

Ministry of Agriculture of the Republic of Kazakhstan
S. Seifullin Kazakh Agrotechnical University

Reviewed
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Academic Council
Minute № 19
« 31 » 08 2022



EDUCATIONAL PROGRAM
«Protective afforestation»

Code and classification of education field:
6B08 Agriculture and bioresources
Code and classification of training direction:
6B083 Forestry
Code in the International standard classification of education:
0821

Degree: bachelor of agriculture in the educational program
«Protective afforestation»

Duration of study: 4 years

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1 Passport of the educational program

1.1 Purpose of the educational program:

Modular educational program "Protective afforestation" in the direction 6B083 - "Forestry" is created on the basis of request of employers in connection with the increased need for experts in the field of forestry.

The modular educational program will allow the graduate to get deep theoretical knowledge and practical skills in accounting and protection of forest resources, forest management, creation of forest crops and cultivation of planting material, development of projects of forest nurseries, ways of creation of forest crops, protective forest plantations, technology of forest reclamation and reforestation.

The aim of the program is to prepare a competitive professional capable of production activities in the field of protective afforestation and forestry, the practical implementation of knowledge and further professional growth and creative development.

2 General characteristics of the educational program:

The relevance of the EP is that the implementation of the state Strategy "Kazakhstan-2050" (according to which the area of forests in Kazakhstan by 2030 will increase to 5 %) requires training of highly qualified specialists ready to carry out forest management activities, planning of forest use, reforestation, protection of forests from fires and pests, the creation of forest protection. The need for work on the study of the state of forests of the Republic of Kazakhstan is also due to the increased anthropogenic impact on the environment and forest ecosystems.

Modern rates and quality of forest reclamation and forestry works in protective afforestation are low, they are often not complex, but fragmentary. Therefore there is a problem of training of highly qualified personnel in forest-steppe and steppe zones of Kazakhstan on EP "Protective afforestation".

Competitive advantages are highly qualified teaching staff, teaching in a foreign language, combining methods of domestic and foreign practice, training in computer classes and laboratories with the latest equipment.

The uniqueness is provided by obtaining deep theoretical knowledge and practical skills in accounting and protection of forest resources, forest management, methods of creating forest crops, protective plantations, forest reclamation technology directly in the forests of SNNP "Burabay", arboretum LLP "KazRIFA", RSE "Republican forest selection and seed center".

Stakeholders of the EP are enterprises in the field of forestry: the Council of the CLE "Association of forestry and wood processing organizations of Kazakhstan "Zhasyl Orman" SA forestry "Akkol", Akmola region, the Department of natural resources and environmental management of Astana and other regions of Kazakhstan.

3 Competence model (portrait) of the graduate

3.1 Professional fields of activity:

The sphere of professional activity of graduates of the educational program "Protective afforestation" are: forestry, landscaping and improvement of settlements, commercial forestry, protective afforestation. The objects of professional activity of graduates are: state forestry institutions, national and natural parks, reserves, landscaping organizations, forest management and design enterprises, forest nurseries. Subjects of professional activity are: the organization of works on the account of forest resources and protection of the woods, forest management, creation of Forest cultures and cultivation of landing material, gardening and improvement of settlements.

3.2 Types of professional activity:

Graduates in the direction 6B083 - "Forestry" educational program "Protective afforestation" can perform the following professional activities:

- industrial-technological;
- organizational and management;
- design.

3.3 General education competencies:

- to argue their own assessment of what is happening in the social and industrial spheres and use methods and techniques of historical description to analyze the causes and consequences of events in the modern history of Kazakhstan;
- to assess situations in various spheres of interpersonal, social and professional communication, taking into account the basic knowledge of sociology, cultural studies and psychology;
- demonstrate personal and professional competitiveness;

- apply in practice knowledge in the field of social Sciences and Humanities, which has world recognition and summarize the results of the study;
- to enter into communication in oral and written forms in Kazakh, Russian and foreign languages to solve the problems of interpersonal, intercultural and industrial (professional) communication;
- to use different types of information and communication technologies in personal activities.
- know the methods of scientific research and academic writing and apply them in forestry;
- apply knowledge and understanding of facts, phenomena, theories and complex relationships between them in forestry;
- understand the importance of the principles and culture of academic integrity.

3.4 Core competencies:

- to apply at a professional level their knowledge, understanding and abilities to solve problems in a new environment, in a broader interdisciplinary context;
- work with other specialists in joint projects and events;
- demonstrate teamwork, negotiation and organizational skills;
- positively perceive innovations and changes.
- have an idea about the nature of the main physiological processes of green plants, the mechanisms of regulation and the basic laws of the relationship of plants with the environment;
- know the methods of inventory, condition monitoring and inventory in forests;
- be able to perform in the field with the use of geodetic instruments measurements, description of boundaries and binding on the ground forestry objects on the ground.
- to know the forest-forming species of woody plants introduced in Kazakhstan;
- to own skills of evaluation and analysis of the environmental effects of the cutting of Mature, over-Mature stands, thinning and other types of care for forest.

3.5 Professional competencies:

- to know and understand the technology, means and methods of reforestation that increase productivity and sustainability of forests, methods of afforestation to prevent water and wind erosion of soils and reclamation of man-made landscapes
- design, implement and control technologies for the creation and cultivation of forest crops, protective forest plantations;
- to develop projects of development of forests, regulations, production of forest crops, sanitary and health measures, fire-fighting arrangement of forest areas, forest nurseries, plantations, irrigation systems, taking into account environmental and economic parameters;
- to be able to plan and design forest protection measures, to justify their economic and environmental efficiency and expediency;
- have the ability to assess the quality of timber according to current standards;
- to use knowledge about forest resources for the organization of their rational use and definition of actions for reduction of anthropogenic impact on the territory.

4 Base passage of professional practices:

Professional practice - 21 credits, including: educational practice 1 (botany and dendrology) – 4 credits; educational practice 2 (forestry and forest nurseries) – 4 credits; production – 10 credits, undergraduate practice -3 credits.

Students will be trained in the disciplines of "Botany" and "Dendrology" on the basis of JSC "Astana-Zelenstroy", RSE "Zhasyl Aimak" and in the urban parks and squares. Educational practice in the disciplines of "Forestry" and "Forest nurseries" will be held on the basis of Sandyktau training and production forestry and SA forestry "Akkol" Akmola region. Production and undergraduate practice to be held at the following enterprises: State institutions for the protection of forests and wildlife, regional territorial inspections, enterprises: JSC "Astana-Zelenstroy", RSE "Zhasyl Aimak", JSC "Astana ormany", RSE "Republican forest breeding center", LLP "KazRIFA", State national natural parks, reserves, reserves and other protected areas of Kazakhstan, management of natural resources and environmental management, utilities responsible for the improvement and landscaping of settlements and other state institutions, as well as private firms engaged in activities in the field of forestry.

5 Structure of the educational program

№	Name of cycles and disciplines	Total labor intensity	
		in academic hours	in academic credits
1	2	3	4
1	The cycle of General disciplines (GED)	1680	56
	Required component	1530	51
	The modern history of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
1)	Kazakh (Russian) language	300	10
	Information and communication technologies (English)	150	5
	Module of socio-political knowledge (sociology, political science, cultural studies, psychology)	240	8
	Physical education	240	8
2)	High school component	150	5
	Ecology and basics of life safety	150	5
2	Cycle of basic disciplines (BD)	3360	112
1)	High school component	1530	51
	Professionally-oriented foreign language	120	4
	Professional Kazakh (Russian) language	90	3
	Forest botany and physiology of woody plants	120	4
	Educational practice in forest botany	60	2
	Dendrology	150	5
	Forestry with the basics of recreational use	180	6
	Educational practice on dendrology	60	2

	Training practice in forestry and forest nurseries	120	4
	Forest nursery business	180	6
	Forest cultures	150	5
	Biometrics in forestry	150	5
	Forest inventory	150	5
2)	Optional component	1830	61
	Forest soil science	120	4
	Meteorology	120	4
	Biology of forest animals and birds	120	4
	Engineering geodesy	150	5
	Mechanization of forest operations	120	4
	Forest science and forest resource studies	180	6
	Plantation forest cultivation	120	4
	Selection of forest tree species	150	5
	Forest regulation	150	5
	Forest management and forest legislation	150	5
	Geoinformation systems and forest remote sensing	150	5
	Forest economics	150	5
	Fundamentals of entrepreneurial activities in forestry	150	5
3	The cycle of majors (MD)	1800	60
1)	High school component	1800	60
	Greening of populated areas	180	6
	Forest fire science	150	5
	Forest protection	180	6
	Protective afforestation and forest reclamation	180	6

Table 1. Academic calendar

	Forest commodity science	150	5
	Wood processing technology	120	4
	Forest exploitation	180	6
	Basics of landscape art	150	5
	Labor protection in forestry	120	4
	Production practice	300	10
	Undergraduate practice	90	3
4	Additional types of training (Feb)		
5	Final attestation	360	12
1)	Writing and defending a thesis (project) or preparing and passing a comprehensive exam	360	12
	Subtotal	7200	240

