

CATALOG OF ELECTIVE DISCIPLINES

7M07 - Engineering, Manufacturing and Civil engineering
(Code and classification of the field of education)

7M072 - Manufacturing and processing
(Code and classification of the direction of training)

0720
(Code in the International Standard Classification of Education)

M111 - Food production
(Code and classification of the educational program group)

7M07201 - Technology of food products (by application)
(Code and name of the educational program)

Master
(Level of preparation)

set of 2023

Developed

By the Academic Committee of the EP
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Reviewed

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Chairman of the Academic Council Oralkanova I.A.

Methodology of designing food products with the required set of indicators of nutritional value

Discipline cycle	Basic disciplines
Course	1
Credits count	10
Knowledge control form	Examination

Short description of discipline

Study of the methodology of food design. Features of the technology of production of herodietic food products. The basics of nutrition for various contingents and their significance. The nutritional and biological value of functional food products. To study the features of technological processing of products for population groups in need of functional nutrition. Production and technologies of functional food products, processing modes of food products.

Purpose of studying of the discipline

Mastering the methodology of designing food products with the necessary indicators of nutritional value

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply the scientific principles of designing the composition of food

- to reproduce the basic principles of the development of optimal recipes, technologies of new types of products with the required set of indicators of nutritional value

- apply methods for determining the main indicators characterizing the nutritional value of the product being developed

Prerequisites

Bachelor

Postrequisites

High-tech production of functional foods Progressive technics and technology in the branch of food industry Resource saving technology in food industry The research work of a student, including an internship and the implementation of a master s thesis (I) Improving the biotechnological foundations of multicomponent meat products technology

Development of biologically active nutrients have corrective and medicinal properties

Discipline cycle	Basic disciplines
Course	1
Credits count	10
Knowledge control form	Examination

Short description of discipline

Types of biologically active substances. The scope of their application. Characteristics and influence of nutrients on the quality and shelf life of products. Selection of raw materials and development of recipes, technological instructions. The main directions and goals of the development of biologically active nutrients. An innovative approach to the production of food products, the study of quality indicators of products with biologically active substances that have corrective, therapeutic properties.

Purpose of studying of the discipline

Mastering the development of biologically active nutrients with corrective and therapeutic properties

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- conduct research and put forward ideas for new competitive food products

- possess the skills of independent research to solve research and production tasks using modern equipment and methods for studying the properties of raw materials, semifinished products and finished products when performing research in the field of designing new products

- develop measures to eliminate defects and the release of low-quality products

Prerequisites

Bachelor

Postrequisites

Nutraceuticals, bioceutics and healthy nutrition Methods of research and innovation in the processing industries Specialized theory, basics and food technology The research work of a student, including an internship and the implementation of a master s thesis (I)

The development of new types of pasta combined with innovative technology

Discipline cycle	Basic disciplines
Course	1
Credits count	10
Knowledge control form	Examination

Short description of discipline

Study of the state and prospects of development of the food industry. Scientific and innovative fundamentals of pasta production. Directions and goals of scientific activity. Modern methods of research and development of innovative technologies in processing industries. Improvement of technologies for the production of products using biologically active additives. Production and examination of combined pasta, expansion and updating of the range of pasta.

Purpose of studying of the discipline

Mastering the development of new types of combined pasta products using innovative technologies

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- develop measures to improve the technological processes of innovative technologies of pasta production from various raw materials, to prevent the occurrence of defects and defects of manufactured products

- to carry out measurements and observations, analysis and statistical processing of experimental data during the study of technological processes of innovative pasta production technologies in order to optimize it

- to determine and analyze the properties of raw materials, biologically active additives that affect the optimization of the technological process and the quality of finished products, resource conservation, efficiency and reliability of production processes

Prerequisites

Bachelor

Postrequisites

Innovative technologies of functional and specialized food products Wasteless technology in poultry processing industry Innovative technology of processing industries The research work of a student, including an internship and the implementation of a master s thesis (I)

High-tech production of functional foods

Discipline cycle	Basic disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

The most important direction of the development of the food and processing sectors of the agro-industrial sector; finding and implementing the chosen direction of scientific and technical modernization in the industry, creating and releasing a new generation of food products - functional and specialized orientation; creating and marketing technologies of new combinations of functional food products, their assortment, requirements for them, the study of their quality indicators and security.

Purpose of studying of the discipline

Mastering knowledge in the field of high-tech production of functional food products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply knowledge about the production technologies of functional food products, the main technological processes of their production

- develop new science-based technologies and formulations to create functional and specialized high-quality products

- apply methods for determining quality indicators and food safety

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods The research work of a student, including an internship and the implementation of a master s thesis (I)

Postrequisites

Teaching practicum Microstructure analysis of food products Physico-chemical and structure-mechanical analysis of food products The research work of a student, including an internship and the implementation of a master s thesis (II) Modeling of the technological process of food products

Innovative technologies of functional and specialized food products

Discipline cycle	Basic disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Conceptual conditions for the emergence of functional and specialized food products, the alternative of the material as the cause of functional components, the complexity of strengthening the technological process, the formation of the quality of food products and catering products of functional and specialized orientation. Rules for creating innovative technologies, analyzing the nutritional value of the material, catering products and gluten-free products, as well as checking for harmlessness and quality.

Purpose of studying of the discipline

Mastering innovative technologies in the field of functional and specialized food products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- to reproduce new, advanced processes of technological production of food products and catering products of functional and specialized purpose of high nutritional value

- apply innovative approaches and technologies for the production of food and catering products for functional and specialized purposes
- possess the skills of working in the field of laboratory and industrial production to create functional and specialized food products, as well as the skills to study the properties of raw materials, finished products for safety and quality

Prerequisites

The development of new types of pasta combined with innovative technology Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Management systems in ensuring the quality and safety of food products Research of microbiological and toxicological indicators of biological raw material Technological control of food production The research work of a student, including an internship and the implementation of a master s thesis (II)

Nutraceuticals, bioceutics and healthy nutrition

Discipline cycle	Basic disciplines
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline gives an understanding of the principles of nutrition: preventive and curative, dietary and rational. The rules for creating products using nutraceuticals and bioceuticals are considered. Possession of skills and abilities to review sanitary and epidemiological conditions of hazards at all stages of production, storage, transportation and sale of food products and perform functions: inspection, supervisory and expert at food industry production facilities.

Purpose of studying of the discipline

Mastering knowledge in the field of healthy nutrition using nutraceuticals and bioceuticals

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply the principles of the development of rational, dietary, therapeutic and preventive nutrition products with nutraceuticals and bioceuticals

- to analyze sanitary and epidemiological risk factors at all stages of production, storage, transportation, sale of food

- apply skills in the field of creating healthy food products using nutraceuticals, bioceuticals with the implementation of inspection, supervisory and expert functions at food industry enterprises

Prerequisites

Development of biologically active nutrients have corrective and medicinal properties Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Wasteless technology in poultry processing industry

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Technologies without waste. The use of secondary material for further processing in the creation of functional products from poultry meat. Waste treatment. Blood treatment. Pen processing. Equipment used in processing. Description of the secondary material used in the creation of functional poultry meat products. Storage of poultry meat products of functional orientation. Changes that occur during the storage of functional poultry meat products.

Purpose of studying of the discipline

Mastering waste-free technology in the poultry processing industry

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply new ways of using secondary and involving additional sources of raw materials in the production of functional food products from poultry meat

- have an analysis of current trends in the development of food processing processes in order to identify promising technological solutions

- to carry out quality control of manufactured products

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Methods of research and innovation in the processing industries

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Scientific and innovative foundations of processing industries. Directions and goals of scientific activity. Modern research methods in processing industries. Improving the technology of production of products. Means of product quality assessment. A systematic approach in science and technology. Information approach in research and modeling. The complexity of choice in scientific research. Analysis and presentation of research results. Study of methods of measurement, observation and compilation of descriptions of ongoing research.

Purpose of studying of the discipline

Mastering the methods of scientific research and innovative activities in food and processing industries

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- to reproduce priorities in the field of innovative technologies in food and processing industries, applied research

- to determine the main stages of the development and implementation of innovative projects in food production, practical skills and skills for assessing the properties of raw materials and finished products of food products

-to possess methodological and organizational principles for the implementation of innovations in food and processing industries

Prerequisites

The development of new types of pasta combined with innovative technology Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Management systems in ensuring the quality and safety of food products Research of microbiological and toxicological indicators of biological raw material Technological control of food production The research work of a student, including an internship and the implementation of a master s thesis (II)

Progressive technics and technology in the branch of food industry

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

The discipline studies a complete description of the modernized hardware mechanisms and models of equipment and innovative technologies of food production. The impact of the degree of mechanization and automation of sections and lines, scientific confirmation and the use of alternative technologies that save resources for deep processing of food products (meat, milk, grain, eggs, etc.), improvement of energy-saving refrigeration equipment and technologies in the food industry.

Purpose of studying of the discipline

Mastering the latest technologies introduced into the food industry, advanced types of machinery and equipment, processes occurring during technological operations, methods for determining the properties of raw materials and finished products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply knowledge about the main quality indicators, the main technological processes and modes, methods for determining the properties of food

- determine quantitative and qualitative indicators of finished products in accordance with regulatory and technical documents and methodology

- possess the skills to design new technologies in the food industry, taking into account modern scientific achievements and advanced technology: advanced types of machinery and equipment, processes occurring during technological operations

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Microstructure analysis of food products Physico-chemical and structure-mechanical analysis of food products The research work of a student, including an internship and the implementation of a master s thesis (II) Modeling of the technological process of food products

Innovative technology of processing industries

Discipline cycle	Profiling discipline
Course	1
Credits count	5

Knowledge control form

Examination

Short description of discipline

Innovative technologies in processing production. Creation and introduction of innovative technology of high-quality cereals and other therapeutic and preventive products from oilseeds, legumes, cereals, resource-saving technologies of bread, pasta, flour, confectionery products of functional orientation from berry, vegetable fruit crops and with the use of progressive processing methods. In the processing of crop production by ion-zone and hydroionzone nanotechnology, the creation of new technologies and technical solutions.

Purpose of studying of the discipline

Mastering innovative technologies of processing industries

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply innovative technological methods of food production

- to develop new technological solutions, technologies, types of equipment, automation and mechanization of production and new types of food products from various raw materials in order to ensure the competitiveness of production

- development of new technologies and technical solutions of ion-ion and hydroion-ion nanotechnology in the processing of crop production

Prerequisites

The development of new types of pasta combined with innovative technology Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Resource saving technology in food industry

Discipline cycle

Profiling discipline

Course

1

Credits count

5

Knowledge control form

Examination

Short description of discipline

Theory of technological flow generation, high-quality final products of the food industry, the main stages of production processing. New actual physical methods of food processing (high, very high, electromagnetic frequency, acoustic, vibration processing, heat treatment, etc.). IR radiation sources. Their classification. Primary processing of industrial raw materials for the production of food products, while physical and chemical processes are taking place. Quality indicators of products and raw materials, assortment.

Purpose of studying of the discipline

Mastering resource-saving technologies and equipment of food production, processing of secondary raw materials of production, waste-free technologies

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- organize resource-saving production, its operational planning and ensuring the reliability of technological processes

- determine the structure, conduct effective research approaches and implement waste-free and fund-saving technologies

- apply practical skills in the conditions of safety, food storage and comprehensive assessment of the quality of products

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Microstructure analysis of food products Physico-chemical and structure-mechanical analysis of food products The research work of a student, including an internship and the implementation of a master s thesis (II) Modeling of the technological process of food products

Specialized theory, basics and food technology

Discipline cycle

Profiling discipline

Course

1

Credits count

5

Knowledge control form

Examination

Short description of discipline

Nutrition science and its basics, food products and their chemical composition, signs of the main components in food technologies, fundamentals of technological processes of food production, main and additional raw materials of food production, characteristics of raw materials. Biochemical and physico-chemical properties of raw materials, semi-finished products and finished products during thermal and mechanical processing. Principles, methods of harmlessness of food materials and products. Technology of different food products.

Purpose of studying of the discipline

Mastering specialized theories, fundamentals and technologies of food products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- create formulations of products for various purposes with specified properties, quantitative ratio and qualitative composition of nutrients

- develop measures to ensure the efficiency of production processes and ways to optimize them

- to reproduce the principles, approaches and methods of a comprehensive assessment of the composition, properties, quality, nutritional value, harmlessness of raw materials of various origins and finished products based on modern methods of quantitative and qualitative analysis

Prerequisites

The development of new types of pasta combined with innovative technology Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Scientific bases of meat foods production

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Combined food products: scientific concepts of origin. Important ways in the creation of food products: functional, children`s, for the elderly, therapeutic, dietary, sports directions. Concentration of meat and dairy products with mineral elements: scientific combinations and practical conclusions. The role of protein systems of plant origin in the direction of concentration of meat products. The concentration of products by a complex combination of micronutrients, multivitamins, polyunsaturated fatty acids.

Purpose of studying of the discipline

Mastering knowledge in the field of scientific fundamentals of meat products production

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply modern technologies for processing animal raw materials and the main directions of their improvement

- apply the basic principles and approaches to the creation of new formulations and technologies, the methodology of composition design

- apply skills to determine the requirements for product quality, taking into account enrichment with mineral and other substances, methods of property research, as well as technological and microbiological quality control of raw materials, materials and finished products

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Improving the biotechnological foundations of multicomponent meat products technology

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Biotechnological processes and their foundations. Genetically modified products. The proteins are artificial. Meat products: their technology with the use of vegetable, food, biologically active additives. The use of food additives in the technology of meat multicomponent products. Special-purpose products and their classification; a list of functional ingredients and methods of enriching meat products with them; regulatory documents: raw materials and finished products - quality requirements.

Purpose of studying of the discipline

Mastering knowledge in the field of improving the biotechnological foundations of the technology of multicomponent meat products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- apply biotechnological features of the technology of multicomponent meat products, methods and means of obtaining them

- develop and improve technological processes for the production of plant and animal food products

- apply knowledge and skills in the field of biotechnological fundamentals of the production of multicomponent meat products

technology

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Microstructure analysis of food products Physico-chemical and structure-mechanical analysis of food products The research work of a student, including an internship and the implementation of a master s thesis (II) Modeling of the technological process of food products

Multicomponent meat product technology

Discipline cycle	Profiling discipline
Course	1
Credits count	5
Knowledge control form	Examination

Short description of discipline

Technological processes: their improvement. Balanced foods: their creation. Increasing the fruitfulness of the application of the results of the effectiveness of scientific and scientific-technical. Design of research work. Improvement of technologies for processing secondary reserves in the food industry. Technology for obtaining food additives from secondary raw materials in the food industry. The use of dairy and vegetable proteins in the production of meat products. Products of grain processing in the technology of meat products. Food additives. Methods of calculating economic efficiency.

Purpose of studying of the discipline

Mastering knowledge in the field of technology of multicomponent meat products

Learning Outcomes

ON2 To use scientific and methodological approaches in the development and improvement of food production technology with the use of modern progressive techniques in the field of food products.

ON3 Develop and improve technological processes for the production of food products of plant and animal origin.

ON4 Develop measures to improve the technological processes of food production.

Learning outcomes by discipline

- study of the technology of obtaining food additives from secondary raw materials of the food industry, the use of dairy, vegetable proteins in the production of meat products*
- to improve technological processes, 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*
- to develop modern technologies that ensure the production of products of a given chemical composition and structure, taking into account economic efficiency*

Prerequisites

Methodology of designing food products with the required set of indicators of nutritional value Theoretical and practical aspects of creating combined foods

Postrequisites

Teaching practicum Product Development and Sensory Assessment International requirements for food safety Model for quality assurance in the food industry The research work of a student, including an internship and the implementation of a master s thesis (II)

Microstructure analysis of food products

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

The structure of products: meat, dairy, fish. Important indicators of the structure of food products. Methods of establishing the microstructure of raw materials and food products. Conditions affecting the creation of the structure. Technological parameters: their influence on the appearance of microstructure. Microscopes: their classification. Nutrients, raw materials, finished products: their innovative microscopy methods. Equipment used for microstructure surveys. In microstructural research, methods of technological histology are used. Objects of microstructural surveys.

Purpose of studying of the discipline

Mastering knowledge in the field of microstructural analysis of food products

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- apply techniques of microstructural analysis of the quality of raw materials and finished products in order to predict changes in the complex of properties in the processes of processing, storage and creation of food products*
- receive and analyze data from research results using an electronic scanning microscope*
- perform research work with a microscope and an X-ray spectral analyzer, an electronic scanning device*

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Product Development and Sensory Assessment

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

Research of new products, increased food and biological value, through tasting - production and organization - scientific and practical motivation. Innovation. Sensory features in the system of product quality indicators, the system of terms of organoleptic quality indicators, psychophysiological foundations of organoleptics, the results of organoleptic and instrumental research and the correlation between them, scientifically based methods of sensory research, expert methodology - important rules, the use of qualimetry for quantitative measurement of organoleptic indicators of product quality.

Purpose of studying of the discipline

Mastering knowledge in the field of product development and sensory evaluation

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

ON8 To apply professional knowledge and skills in the implementation of innovation policy objectives.

Learning outcomes by discipline

- to develop practical skills of technological forecasting and development of innovative products at the enterprise, to determine the characteristics and types of a new food product

- to develop the stages of creating new food products of increased nutritional and biological value, taking into account the requirements of quality and safety

- to evaluate new types of food products of increased nutritional and biological value using sensory, instrumental analysis, expert methodology and qualimetry

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Management systems in ensuring the quality and safety of food products

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

Equipping the quality of food raw materials and products; internal and external conditions - affecting the harmlessness and quality of products. Quantitative criteria for evaluating technological systems of food production according to their quality parameters; methods of qualitative and quantitative research of the risk of violations of the functioning of technological systems. Means of coordinating the quality and safety of food products based on HACCP, international standards of the 9000 and 22000 series.

Purpose of studying of the discipline

Mastering knowledge in the field of management systems in ensuring the quality and safety of food products

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

ON8 To apply professional knowledge and skills in the implementation of innovation policy objectives.

Learning outcomes by discipline

- use regulatory legal documents, internal and external factors, quantitative criteria for evaluating technological systems of food production according to their quality parameters in their activities when solving professional tasks

- to find corrective and preventive measures aimed at improving quality

- possess the basic tools of food safety management at all stages of the product life cycle

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Research of microbiological and toxicological indicators of biological raw material

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

Mastering the hygienic description of important components of raw materials and products of animal origin, methods for checking signs of harmlessness of food raw materials and products. The main ways of contamination of products and materials. Contamination of raw materials and food products with xenobiotics of chemical and biological origin. Measures of toxicity of substances. The additives are different and the food is artificial. Systematics and morphology of microorganisms, list of names, metabolism in microorganisms.

Purpose of studying of the discipline

Mastering knowledge in the field of research of microbiological and toxicological indicators of biological raw materials and materials

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- to determine the hygienic characteristics of the main components of raw materials and animal products, new food raw materials, food additives and artificial food

- to use modern methods of monitoring microbiological and safety indicators of food raw materials and food products in solving professional tasks

- to monitor compliance with the requirements for ensuring the safety and quality of production processes, finished products at all stages of its production

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

International requirements for food safety

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

Development of safety control systems for food products and means of minimizing the possibilities of danger. International codex committees on individual food products, expert committees on food additives, on the use of radiation in the food industry, Codex Alimentarius Commissions of the World Food Organization/The World Health Organization, the European Food Safety Authority (EFSA). Overview of the main advantages of the strategy of equipping food safety, the basics of scientific introduction and digitalization of a certain order of traceability of products.

Purpose of studying of the discipline

Mastering knowledge in the field of international food safety requirements

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- develop and implement measures to ensure food security

- have the skills to work with the methods of conducting standard tests to determine the safety indicators of food raw materials and finished products

- apply modern software and technical means of information technology: digitalization of the food traceability system

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Physico-chemical and structure-mechanical analysis of food products

Discipline cycle	Profiling discipline
Course	2
Credits count	5
Knowledge control form	Examination

Short description of discipline

The study of the scientific foundations of engineering physico-chemical mechanics. The device types, variances types. A system of rheological bodies and important structural and mechanical properties of materials and finished products and other technological factors. Methods and devices for measuring the structural and mechanical characteristics of food products. Description of shift distinctive properties, advantages of food products. Liquid and solid products: their shear descriptions. Density. Influence on the compression characteristics of various technological conditions.

Purpose of studying of the discipline

Mastering knowledge in the field of physico-chemical and structural mechanical studies of food products

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- classify physico-chemical, mechanical, rheological and other processes in food products during production and storage

- perform independent research to solve research and production tasks using modern equipment and methods for studying the properties of raw materials, semi-finished products and finished products

- to determine the structural and mechanical, compression, shear, rheological characteristics, density of food products and to establish a qualitative and quantitative relationship between them

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Model for quality assurance in the food industry

Discipline cycle	Profiling discipline
Course	2
Credits count	10
Knowledge control form	Examination

Short description of discipline

Quality equipment models. Quality management: composite and functional schemes. Requirements for the composition and essence of the parts of the quality structure, their overview. State standards, ISO. Normative and technical documents, their role in the formation of quality. A single sign of quality. Equipping the quality of products, their concept. Enterprise structure: construction and management. Methods for identifying the causes that degrade quality and their exclusion. Forms of quality control at enterprises.

Purpose of studying of the discipline

Mastering knowledge in the field of quality assurance models in the food industry

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- application of models and schemes for ensuring the quality of food products at the food industry enterprise
- identify the causes that impair quality and use methods to eliminate them
- possess the skills of working with legal and regulatory documents and organizational support of the food quality model in accordance with the requirements of international ISO 9000 series standards and other quality system models

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Modeling of the technological process of food products

Discipline cycle	Profiling discipline
Course	2
Credits count	10
Knowledge control form	Examination

Short description of discipline

The general procedure for creating mathematical models. Systematization of mathematical schemes of technological processes. Dynamic programming models. Modeling of heating and cooling processes. Processing of tabular data. Interpolation and approximation of the function. Ways to resolve nonlinear equalities. Ways to resolve differential equalities. Optimization methods. Software tools for engineering calculations. (Excel, MathCad, Matlab packages. Mathematica). Processing of data from production, an overview of the information received.

Purpose of studying of the discipline

Mastering knowledge in the field of modeling technological processes of food production

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- to reproduce the essence of technological processes in obtaining food products of a given chemical composition and structure, types of optimization tasks of technological processes
- use dynamic programming models; optimization methods, software tools for engineering calculations, tabular data processing, processing of current production information, analysis of received data
- master the basics of designing technological processes using automated systems for technological preparation of food production

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)

Technological control of food production

Discipline cycle	Profiling discipline
Course	2
Credits count	10
Knowledge control form	Examination

Short description of discipline

At the stages of the technological process of production - a review of the observation of the quality of products and raw materials, a review and unification of various methodological approaches to equipping the quality and harmlessness of products. QMS, HACCP, GMP

standard – their overview of the integrated structure of quality supervision and management. Creation of various criteria for evaluating raw materials in production. Conditions affecting and ensuring the quality and harmlessness of products at the sales stage.

Purpose of studying of the discipline

Mastering knowledge in the field of technological control of food production

Learning Outcomes

ON5 Design and carry out comprehensive research to analyze the qualitative characteristics of food products. Apply the methodological foundations of laboratory research using modern equipment and computer systems.

ON6 To carry out technological quality control of finished products.

ON7 Process current production information, analyze the received data and use them in product quality management.

Learning outcomes by discipline

- perform independent research to solve research and production tasks using modern equipment and methods for studying the properties of raw materials, semi-finished products and finished products*
- to develop criteria for evaluating raw materials for putting them into production, to reproduce the factors influencing and ensuring the quality and safety of products at the stage of implementation*
- apply the methodology of collecting, processing and presenting information for quality analysis and improvement, the formation of documentation on quality systems in accordance with the requirements of international standards ISO 9000 series and other models of quality systems*

Prerequisites

Basic and profile disciplines of the EP

Postrequisites

The research work of a student, including an internship and the implementation of a master s thesis (III)