NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

8D07 - Engineering, Manufacturing and Civil engineering
(Code and classification of the field of education)

8D072 - Manufacturing and processing
(Code and classification of the direction of training)

0720
(Code in the International Standard Classification of Education)

D111 - Food production
(Code and classification of the educational program group)

8D07202 - Food Safety
(Code and name of the educational program)

Doctor of philosophy (PhD)
(Level of preparation)

Semey

Educational program

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Semey 2023

PREFACE

Developed

The educational program 8D07202 - Food Safety in the direction of preparation 8D072 - Manufacturing and processing on the basis of the State Compulsory Standards of Higher and Postgraduate Education approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

Members of the Academic Committee	Full name	Academic degree, academic title, position	Signature
Head of the Academic Committee	Nurymkhan Gulnur	Dean of the Faculty of Engineering and Technology, Ph.D.	
Educational program manager	Assenova Bakytkul	Professor of the Department of Food Production Technology and Biotechnology	
Member of the AC	Zhumanova Gulnara	senior lecturer, PhD	
Member of the AC	Smolnikova Farida	Associate Professor of the Department of Food Production Technology and Biotechnology	
Member of the AC	Zharykbasova Klara	vice-rector Alikhan Bokeikhan University	
Member of the AC	Yesimbekov Zhanibek	Deputy director of the Semiei industry LLP, PhD	
Member of the AC	Murathan Marat	doctoral student gr. DPB-101.2	
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Reviewing

Full name of the reviewer	Position, place of work	Signature
Sydykova Gulzhamal	SF LLP "Kazakh Scientific Research Institute of Processing and Food Industry"	

Reviewed

at the meeting of the Quality Assurance Commission of the Faculty of Engineering and Technology
Recommended for approval by the Academic Council of the University
Protocol № 4.6 "10" April 2023
Chairman of the Commission on Quality Assurance Abdilova G.

Approved at the meeting of the Academic Council of the University Protocol No. 8 "25" April 2023.

Approved

at the meeting of the Academic Council of the University
Protocol № 1 "01" of September 2023
Chairman of the Academic Council of the University Orynbekov D.R.

Content

1.Introduction

1.1.General data

The Department "TFood and manufacturing technology and biotechnology" of the faculty of engineering and technology of the NAO of Shakarim Semey Universityt rains doctoral students in the educational program 8D07202 - «Food safety»

The purpose of the educational program in the specialty "Food safety" is to provide conditions for obtaining a full-fledged high-quality professional education, acquiring research, general cultural and professional competencies in the field of quality control and food safety of food products.

1.2.Completion criteria

The main criterion for completing the educational process for the preparation of 8D07202 - «Food safety» is the development of at least 45 credits of theoretical training, as well as at least 10 credits of pedagogical practice, 10 credits of research practice, 123 credits of research work (other types of educational / scientific work), at least 12 credits for writing and defending a doctoral thesis. A total of 180 credits.

1.3.Typical study duration: 3 years.

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	Provision of conditions for obtaining high-quality professional education, acquisition of research, General cultural and professional competencies in the field of quality control and food safety
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	8D07 - Engineering, Manufacturing and Civil engineering
Code and classification of the direction of training	8D072 - Manufacturing and processing
Code in the International Standard Classification of Education	0720
Code and classification of the educational program group	D111 - Food production
Code and name of the educational program	8D07202 - Food Safety
2.3.Qualification characteristics of the graduate	
Degree awarded / qualification	Doctor of philosophy PhD in the educational program 8D07202 - «Food safety»
Name of the profession / list of positions of a specialist	May hold positions: • general manager; • Director (head) of the organization; * Deputy Director (head) of the organization for scientific work; • scientific Secretary; • head of the food industry research laboratory; • in research and production and methodological centers; • in state-owned enterprises of the MES system and the Ministry of agriculture of the Republic of Kazakhstan; in expert and design institutions; * head and leading specialist in research institutes, SPC, sanitary supervision enterprises, institutions of state bodies that control food safety, food production facilities, structural divisions of the Ministry of agriculture; * teacher in higher and secondary educational institutions of food profile; * expert in projects carried out on a tender basis and in various food and agricultural funds, etc.
OQF qualification level (industry qualification framework)	8
Area of professional activity	The field of Professional activity of the PhD doctor is all branches of the processing industry, food certification enterprises, sanitary supervision enterprises, institutions of state bodies that control food safety, research organizations, as well as firms of various forms of ownership, higher education institutions.
Object of professional activity	- higher education institutions (Shakarim State University, Kazakh national agrarian University, S. Seifullin Kazakh state agrarian and technical University, West Kazakhstan agrarian and technical University named after S. Seifullin).Zhangirkhana, Kokshetau state University named after sh.Ualikhanov);

	- research institutes (Kazakh research Institute of agriculture and crop production, Kaznii of soil science and Agrochemistry named after U.Ospanova, Kazakh research Institute of potato and vegetable economy, the Kazakh research Institute of rice, Kazakh research Institute of grain farming them.And.And.Of Kazakhstan; Pavlodar agricultural research Institute, Karaganda Institute of Sire, etc.); - scientific production and methodological centers (Scientific-production centers of the Agency for land management, Agency GU "RSMC agrochemical service", etc.); - the state enterprise system to the MES and the Ministry of agriculture; expert and design companies, - agricultural formations, committees, firms, etc. of various forms of ownership. - enterprises that produce and control food products, institutions of state bodies that control food safety.
Types of professional activity	Graduates of the educational program 8D07202 - «Food safety» can perform the following types of professional activities: - sanitary and epidemiological, industrial and technological, organizational and managerial, experimental research, educational (scientific and pedagogical). - sanitary-hygienic: - industrial-technological: - organizational and management: - experimental research: - educational (scientific and pedagogical).
Graduate Model	Main professional competencies for graduates of OP "8D07202 Food safety" The sphere of professional activity of the PhD doctor is all branches of the food industry, food certification enterprises, sanitary supervision enterprises, institutions of state bodies that control food safety, research organizations, as well as firms of various forms of ownership, higher education institutions. The graduate of the OP "8D07202 Food safety" has the following competencies : - Apply knowledge of general and theoretical technology and technology, applied technology and technology for the analysis, synthesis and evaluation of phenomena, methodological and regulatory materials on technological preparation of production, to ensure the safety of food raw materials and food products -Have an idea of the scientific foundations of food safety -Be able to analyze foreign methods and means to ensure continuous improvement of the effectiveness of the international food safety management system - Apply the general principles of planning and implementation of the HACCP system - To understand about the genetic toxicity of substances, about the toxicological and hygienic problems arising in the food industry -Identify the threats of preliminary measures identified

	by analyzing the hazards that threaten the safety of food products in production - To monitor compliance with the technological process; to take part in the implementation of measures to ensure the safety of food production - Apply knowledge about the history and origin of the food safety management system, the hazard analysis system and control critical points, about the activities of the Codex Alimentarius Commission - To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality - To use the knowledge of fundamental sciences in the design and development of food safety management systems; to be able to organize research activities on the study of physico-chemical, toxicological, microbiological properties in food products, methods of their processing - Analyze and apply modern foreign methods of analysis and means of ensuring food safety - Implement a system of quality and safety of food products based on the HACCP system.

3.Modules and content of the educational program

Theory and practice of food production

Academic writing

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	31343 (3010966)
Course	1
Term	1
Credits count	5
Lections	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

Genres of academic writing. Academic text. Principles of structuring a scientific text. Formulation of a research question. The structure of the introduction. Writing a grant application and reporting documentation on scientific projects. Bibliography and reference apparatus. Annotations and features of their compilation. Dissertation as a scientific and qualifying academic text. Reviewing a scientific text.

Purpose of studying of the discipline

Academic subscription is a methodology for writing scientific texts, such as essays, term papers, theses, master`s and doctoral dissertations, scientific articles and monographs. Academic subscription is the ability to express and substantiate individual thoughts and ideas of doctoral students and convey them to the target audience. Academic writing is the ability to write scientific texts, choose and use the language and style of their writing.

Academic letter of doctoral students. Strengthening professional competence and communication links. Formation of linguistic and pragmatic thinking. The ability to write and execute scientific documents and texts competently.

Learning Outcomes

ON1 Have an understanding of the scientific principles of food safety

ON2 Be able to conduct an analysis of foreign methods and means of ensuring the continuous improvement of the effectiveness of the international food safety management system

Prerequisites

Masters degree course

Postrequisites

Final examination

Research methods

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	31345 (3023546)
Course	1
Term	1
Credits count	5
Lections	30hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

Functions of science. Scientific education, its principles, patterns of ownership, levels of education. Logic of scientific research. Study forecast. Paths for the development of science and scientific research, the role of technical sciences, computer science and engineering research in modern science. Systems approach in science and technology. Informational approach in the study. Modeling. Change in information during the study.

Purpose of studying of the discipline

Provision of conditions for obtaining high- quality professional education, acquisition of research, General cultural and professional competencies in the field of quality control and food safety.

Learning Outcomes

ON3 Apply the general principles of planning and implementation of the HACCP system

ON4 Understands the genetic toxicity of substances, toxicological and hygienic problems arising in the food industry

Prerequisites

Masters degree course

Postrequisites

Doctoral student research work, including internship and doctoral dissertation IV

Innovative knowledge

Scientific Basics of Food Safety

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	31344 (3010971)
Course	1
Term	1
Credits count	5
Lections	45hours
Independent work of a student under the guidance of a teacher	35hours
Independent work of the student	70hours
Total	150hours
Knowledge control form	Examination

Short description of discipline

Knowledge of general theoretical technology and technology for the analysis, synthesis and assessment of phenomena, methodological and regulatory materials on technological preparation of production, knowledge on ensuring the safety of food raw materials and food products. Food safety concept, terms and definitions. Food safety controls, challenges and perspectives. Risks and controls in the food supply system. HACCP Quality Control, Risk Assessment.

Purpose of studying of the discipline

In the food industry, one of the main consumer requirements is food safety. Food safety is a mandatory component of all aspects of product quality. The Law of the Republic of Kazakhstan dated July 21, 2007 No. 301 "On Food safety" was adopted, in connection with which the legal basis for ensuring food safety was established to protect human life and health, the legitimate interests of consumers and the environment. Within the framework of this law, the state control and supervision of food safety is the organization of laboratories to determine the qualitative and quantitative composition of genetically modified objects and the level of harmful impurities, laboratories of the state veterinary and sanitary and epidemiological expertise in accordance with international requirements.
In accordance with the above-mentioned technical regulations and the Law of the Republic of Kazakhstan, by placing high requirements on the safety and quality of food products intended for general consumption, it is possible not only to improve nutrition, but also to improve the health of the population of the country. Therefore, this course is aimed at familiarizing doctoral students with the basic rules in the field of food safety, teaching them how to ensure production at all levels.

Learning Outcomes

ON5 Identify the threats of preliminary measures identified by analyzing hazards that threaten food safety at work
ON6 Monitor compliance with the technological process, take part in the implementation of measures to ensure the safety of food production

Prerequisites

Masters degree course

Postrequisites

Final examination

International safety of technological process and production

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	32996 (3023717)
Course	1
Term	2
Credits count	10
Lections	60hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	70hours
Independent work of the student	140hours
Total	300hours
Knowledge control form	Examination

Short description of discipline

The course is about the knowledge of conducting scientific work, mastering the principles of identifying food safety definitions, working with regulatory documentation for food raw materials and food products; necessary to complete a doctoral dissertation. Legal and organizational issues of safety. Safety requirements for the device and operation of production equipment. Application of safety instructions, compliance with the requirements.

Purpose of studying of the discipline

know international and domestic food safety systems;

- be able to identify risks in food production according to the HACCP system.

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their processing
ON8 Analyze and apply modern foreign methods of analysis and means of ensuring food safety.

Prerequisites

Masters degree course

Postrequisites
Research practice

Designing and developing of the system of safety management of food products

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	32997 (3023718)
Course	1
Term	2
Credits count	10
Lections	60hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	70hours
Independent work of the student	140hours
Total	300hours
Knowledge control form	Examination

Short description of discipline
On the application of the internationally recognized systematic approach HACCP or the system of hazard Analysis and Control Critical Points. About a rational approach to the creation of the HACCP system meat and dairy enterprises and public catering. On the Legislation the Eurasian Economic Union in the field of food safety. About the development and application of the HACCP system.
Purpose of studying of the discipline
on the application of internationally accepted systematic approach HAACCP or systems analysis hazards and control of critical points (HACCP).
Learning Outcomes
ON10 Implements the system of quality and safety of food products based on the HACCP system
Prerequisites
Academic writing
Postrequisites
Final examination

GMO system and safety of food products

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	32998 (3023869)
Course	1
Term	2
Credits count	10
Lections	60hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	70hours
Independent work of the student	140hours
Total	300hours
Knowledge control form	Examination

Short description of discipline
Course on production-technological activity on the organization and effective implementation of input control during the production of GMOs, production control and finished product quality; conducting standard and certification tests for relevant raw materials and finished products; analysis of problematic production conditions, solving problematic tasks and problems. Basic concepts in the field of quality and safety of food raw materials and food products.
Purpose of studying of the discipline
Identify threats from preliminary activities identified through analysis of hazards threatening food safety in production.
Learning Outcomes
ON9 Applies knowledge of the history and origin of the food safety management system, the hazard analysis system and the critical control points, the Codex Alimentarius Commission activities, implements a food quality and safety system based on the HACCP system
ON11 To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality.
Prerequisites
Masters degree course
Postrequisites
Final examination

Pedagogical practice

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	32999 (3010965)
Course	2

Term	1
Credits count	10
Pedagogical practics	300hours
Total	300hours
Knowledge control form	Total mark on practice

Short description of discipline
pedagogical practice is aimed at achieving a high quality of postgraduate professional education,
the implementation of theoretical knowledge, the development of professional qualities of a university teacher and the formation of competencies
of doctoral graduates in pedagogical activity and educational sphere Pedagogical practice is aimed at the formation of functional competencies, the development of abilities to perform tasks in professional and educational spheres. Pedagogical practice forms doctoral students` mastery of the skills of the educational process in higher educational institutions

Purpose of studying of the discipline
formation of professional and personal competencies necessary for the organization of the educational process in higher education.

Learning Outcomes
ON10 Implements the system of quality and safety of food products based on the HACCP system
ON11 To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality.

Prerequisites
International safety of technological process and production

Postrequisites
Doctoral student research work, including internship and doctoral dissertation III

Research practice

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	31346 (3010958)
Course	3
Term	1
Credits count	10
Working practice	300hours
Total	300hours
Knowledge control form	Total mark on practice

Short description of discipline
acquisition of experience in the study of an actual scientific problem, as well as the selection of necessary materials for the dissertation

Purpose of studying of the discipline
obtaining knowledge about innovative technologies of food production, knowledge of the methodology of scientific research

Learning Outcomes
ON8 Analyze and apply modern foreign methods of analysis and means of ensuring food safety.
ON9 Applies knowledge of the history and origin of the food safety management system, the hazard analysis system and the critical control points, the Codex Alimentarius Commission activities, implements a food quality and safety system based on the HACCP system
ON10 Implements the system of quality and safety of food products based on the HACCP system

Prerequisites
Research methods

Postrequisites
Doctoral student research work, including internship and doctoral dissertation VI

Modern food safety management systems

Doctoral student research work, including internship and doctoral dissertation I

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	32995 (3010959)
Course	1
Term	1
Credits count	15
The research work	450hours
Total	450hours
Knowledge control form	Total mark on practice

Short description of discipline
organization of scientific research, search and exchange of scientific information

Purpose of studying of the discipline
acquisition of knowledge concerning the object of scientific research

Learning Outcomes
ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their

processing

Prerequisites

Research methods

Postrequisites

Doctoral student research work, including internship and doctoral dissertation II

Doctoral student research work, including internship and doctoral dissertation II

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	31347 (3010960)
Course	1
Term	2
Credits count	20
The research work	600hours
Total	600hours
Knowledge control form	Total mark on practice

Short description of discipline

to monitor compliance with the process; to take part in the implementation of measures to ensure the safety of food production

Purpose of studying of the discipline

search and exchange of scientific information in the organization of scientific research

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their processing

Prerequisites

Doctoral student research work, including internship and doctoral dissertation I

Postrequisites

Doctoral student research work, including internship and doctoral dissertation III

Doctoral student research work, including internship and doctoral dissertation III

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33000 (3010961)
Course	2
Term	1
Credits count	20
The research work	600hours
Total	600hours
Knowledge control form	Total mark on practice

Short description of discipline

to prepare a doctoral student who knows the methodology of scientific knowledge of processes and is able to apply scientific methods in the study of problems of modern production, the final result of whose research activity is the writing and successful defense of a doctoral dissertation.

Purpose of studying of the discipline

conducting research and experimental work on the topic of the dissertation

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their processing

Prerequisites

Doctoral student research work, including internship and doctoral dissertation II

Postrequisites

Doctoral student research work, including internship and doctoral dissertation IV

Doctoral student research work, including internship and doctoral dissertation IV

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33001 (3010962)
Course	2
Term	2
Credits count	30
The research work	900hours
Total	900hours
Knowledge control form	Total mark on practice

Short description of discipline

the research work of a doctoral student as part of the main educational programs of doctoral training areas contributes to the formation

of highly qualified specialists capable of solving scientific and practical issues in engineering and technology.

Purpose of studying of the discipline

collection of information and selection of materials, conducting research on the topic of the dissertation

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their processing

Prerequisites

Doctoral student research work, including internship and doctoral dissertation III

Postrequisites

Doctoral student research work, including internship and doctoral dissertation V

Doctoral student research work, including internship and doctoral dissertation V

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33003 (3010963)
Course	3
Term	1
Credits count	20
The research work	600hours
Total	600hours
Knowledge control form	Total mark on practice

Short description of discipline

possession of modern specialized skills and methods necessary for making effective decisions in the field of engineering and technology

Purpose of studying of the discipline

apply measured values when implementing a food safety management system; use knowledge of fundamental sciences in their practical activities to solve research, information retrieval, methodological tasks; in the field of food safety

Learning Outcomes

ON7 Use the knowledge of basic sciences in the design and development of food safety management systems; be able to organize research activities in the study of physico- chemical, toxicological, microbiological properties in food products, methods of their processing

Prerequisites

Research practice

Postrequisites

Doctoral student research work, including internship and doctoral dissertation VI

Doctoral student research work, including internship and doctoral dissertation VI

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	33002 (3010964)
Course	3
Term	2
Credits count	18
The research work	540hours
Total	540hours
Knowledge control form	Total mark on practice

Short description of discipline

contribute with their own original research to pushing the boundaries of the scientific field, which may merit publication nationally or internationally
level

Purpose of studying of the discipline

collection, processing, analysis, systematization of scientific and technical information on the topic under consideration

Learning Outcomes

ON10 Implements the system of quality and safety of food products based on the HACCP system
ON11 To participate in the development of high-quality and safe packaging materials and their use in technological and sanitary modes of processing products and requirements for their quality.

Prerequisites

Doctoral student research work, including internship and doctoral dissertation V

Postrequisites

Final examination

Final certification

Doctorly dissertation orau translation

Credits count	12

4.Summary table on the scope of the educational program

«8D07202 - Food Safety»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
Theory and practice of food production										
Academic writing	BS/US	1	5	150	45			35	70	Examination
Research methods	BS/US	1	5	150	30	15		35	70	Examination
Innovative knowledge										
Scientific Basics of Food Safety	BS/US	1	5	150	45			35	70	Examination
International safety of technological process and production	AS/CCh	2	10	300	60	30		70	140	Examination
Designing and developing of the system of safety management of food products	AS/CCh	2	10	300	60	30		70	140	Examination
GMO system and safety of food products	AS/CCh	2	10	300	60	30		70	140	Examination
Pedagogical practice	BS/US	3	10	300						Total mark on practice
Research practice	AS/US	5	10	300						Total mark on practice
Modern food safety management systems										
Doctoral student research work, including internship and doctoral dissertation I	AS/US	1	15	450						Total mark on practice
Doctoral student research work, including internship and doctoral dissertation II	AS/US	2	20	600						Total mark on practice
Doctoral student research work, including internship and doctoral dissertation III	AS/US	3	20	600						Total mark on practice
Doctoral student research work, including internship and doctoral dissertation IV	AS/US	4	30	900						Total mark on practice
Doctoral student research work, including internship and doctoral dissertation V	AS/US	5	20	600						Total mark on practice
Doctoral student research work, including internship and doctoral dissertation VI	AS/US	6	18	540						Total mark on practice
Final certification										
Doctorly dissertation orau translation		6	12	360						