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Higher and Postgraduate Educational Programs

☐ Project EP ☐ Participant of project EP

Date of registration in the Registry

24.06.2024

Registration number

6B08100016

Date of EP passport updating

14.07.2026 23:00

Field of education

6B08 Agriculture and Bioresources

Direction of personnel training

6B081 Agronomy

Group of educational programs

B077 Crop production

Educational program

6B08102 Agronomy – Agricultural Sciences and Technologies

EP purpose

Training of highly qualified, competitive bachelor's degree specialists in the labor market, ready to solve the problem of the agri-food industry in an innovative way and using an interdisciplinary approach.

EP type

Innovative EP

Level on NQF

6

Level on SQF

6

EP distinctive features

Double diploma EP

OHPE type

Foreign OHPE

Partner OHPE

Universita' Politecnica delle Marche

Language of education

☐ multilingual ☒ English

Professional Standard for EP

Exists

Nº	Name of professional standard
1	Gardening
2	Production of grain crops
3	Production of greenhouse vegetables and berries
4	Nursery garden activities



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Professional standards (career standards)

Professional standard has been used at developing EP ☒

Professional standard №1

Professional standard

Деятельность питомников

Approval year

2022

CCEA

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Professions

Profession №1

Profession

Агроном-почвовед

Уровень по ОРК

6

Labor functions

Оценка и состояния и динамики почвенного плодородия в питомнике

Управление почвенно-агрохимической подготовкой земель питомников, оценки сост

Professional standard №2

Professional standard

Выращивание овощей и картофеля

Approval year

2022

CCEA

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Professions

Profession №1

Profession

Агроном

Уровень по ОРК

6

Labor functions

Внедрение передовых методов и приемов выращивания перспективных сортов овощ

Организация производства овощной продукции и картофеля

Проведение мероприятий по выращиванию и первичной обработке продукции расте

Professional standard №3

Professional standard

Садоводческая деятельность

Approval year

2022

CCEA

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Professions

Profession №1

Profession

Агроном



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Labor
functions

- Организация мероприятий по разработке и внедрению передовых агротехнических
- Выполнение организационно- по производству садовых культур
- Организация контроля производственного процесса

Professional standard №4

Professional standard

Производство тепличных овощей и яго

Approval year

2022

CCEA

Professions

Profession №1

Profession

Агроном

Уровень по ОРК

6

Labor
functions

- Проведение мероприятий по выращиванию и первичной обработке внесезонной про
- Организация производства овощной и ягодной продукции в теплице
- Освоение передовых методов и приемов выращивания перспективных сортов овоще

Professional standard №5

Professional standard

Выращивание сахарной свеклы и ее с

Approval year

2022

CCEA

Professions

Profession №1

Profession

Агроном по семеноводству (средней и

Уровень по ОРК

6

Labor
functions

- Повышение посевных качеств семян
- Организация работы по выращиванию высококачественных сортовых семян и посад

Professional standard №6

Professional standard

Производство зерновых культур

Approval year

2022

CCEA

Professions

Profession №1



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Labor functions

Комплексный мониторинг состояния посевных площадей зерновых культур на основ
Посев, очистка от сорняков полей зерновых культур с применением автоматизирова

Volume of the credits

244

Degree to be conferred

Bachelor

Period of study

4

Date of approval EP on the Academic Council

27.04.2026

☒Existence of the annex to the license for the direction of personnel training

The license number on the direction of training

KZ49LAM00007465

☐The training format is online

☒EP accreditation existence

Atlas of new professions

не предусмотрено

Regional standard

Специалист по новым технологиям в сельском хозяйстве <https://enic-kazakhstan.edu.kz/files/1744378861/rl-koblysy.pdf>

The formed educational outcomes

Nº	Educational outcome	Code	Reflects the labor function
1	Have the	ON'	Организация контроля производственного процессаОрганизация мероприятий по разра
2	To adapt	ON'	Управление почвенно-агрохимической подготовкой земель питомников, оценки состояни Оценка и состояния и динамики почвенного плодородия в питомнике
3	To organiz	ON'	Организация работы по выращиванию высококачественных сортовых семян и посадочно Проведение мероприятий по выращиванию и первичной обработке продукции растениев
4	To analyze	ON'	Проведение мероприятий по выращиванию и первичной обработке продукции растениев
5	To carry	ON'	Организация мероприятий по разработке и внедрению передовых агротехнических меро Проведение мероприятий по выращиванию и первичной обработке продукции растениев
6	To use English	ON'	Организация контроля производственного процесса
7	Analyze genetic	ON'	Организация работы по выращиванию высококачественных сортовых семян и посадочно Проведение мероприятий по выращиванию и первичной обработке внесезонной продукц
8	Conduc t	ON'	Посев, очистка от сорняков полей зерновых культур с применением автоматизированных Комплексный мониторинг состояния посевных площадей зерновых культур на основе топ

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9	Apply method	ON	Управление почвенно-агрохимической подготовкой земель питомников, оценки состояния Оценка и состояния и динамики почвенного плодородия в питомнике
10	To organiz	ON	Выполнение организационно- по производству садовых культур Организация производ Внедрение передовых методов и приемов выращивания перспективных сортов овощных и Освоение передовых методов и приемов выращивания перспективных сортов овощных и
11	To organiz	ON	Управление почвенно-агрохимической подготовкой земель питомников, оценки состояния Оценка и состояния и динамики почвенного плодородия в питомнике
12	To introdu	ON	Организация мероприятий по разработке и внедрению передовых агротехнических меро Посев, очистка от сорняков полей зерновых культур с применением автоматизированных
13	Apply innovati	ON	Организация работы по выращиванию высококачественных сортовых семян и посадочно Проведение мероприятий по выращиванию и первичной обработке продукции растениев
14	To assess	ON	Организация контроля производственного процесса

Data on disciplines

Nº	Name of discipline	Short description of discipline	Cycle
1	Fundamentals of Scientific Research	The goal is to form knowledge about the principles, technologies, practical methods and techniques of conducting scientific research based on modern achievements of scientists. Forms the basic founda-tions of scientific culture and ethics, flexible percep-tion of scientific texts, skills of effective application of acquired knowledge in planning and organizing research work, the ability to analyze and summarize research results.	GED
2	Ilyastanu	The purpose of the discipline is to develop a deep-thinking personality with high aesthetic taste, appreciating literature, art, traditions, culture and language of the Kazakh people through a deep and comprehensive study of the works of Ilyas Zhansugurov. Forms an understanding of the importance of the works of Ilyas Zhansugurov in the development of the Kazakh literary language; skills of intellectual and creative thinking, the ability to cherish the values of national and spiritual heritage.	GED
3	Fundamentals of Financial Literacy	The course is aimed at gaining knowledge and skills in the field of personal finance management. Also, as part of the course, students will learn how to use in practice all kinds of tools in the field of finance, save and increase savings, plan a budget competently, learn how to analyze financial information and navigate financial products to choose an adequate investment strategy.	GED
4	Basics of Law and Anti-Corruption Culture	The objective is to familiarize students with the fundamental branches and institutions of law, the foundations of anti-corruption culture, as well as the patterns of emergence, development, and functioning of the state and law. The course cultivates anti-corruption awareness and a high level of theoretical knowledge concerning the primary functions of law within the state and society, its impact on the development of the rule of law and civil society, and the value of inclusion as an integral component of a just and equitable legal order. Particular emphasis is placed on fostering students' understanding of the importance of human rights for all individuals, regardless of their social, cultural, physical, or other characteristics.	GED



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5	Ecology and Life Safety Basics	ecology, sustainable development, and life safety, enabling the analysis of ecological processes, the assessment of the socio-environmental consequences of anthropogenic activities, the assurance of environmental safety, and the application of methods and technologies for protection in emergency situations. Develops the ability to assess the impact of environmental factors on human health; to forecast ecological processes for planning and implementing measures aimed at enhancing life safety and ensuring environmental security; and to make informed decisions in adverse environmental and emergency situations, taking into account the potential consequences of accidents, disasters, and natural hazards within the framework of sustainable development principles.	GED
6	Economics and Entrepreneurship	Objective – to familiarize students with the economic challenges of modern society, develop economic thinking, and provide knowledge of the theoretical foundations and practical skills in the field of entrepreneurship. The program is aimed at forming a comprehensive understanding of the functioning of the economy, while delivering business education focused on acquiring applied competencies in various areas of entrepreneurial activity. Special attention is given to issues of sustainable development, efficient resource use, and the implementation of lean production principles as key elements of effective and environmentally responsible business practices. The course also explores the specifics of creating and successfully managing a business, taking into account modern requirements for environmental and social responsibility in entrepreneurship.	GED
7	Agricultural Chemistry and Biochemistry	The purpose of the course is to ensure the comprehensive development of students' skills in conducting laboratory analysis of basic physical and chemical parameters of soil and plant metabolites, including the stages of soil sampling in the field. The course allows you to gain fundamental knowledge about soil chemistry and plant biochemistry, as well as laboratory analytical methods for determining the physico-chemical characteristics of soil and primary plant metabolites. Develops skills in choosing the best ways to apply fertilizers, top dressing and soil correction; choosing the best farming strategies both from the point of view of crop production and from the point of view of environmental safety.	BD
8	Agricultural and Forest Genetics	The aim of the course is to provide basic information on general genetics and molecular biology to understand the main features of heredity in order to ensure proper management of agricultural and forest resources, including on the basis of innovative molecular technologies. Develops skills related to the analysis of genetic data and useful knowledge for the management of agricultural resources based on modern molecular technologies; the application of breeding principles and plant breeding methods used to improve the quality and quantity of crop production.	BD
9	Agricultural Microbiology	The course forms ideas about the structure and functioning of microbial cells, microbial ecology and biodiversity; theoretical and practical knowledge about microbiological methods. Develops the ability to apply the acquired knowledge as a basis for understanding the microbiological aspects of agricultural production, to carry out laboratory activities in relation to microorganisms.	BD
10	General Agronomy and Crop Science	The course provides adequate basic knowledge about agronomic and environmental factors that affect the productivity of crop cultivation systems. The course develops the skills of searching for information necessary to solve basic agronomic problems; the ability to clearly and comprehensively convey information, ideas, problems and relevant technical solutions to interlocutors, specialists and non-specialists, representatives of various and specific professions related to the management of crop production systems (agricultural producers, engineers, architects, administrators, etc.)	BD

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11	General and Organic Chemistry	theoretical knowledge on the topics of general, organic chemistry, which is necessary for an agronomist to solve production and research tasks; the development of chemical thinking. It forms natural scientific thinking, ideas about substances and chemical processes in nature; a problematic view of the laws of chemistry from the point of view of their application to processes occurring in plants, soil and a living organism, correlating them with the significance of a number of physico-chemical studies with a view to their subsequent application to the analysis of soil and plants.	BD
12	Biology and Animal Genetics	The main goal of the course is to ensure the comprehensive development of students' ability to recognize the most important species and breeds of interest to livestock systems, their physiology in relation to basic products (meat and milk), use basic methods and biotechnologies of reproduction and increase productivity through genetic improvement. The course allows students to gain fundamental knowledge about the anatomy and physiology of the basic apparatus of animal species that produce meat or milk for human consumption.	BD
13	Fundamentals of Artificial Intelligence	The discipline is aimed at studying the basic concepts, methods and algorithms that underlie the creation and application of artificial intelligence. As part of this course, students will learn the theoretical foundations of machine learning, neural networks, natural language processing algorithms, and computer vision. They will also get acquainted with the ethical, social and legal aspects of the application of artificial intelligence in various areas of life.	BD
14	Fruit Production	The main purpose of the course is to familiarize with the problems of growing fruit species with special attention to the varietal characteristics and quality of fruits, with the realities of fruit growing. The course allows you to get an idea of the main species of fruit trees, forms the ability to analyze options that affect the production chain, identify species and varieties of interest for various areas of cultivation.	BD
15	Mathematics	The course allows you to gain fundamental knowledge of differential and integral calculus, as well as the ability to solve scientific problems using simple mathematical models. The main didactic purpose of the training is to develop the student's ability to use differential and integral calculus to study graphs of functions and solve simple scientific problems arising from various fields of application such as biology, economics and physics. Develops the ability to identify mathematical tools suitable for solving problems arising from agronomic research; the ability to study and interpret mathematical models used in scientific research in the field of agronomy.	BD
16	Plant Biology	The course will provide knowledge concerning the fundamental concepts of basic biology, the main characteristics of the anatomical and histological structure of plant organisms, the most important physiological functions, as well as the evolution, diversity and classification of terrestrial plants. The course will provide an opportunity to correctly interpret the basic structures of plants and apply the basic methods of studying plant biology for a global vision of the plant-environment system. At the end of the course, students should be able to independently reason about the main anatomical, structural and functional aspects of plants and clearly state the information obtained using the correct special language characteristic of this discipline.	BD
17	Ornamental, Wood and Fruit Tree Culture and Physiology	The course allows you to gain fundamental knowledge about the biology and physiology of trees, as well as the basics of modern sustainable design and management of forest gardens for the production of high-quality fruits, decorative and wooden products. The main goal is to improve students' ability to develop a systematic approach to the care of garden trees and to make consistent and adequate technical solutions with high efficiency and product quality. This forms the ability to identify information necessary to manage factors related to orchard, ornamental trees and timber.	BD

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18	Pedology	methods for assessing soil fertility, ways to preserve it. to ensure comprehensive development.The course allows you to get an idea of the main types of soils, as well as the basics of soil morphology and geomorphology. Forms the ability to master the methods of recognizing the main types and assessing soil fertility; methods of soil protection from erosion and deflation, the genesis of saline soils, anthropogenic soils, pasture, terraced soils, urban soils, mine soils, dumps, soil pollution with heavy metals.	BD
19	Physics	The course is devoted to the study of matter, energy, forces and their interaction in the world around us and the universe. It allows you to acquire the necessary knowledge of basic physical laws and concepts (both theoretical and experimental), useful for describing and understanding the physical properties of matter within the framework of life and environmental sciences. Develops the ability to solve complex problems using basic knowledge of physics, which can be combined and compared with other information to acquire a higher level of knowledge.	BD
20	Plant Pathology	The main purpose of this course is to ensure the comprehensive development of the ability to detect diseases of major crops. The course allows you to gain the necessary knowledge about the main diseases of plants before and after harvest caused by fungi, bacteria, viruses and phytoplasmas. Studies the development and epidemiology of plant diseases; characteristics and classification of pathogens of major crops; agronomic, legislative, physical, genetic, biological and chemical means of combating plant diseases; methods of organic and integrated pest control.	BD
21	Fundamentals of field crop seed science	The purpose is to familiarize students with the morphological structure and biological features of field crops; to study modern technologies of crop cultivation. This forms the ability to assess the quality of seed products and determine how to use them, justify the choice of zoned varieties of crops for specific conditions of the region and the level of intensification of agriculture, calculate the need for seeds for an agricultural enterprise based on the seeding rate, develop seed cultivation technology.	BD
22	Introduction to the Specialty	The goal is to form students' sustained interest in their chosen field of activity and professional training for it in the context of modern requirements of the agro-industrial sector. Considers technologies for cultivating crops to produce products that meet human needs in food, animal feed, raw materials for the processing industry; includes sections: field farming, vegetable growing, horticulture, viticulture, feed production, forestry. Develops the ability to organize agrotechnical work to solve urgent practical problems in the field of crop production, agriculture, breeding and seed production, plant protection	BD
23	Agrarian Industries	The course allows you to gain knowledge about the composition and nutritional properties of vegetable oils, milk, dairy products, wine, and the technological process used in the production of agricultural products. Develops the ability to manage production processes in the agro-industrial complex, focusing on high quality products; the ability to identify information necessary to improve the efficiency of processes and the quality of agricultural products.	PD
24	Rural Building and Basics of Geomatics	The course is aimed at achieving two main objectives: the application of knowledge in the field of geomatics for managing geoinformation at both territorial and local levels, and the ability to monitor rural development and cultural heritage, as well as changes in the surrounding rural environment. It also focuses on developing the ability to carry out appropriate and well-justified design projects related to the reconstruction, preservation, and enhancement of rural buildings, providing essential technical deliverables such as reports, drawings, maps, plans, and 3D visualizations. The course enables students to become informed users and critical consumers of geomatics and artificial intelligence technologies (such as cartography, GIS/CAD, remote sensing), and to become familiar with the key stages involved in strategic planning, rural construction design, and the use of artificial intelligence.	PD



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25	Agricultural Entomology and Zoology	foundations of measures to combat organisms that cause damage to crops and plantings in open and protected ground, cultivated lands and natural vegetation. Analyzes the characteristics of insects and animals, the structure of their bodies, the activity of organs, lifestyle, variety of forms and relationship with the environment, the role of insects and animals in various processes occurring in the biosphere, the importance of insects and animals in human life; examines the features of agricultural, forestry and medical entomology and zoology.	PD
26	Rural Appraisal	Studies innovative trends in post-harvest processing, storage and processing technology; the main factors affecting quality in the storage and processing of agricultural products, the main ways to reduce losses and improve quality. It forms the ability to apply innovative technologies in the production, storage and processing of agricultural products for the successful implementation of scientific and technological progress, allowing rational use of products taking into account their quality.	PD
27	English Language - Intermediate Level	The course prepares students for communication in oral and written form in English to solve the tasks of professional activity. Students study terminology in biology, botany, agronomy and ecology, as well as proficiency in basic speech activities (speaking, reading, listening and writing) of the English language.	PD
28	Principles of Economic and Statistics (Integrated Course)	Studies microeconomics, demand theory, needs and goods, individual and aggregate demand, determinants of demand functions, indifference curves, budget constraint, elasticity of demand and classification of goods, consumer surplus. Analyzes the basic principles of accounting for farms, the basic principles of financial mathematics, an introduction to accounting in agriculture from a microeconomic point of view. Examines key concepts of macroeconomics such as GDP, inflation and interest, a brief overview of the main financial markets and instruments.	PD
29	Mathematical Modeling in Agronomy	The aim of the course is to develop knowledge and skills in analyzing production situations, using mathematical models to manage the efficiency of agricultural production and the production process in agrophytocenoses. The development of the discipline is aimed at acquiring theoretical knowledge and practical skills of mathematical modeling for conducting scientific research, planning and substantiating management decisions in agronomy.	PD
30	Agroenergy	The course allows you to gain sufficient basic knowledge about the hydropower sector, considering various stages of production: from obtaining raw materials from biomass to its processing and use. Biomass is studied based on its energy characteristics. In addition, the course highlights the technical, economic and environmental aspects of energy production and use, which allows you to identify the main types of transformer installations, determine the standards within which energy production is carried out.	PD
31	Agricultural Mechanization	The main purpose of this course is to teach how to identify the most suitable equipment, making a choice based on the characteristics of agricultural machines, their ability to work in accordance with the tasks in which they are used. The course allows students to gain sufficient basic knowledge of agricultural mechanics. Agricultural machines are studied from the point of view of their design and operation, with an emphasis on the features and adjustments related to the mechanical quality of their work.	PD
32	Artificial intelligence in agricultural mechanization	The course is devoted to the study of artificial intelligence applications in agricultural mechanization. It covers intelligent control systems for agricultural machinery, data analytics, precision farming technologies, crop monitoring, and yield forecasting. Special attention is paid to improving the efficiency of agrotechnological processes and the rational use of resources.	PD

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	  ЕДИНАЯ ПЛАТФОРМА ВЫСШЕГО ОБРАЗОВАНИЯ	English 	
33	Application of GIS Technologies in Agriculture	methods in agriculture. It covers general concepts of geoinformation systems and their areas of application, as well as information on the use of geoinformation systems in the agribusiness sector, including artificial intelligence technologies that contribute to the development of agricultural production and the implementation of highly efficient farming systems. The course aims to build knowledge of the basic concepts and principles of geoinformation systems and develop the ability to solve professional tasks using GIS technologies and AI.	PD
34	Agricultural Land Reclamation	The goal is to form knowledge on the reclamation of agricultural lands, the operation of reclamation systems to prevent soil erosion and professional skills in carrying out organizational, economic, technical, agrotechnical measures aimed at radically improving the condition of lands, ensuring the sustainability and dynamism of agricultural production, reducing its dependence on the influence of weather conditions. As a result of the course, students will determine the norms and timing of irrigation, build schedules for watering crops, design an irrigation network in the fields, monitor the state of reclamation systems, combat soil erosion; give practical advice on soil reclamation in the national economy, apply water-saving technologies in production.	PD
35	Gardening Activities	The aim is to develop knowledge, skills and practical skills in the field of organizing the production and cultivation of garden crops based on advanced agrotechnical technologies to improve and increase yields. Studies the biological characteristics of garden crops in connection with the reproduction and cultivation of planting material, the requirements of garden crops for growing conditions. He develops skills in developing systems of measures to improve the efficiency of horticultural production, self-vaccination of a fruit tree, the use of new forms of labor organization in the design and laying of a garden, skills in organizing an orchard taking into account the natural conditions of the area, the use of intensive technologies for growing environmentally friendly products.	PD
36	Innovative Technologies for the Cultivation of Non-Traditional Crops	The course introduces the requirements of non-traditional crops to environmental factors, economically sound ways to increase the adaptability of non-traditional crops, technologies for growing non-traditional crops to obtain high yields, plant protection and weed control, methods of care, harvesting and storage. Forms the skills of critical analysis of the information received on innovative technologies, varieties and hybrids of agricultural crops, the ability to plan yields and increase the efficiency of land use for growing crop products based on scientific achievements, best practices of domestic and foreign producers.	PD
37	Land use Planning	The purpose is to form the student's readiness to substantiate the effective use of agricultural territories and land management of an agricultural organization to increase soil fertility and increase crop yields. The content of the discipline covers: scientific foundations of land management, theoretical foundations of land management design, inter-farm land management, on-farm land management of enterprises and farms. Develops skills in organizing activities for the rational use of agricultural land, crop rotation systems; establishment of compliance of agro-landscape conditions with the requirements for agricultural crops when they are placed on the territory of land use; development of projects for on-farm land management and cultural and technical works	PD
38	Turfs Management	The purpose of the course is to acquire fundamental knowledge about lawns used for decorative, recreational, sports and technical purposes. The course allows you to acquire fundamental knowledge of lawn planning and management. Studies the advantages of various types of lawns, problems of growth and care of lawns under the influence of the environment, lawn pruning methods, types and varieties of plants used for lawns, irrigation and drainage planning, soil preparation, sowing and vegetative reproduction, correction of soil and lawn defects, special methods of care for various types of lawns.	PD

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39	Innovative Technologies in the Production and Processing of Crop Production	technologies in the field of production, storage and processing of crop production. Studies innovative trends in post-harvest processing, storage and processing technology; the main factors affecting quality in the storage and processing of agricultural products, the main ways to reduce losses and improve quality. It forms the ability to apply innovative technologies in the production, storage and processing of agricultural products for the successful implementation of scientific and technological progress, allowing rational use of products taking into account their quality.	PD
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