innovative storage technology of processing plant products, Master student's research work, including implementation of master's thesis, Methods for assessing the quality of processing products	The discipline "Food safety control and quality standards" provides knowledge about pollutants of raw materials and food products, safety standards, skills in preventing the accumulation of pollutants in food products. Basic knowledge about food additives: classification, rationing, control. Labeling of food products. Studies the components of natural food that adversely affect the body and their influence of culinary techniques and technological processes of food processing.	To apply knowledge of methodology and methods of experimental research in production and scientific activities	Food safety: inspection, sanitation and HACCP

M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Modern technologies for the production of meat and dairy products	STPMMP 6303	AS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Biotechnological bases of food production, Business planning in the storage and processing of agricultural products, Food safety: inspection, sanitation and HACCP, Modeling of processes of food production, Modern equipment for food production, Scientific basis for food production	Master student's research work, including implementation of master's thesis, Promising technologies of deep processing of vegetable raw materials and the production of biofuels, Research practice, Waste-free production technology of meat and dairy products	Analysis of domestic and foreign scientific and technical literature on the technology of processing, storage and processing of meat, dairy and fish products using computer tools. Possession of information technologies in the process of studying the properties of plant and animal raw materials, semi-finished products and products from plant and animal raw materials.	To acquire skills and abilities to develop new methods and means of designing information systems based on modern technologies, to develop and study theoretical and experimental models of objects in the food and processing industry in order to introduce information technologies	Innovative storage technology of processing plant products
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Innovative storage technology of processing plant products	ITHPPR 6303	AS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Grain science and theoretical foundations of processing industries, Lifting and transporting equipment and ventilation systems for grain storage and processing enterprises, Technology of post-harvest processing of grain and grain drying	Master student's research work, including implementation of master's thesis, Promising technologies of deep processing of vegetable raw materials and the production of biofuels	To study the issues of creating innovative technology for processing, storage and processing of cereals, legumes and oilseeds; physiological, biochemical and microbiological changes occurring in grain during storage. Special attention in this subject is focused on solving topical issues of disinsection, hydrothermal, ultrasonic, laser, desiccation, thermal radiation, electromagnetic, ozone and ion technologies at grain processing enterprises.	Have the skills to plan and develop innovative technologies for the processing industry	Modern technologies for the production of meat and dairy products
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Principles for developing formulations of new types of food products	PRRNVPP 6306	AS	Elective subjects	7.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Biotechnological bases of food production, Food safety: inspection, sanitation and HACCP, Modeling of processes of food production, Scientific basis for food production	Master student's research work, including implementation of master's thesis, Waste-free production technology of meat and dairy products	This is a new scientific direction of research that allows us to develop the composition of complex multicomponent products with a given set of qualitative and quantitative indicators, using the basic principle of the theory of balanced nutrition - food nutrients must enter the human body in a certain amount and ratio. By varying the composition of prescription mixtures, enriching them with essential nutrients, it is possible to achieve a certain direction of physiological impact. When developing new formulations, the possibility of modeling the consumer characteristics of finished products, predicting their biological safety, quality and functional and technological properties, taking into account the phenomenon of synergy, is also of great importance, which ultimately makes it possible to increase their competitiveness. Increased competition in the raw materials and food markets leads to the need to constantly expand the range of products by correcting existing prescription compositions and developing	To acquire skills and abilities to develop new methods and means of designing information systems based on modern technologies, to develop and study theoretical and experimental models of objects in the food and processing industry in order to introduce information technologies	Technical systems for the production of products of deep processing of vegetable raw materials and biofuels

M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Technical systems for the production of products of deep processing of vegetable raw materials and biofuels	TSPPPGPRSB 6306	AS	Elective subjects	7.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Processes and devices of processing industries, Equipment for deep processing of raw materials and biofuels production	Master student's research work, including implementation of master's thesis, Promising technologies of deep processing of vegetable raw materials and the production of biofuels	Classification of equipment for deep processing of raw materials and products of biofuel production. Equipment for mechanical separation and mixing of raw materials and products of biofuel production; Equipment for filtration and flotation of raw materials and products of biofuel production. Equipment for concentration and purification of raw materials and products of biofuel production. Equipment for fermentation of raw materials in the production of biofuels	Possess theoretical and practical fundamentals of waste-free technologies and technologies of deep processing of raw materials in the production systems of the food and processing industry	Principles for developing formulations of new types of food products
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Methods for assessing the quality of processing products	MOKPP 6308	AS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Biotechnological bases of food production, Food safety: inspection, sanitation and HACCP, Modeling of processes of food production, Scientific basis for food production	Master student's research work, including implementation of master's thesis, Waste-free production technology of meat and dairy products	The study of modern methods for assessing the quality of raw materials and processed products, the principles of analytical instruments, interstate regulations for food processing. Skills in assessing the quality of raw materials, semi-finished products and finished products, certification, requirements for quantitative and qualitative storage of products and ways to reduce natural loss and losses in storage areas, methods and modes of storage of livestock products.	To apply knowledge of methodology and methods of experimental research in production and scientific activities	Methods for analyzing products of deep processing of vegetable raw materials and biofuels
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Methods for analyzing products of deep processing of vegetable raw materials and biofuels	MAPGPRSB 6308	AS	Elective subjects	5.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	1	Chemistry, Physics, Technochemical control, quality assessment and safety of crop products	Master student's research work, including implementation of master's thesis, Promising technologies of deep processing of vegetable raw materials and the production of biofuels, Waste-free production technology of meat and dairy products	Theoretical issues of quality assessment of raw materials and finished products. Terms and definitions. Organization of laboratory control. Classification of compounds present in products. Classification of methods for studying the properties of raw materials and finished products. General principles of analysis and sample preparation. Organoleptic methods for assessing the quality of products. Instrumental methods for the study of rheological properties. Physico-chemical methods of studying the composition and properties of raw materials and products	To apply knowledge of methodology and methods of experimental research in production and scientific activities	Methods for assessing the quality of processing products
M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Waste-free production technology of meat and dairy products	BTPMMP 6307	AS	Elective subjects	8.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	2	Biotechnological bases of food production, Modern equipment for food production, Modern technologies for the production of meat and dairy products, Principles for developing formulations of new types of food products, Scientific basis for food production	Master student's research work, including implementation of master's thesis, Research practice	When studying the discipline, undergraduates study modern principles of waste-free and resource-saving processing technology in obtaining high-quality and safe products from secondary resources of dairy and meat products. The study of their ways of identifying the progress of production at the present stage and obtaining new theoretical and practical scientific solutions.	Possess theoretical and practical fundamentals of waste-free technologies and technologies of deep processing of raw materials in the production systems of the food and processing industry	Promising technologies of deep processing of vegetable raw materials and the production of biofuels

"M111 - «Food production»	7M07201 - «Food science»	Full-time (MS 2 years) trimester	Promising technologies of deep processing of vegetable raw materials and the production of biofuels	PTGPRSPB 6307	AS	Elective subjects	8.0	Master's program by specialization (Scientific & pedagogical direction)	Agricultural and grain processing machines	2	2	Business planning in the storage and processing of agricultural products, Innovative storage technology of processing plant products, Scientific basis for food production, Technical systems for the production of products of deep processing of vegetable raw materials and biofuels	Master student's research work, including implementation of master's thesis, Research practice	The main groups of raw materials sources. Secondary resources of deep processing of plant raw materials and biofuel production. The use of industrial waste to produce energy. Production of liquid and gaseous biofuels. Methane and hydrogen fermentation. Technology of biogas production-methane and hydrogen. Technology of production of bioethanol and biodiesel. The technological scheme of bioenergy plants	Possess theoretical and practical fundamentals of waste-free technologies and technologies of deep processing of raw materials in the production systems of the food and processing industry	Waste-free production technology of meat and dairy products

The catalog of elective disciplines was approved by the Council of the Technical Faculty Protocol No. 10(E) of June 29, 2022.

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