NJSC SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM

6B08 - Agriculture and bioresources
(Code and classifcation of the feld of education)

6B083 - Forestry
(Code and classifcation of the direction of training)

0821
(Code in the International Standard Classifcation of Education)

B079 - Forest resources and forestry
(Code and classifcation of the educational program group)

6B08303 - Forest resources and hunting
(Code and name of the educational program)

Bachelor
(Level of preparation)

Semey

Educational program

6B08 - Agriculture and bioresources
(Code and classification of the field of education)

6B083 - Forestry
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bachelor
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Semey 2023

PREFACE

Developed

The educational program 6B08303 - Forest resources and hunting in the direction of preparation 6B083 - Forestry 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	Yessengulova Nurlygul	Dean of the Faculty of Veterinary and Agricultural Management	
Educational program manager	Jamanova Gulnara	senior lecturer of the Department	
Member of the AC	Nurzhanova Kulsara	Head of the Department "Agriculture and Bioresources", Candidate of Agricultural Sciences	
Member of the AC	Berdikenov Bolat	Deputy General Director of RSU "GLPR "Semey Ormany"	
Member of the AC	Borissenko Yelena	Head of the Semey structural subdivision (representative office) of the RSE "Republican Forest Breeding and Seed Center" of the Forestry and Wildlife Committee of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan	
Member of the AC	Karimbekova Dariya	student of the LRO -101 group	

Reviewing

Full name of the reviewer	Position, place of work	Signature
Bulatova Marina		

Reviewed

At the meeting of the Commission on Quality Assurance of Veterinary Medicine and Agricultural Management
Recommended for approval by the Academic Council of the University
Protocol № 4.1 "06" April 2023
Chairman of the Commission Jamanova 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.

Content

1.Introduction

1.1.General data

Bachelor`s degree training in the educational program B08303 "Forest resources and Hunting" is carried out at the graduate department "Agriculture and Bioresources", Faculty of Veterinary Medicine and Agricultural Management of Shakarim University.

The educational program B08303 "Forest resources and hunting" was developed taking into account the needs of the regional labor market. The educational program is focused on training a new type of personnel with broad fundamental knowledge, initiative, adaptive to the changing requirements of the labor market and technologies.

The uniqueness of the educational program B08303 "Forest resources and hunting" is that students receive practical skills in real production conditions. This is ensured by the cooperation of such organizations as the Republican State Institution "State Forest Natural Reserve "Semey Ormany", the RGC "Republican Forest Selection and Seed Breeding Center" Semey structural division and others. The educational program provides an opportunity to obtain training results and acquired competencies that meet the requirements of employers.

Graduates of the educational program B08303 "Forest resources and hunting" are able to think systematically, strategically, possess the skills to solve specific problems in the field of biodiversity conservation for traditional and emerging sectors of forestry and research activities.

Graduates of the educational program B08303 "Forest resources and hunting" provide optimization of the use and reproduction of forest resources, management of wildlife and hunting, forest management in the field of their use, protection, protection and reproduction; integrated forest zoning and modeling of commodity, bioecological productivity of forests, organization of forestry and forest management, development of optimal forest plans for the Republic of Kazakhstan.

The educational program regulates the goals, expected results, content, conditions and technologies for the implementation of the educational process, assessment of the quality of graduate training in this field of training and contains a description of the program and the direction of professional activity of the graduate, the results of training and acquired competencies, the policy of evaluating the results of training, the organization of the educational process that ensures the quality of training of students, a description of the modules that make up the educational program, methodological materials, ensuring the implementation of the appropriate educational technology.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process for the preparation of bachelors is the development by students of at least 205 credits of theoretical training, as well as at least 27 credits of practice, 8 credits of final certification. Total 240 credits.

1.3.Typical study duration: 4 years.

2.PASSPORT OF THE EDUCATIONAL PROGRAM

2.1.EP purpose	The purpose of the educational program is the development of students personal qualities and the formation of general cultural and professional competencies, training in demand specialists in the development and implementation of measures for multi-purpose permanent and non-depleting use of forests, management and management of hunting, prospects for wild breeding and animal husbandry, forest inventory, the use of information technologies in forestry.
2.2.Map of the training profile within the educational program	
Code and classification of the field of education	6B08 - Agriculture and bioresources
Code and classification of the direction of training	6B083 - Forestry
Code in the International Standard Classification of Education	0821
Code and classification of the educational program group	B079 - Forest resources and forestry
Code and name of the educational program	6B08303 - Forest resources and hunting
2.3.Qualification characteristics of the graduate	
Degree awarded / qualification	Bachelor of Agriculture in the educational program
Name of the profession / list of positions of a specialist	Forester, assistant forester, forestry engineer, engineer of forest crops, engineer for the protection and protection of forests, taxator engineer, forest inspector, master of a forest nursery, master gardener, phyto pathologist engineer, head of hunting and production sites, leading specialist, chief specialist in the central and territorial bodies in the field of protection, reproduction and use of wildlife, head of the regime protection service in specially protected natural territories; inspector of territorial inspections.
OQF qualification level (industry qualification framework)	6
Area of professional activity	The subjects of the graduate`s professional activity are: - technology of growing planting material; - methods and methods of collecting and storing forest seeds; - systems and methods of state forest control and supervision over the use, protection, protection and reproduction of forests; - hydro-reclamation systems; - land reclamation systems; - systems and methods of forest development planning; - technological systems, means and methods of the state forest inventory; - methods, methods and means of collecting, processing and analyzing quantitative and qualitative characteristics of the state of forests; - technological systems, means and methods of reforestation, forest care, protection and protection of forests; - technological systems, means and methods of afforestation to prevent water, wind and other soil

	erosion; - technological systems, means and methods of design, creation, operation, reconstruction of forest park plantations; - reproduction and processing of forest resources; - methods of non-wood products of the forest; - hunting farms of various forms of ownership; - state nature reserves; - zoological reserves; - national nature parks and reserves; - specially protected natural areas; - agricultural machinery and equipment; - technologies for the production of leather, fur and fur raw materials and its primary processing; - state institutions for the protection of forests and wildlife; republican and regional bodies of state management of the animal world and hunting economy; tourist organizations and public associations of hunters and fishermen.
Object of professional activity	The objects of the graduate`s professional activity are: - forest and urban ecosystems of various levels and their components: flora and fauna, soils; - natural and man-made forestry systems, including structures and measures that increase the usefulness of natural objects and components of nature: forest and ornamental nurseries, forest plantations, artificial forest plantations, forest parks, hydro-reclamation systems, land reclamation systems, nature protection complexes; - forest specially protected natural territories and other forests of high conservation value that have exceptional or particularly important ecological properties, eco-system functions and social role; - participants in forest relations, ensuring the planning of forest development, carrying out the use, protection, protection and reproduction of forests, carrying out state forest control and supervision of the use, protection, protection and reproduction of forests; - systems and methods of forest development planning, technological systems, means and methods of state forest inventory, monitoring of their condition, including methods, methods and means of collecting, processing and analyzing quantitative and qualitative characteristics of the state of forests; - technological systems, means and methods of reforestation, forest care, protection and protection of forests that increase forest productivity, ensure multi-purpose rational, continuous, non-depleting use of forests to meet the needs of society in forests and forest resources; - technological systems, means and methods of afforestation for the prevention of water, wind and other soil erosion, for the creation of protective forests, for the reclamation of man-made landscapes; - systems and methods of state forest control and supervision over the use, protection, protection and reproduction of forests; - technological systems, means and methods of designing, creating, operating, and reconstructing

	forest park stands that ensure the formation of a favorable environment for recreation, tourism and other types of recreational activities in forest areas, increasing their resistance to adverse factors and aesthetic expressiveness; - hunting grounds, hunting animals, hunting products, related hunting products, hunting dogs, hunting animals, hunting animals listed in the Red Book, technical means used for hunting.
Types of professional activity	Production and technological activities: - participation in the development and implementation of measures for multi-purpose rational, continuous, non-depleting use of forests to meet the needs of society in forests and forest resources, depending on the purpose of forests and the useful functions performed by them; - participation in the development and implementation of measures to preserve forests of high environmental value, to ensure environmental, water protection, protection and protection of forests, to produce planting material for forest-forming and ornamental species of trees and shrubs, to care for forests, reforestation and afforestation, recultivation of disturbed landscapes and other useful functions of forests; - participation in the implementation of the state forest inventory, in conducting forest management, in providing economic entities and forest and forest park management bodies with information on the state of forests, their quantitative and qualitative characteristics, in documenting information for maintaining the state forest register and cadastral accounting of forest plots; - participation in the development and implementation of measures for the creation, operation, reconstruction of forest park plantations that increase their resistance to adverse factors, aesthetic expressiveness, the level of comfort of human stay in the forest environment, its overall aesthetic enrichment; - monitoring compliance with technological discipline and proper operation of technological equipment, infrastructure structures that support the optimal mode of growth and development of vegetation at the objects of the forest complex; - ensuring the sustainable use of hunting animals in accordance with the current regulations, limits (quotas) and rules; conducting work on the organization of animal husbandry; organization of commodity production and procurement of fur raw materials, procurement and processing of wild products, wild animal meat ; accounting and maintaining state cadastres of the animal world and hunting grounds; be able to apply in practice scientifically based methods of hunting management; be able to properly organize the protection and reproduction of hunting and commercial, as well as rare and endangered animals; be able to use laboratory and field hunting equipment, hunting tools.

	Organizational and managerial activities: - participation in forest management (in the field of their use, protection, protection and reproduction); - participation in the management of recreational forest management facilities (in the field of their creation, functional use, reconstruction, improvement of sanitary and hygienic and aesthetic qualities of plantings); - participation in the implementation of state forest control and supervision of compliance by all forest users with the rules: timber harvesting and other forest resources, fire safety in forests, sanitary safety in forests, reforestation and forest care rules, calculation of the amount of damage caused to forests due to violations of forest legislation; - organization of the work of a team of performers, making managerial decisions in the conditions of different opinions; - finding a compromise between different requirements (cost, quality, safety and deadlines) both for long-term and short-term planning and determining the optimal solution; - assessment of production and non-production costs during work on forest and forest park facilities; - implementation of technical control, supervision; - organization of the work of a team of performers; planning and organization of production work; selection of optimal solutions when planning work in non-standard situations; control over the use of hunting grounds; participation in the assessment of the economic efficiency of economic activity; ensuring safety at the production site; be able to use educational and laboratory equipment and computer technologies for setting up a scientific experiment; be able to organize the commercial production of fur and fur raw materials; be able to organize and carry out measures to improve the breeding qualities of animals and increase the yield of offspring. Project activities: - participation in the development of forest development projects, in the preparation of forestry regulations taking into account environmental, economic and other parameters; - participation in the design of individual objects of forest and forest park management (forest and ornamental nurseries, forest plantations, artificial forest plantations, forest hydro-reclamation systems, forest parks, specially protected natural territories); - carrying out technical calculations on projects, technical-economic and functional-cost analysis of the effectiveness of the planned measures, finding compromise solutions in conditions of multi-criteria, uncertainty, planning the implementation of the project; - participation in the development (on the basis of existing standards) of methodological and regulatory documents, technical documentation, as well as proposals and measures for the implementation of developed projects for forest and forest park facilities using information technologies;

	- the study of scientific and technical information, domestic and foreign experience on the subject of research; the use of the basic laws of natural science disciplines in professional activity; the use of methods of mathematical analysis and modeling, theoretical and experimental research; the use of basic methods of obtaining, storing, processing information in accordance with general professional competencies; to find practical application of the latest achievements of science and introduce them into practice. Environmental protection: organization of work on the protection, maintenance of the number and rational use of resources of hunting animals; conducting explanatory work among hunters and the local population on the issues of careful attitude to natural resources, their correct and rational use, compliance with existing rules and regulations in the hunting economy. Cultural and educational: to organize and conduct explanatory work among hunters and the local population on the issues of caring for natural resources, the correct and rational use of them; the desire for self-development, improving their skills and skills, acquiring new knowledge in the field of hunting; to be ready to perceive the culture and customs of other countries and peoples; to be tolerant of national, racial, confessional differences, the ability to intercultural communication; the ability to extract and analyze information from various sources; knowledge of a foreign language for communication in the educational, scientific, professional and socio-cultural sphere.
Graduate Model	A person who has professional competencies in planning and implementing the protection, protection and reproduction of forests, their use, monitoring the condition, inventory and cadastral accounting in natural, man-made and urbanized landscapes, forest management to ensure multi-purpose, rational, continuous and sustainable use of forests to meet the needs of society in forests and forest resources, state forest control and supervision. A specialist with personal qualities: an active, dynamic, receptive, responsible, reliable, competitive, potential employee.

3.Modules and content of the educational program

Module 1. Fundamentals of social and humanitarian knowledge

Foreign language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26161 (3013064)
Course	1
Term	1
Credits count	5
Practical and seminar classes	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

The content of the discipline «Foreign language» assumes the formation of students` intercultural and communicative competencies at B1 level. The discipline is aimed at mastering the knowledge, skills and abilities that allow using a foreign language in interpersonal communication and professional activity. All types of speech activity are taught, such as reading, writing, listening and production of texts of level complexity with a certain degree of grammatical and lexical correctness.

Purpose of studying of the discipline

Formation of intercultural and communicative competence of students in the process of foreign language education at a sufficient level (A2, pan-European competence) and the level of basic sufficiency (B1, pan-European competence). Depending on the level of training, the student at the time of completion of the course reaches the B1 level of the pan-European competence if the language level of the student at the start is higher than the A2 level of the pan-European competence.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Foreign language

History of Kazakhstan

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26190 (3013152)
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	Qualification examination

Short description of discipline

The main stages of the history of Kazakhstan are studied with: nomadic statehood, Turkic civilization, the era of colonialism, the Soviet period, independence. The driving forces, trends, patterns of historical development are analyzed; problems: ethnogenesis of the Kazakh people, the formation of statehood, national liberation movements, demographic development. The skills of analyzing historical events and facts, working with historical literature are being formed.

Purpose of studying of the discipline

The purpose of the discipline is to provide objective knowledge about the main stages of the development of the history of Kazakhstan from ancient times to the present.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Philosophy

Kazakh language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26172 (3013066)
Course	1
Term	1
Credits count	5
Practical and seminar classes	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

The discipline is aimed at deepening the acquired knowledge of students in the framework of the school curriculum, as well as the use of language and speech means based on a full understanding of vocabulary and grammatical system of knowledge; the formation of socio-humanitarian worldview of students within the framework of the national idea of spiritual revival; free expression of mobile thought as a means of speech communication and in the process of communication; awareness of the national culture of the people, the ability to distinguish features of national cognition.

Purpose of studying of the discipline

Forms through phraseological units the recognition of national culture, its meaning as a linguistic unit related to spiritual culture; skills of identifying facts of national and cultural significance in the formation of Kazakh phraseology.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Kazakh language

Bases of economics, law and ecological knowledge

Discipline cycle	General educational disciplines
Discipline component	University component
SubjectID	26175 (3013163)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The integrated discipline includes the main issues and principles in the field of fundamentals of law and anti- corruption culture, economics, entrepreneurship and leadership, ecology and life safety. Features of the use of regulatory legal acts, the ability to use the business, ethical, social, economic, entrepreneurial and environmental standards of society. Specifics of environmental-legal, economic, entrepreneurial relations, leadership qualities and principles of combating corruption.

Purpose of studying of the discipline

It consists in studying the basic patterns of the functioning of living organisms, the biosphere as a whole and the mechanisms of their sustainable development under the conditions of anthropogenic impact and emergency situations; in understanding the concept of corruption, the legitimacy of the fight against it, the content of the state penal policy; in the formation of students` basic fundamental stable knowledge on the basics of economic theory, in instilling the skills and abilities of economic thinking; in introducing students to the theory and practice of entrepreneurship, to the basics of creating their own business; in the formation of theoretical knowledge and practical skills for the development and improvement of leadership qualities.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Basic and profile disciplines of the EP

Russian language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26173 (3013068)

Course	1
Term	1
Credits count	5
Practical and seminar classes	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
The discipline is intended for the development of the language personality of the student, who is able to carry out cognitive and communicative activities in Russian in the areas of interpersonal, social, professional, intercultural communication; for teaching students practical mastery of the Russian language in various areas of communication and various situations, mastering the specifics of functional semantic types and genres of functional styles of speech, enriching the vocabulary with special vocabulary, forming and improving the skills of monologue and dialogic speech.

Purpose of studying of the discipline
The purpose of the program is to form the socio-humanitarian worldview of students in the context of the national idea of spiritual modernization, involving the development on the basis of national consciousness and cultural code of the qualities of internationalism, tolerant attitude to world cultures and languages as translators of world-class knowledge, advanced modern technologies, the use and transfer of which can ensure the modernization of the country and personal career growth of future specialists.

Learning Outcomes
ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
School course

Postrequisites
Russian language

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26174 (3013073)
Course	1
Term	1
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline
It provides for the joint cooperation of a teacher and a student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline, preparing students for participation in mass sports competitions; forms motivational and value attitudes towards physical culture and the need for systematic physical exercises and sports; gives basic knowledge about the use of physical culture and sports in the development of vital physical qualities.

Purpose of studying of the discipline
The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

Learning Outcomes
ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
School course

Postrequisites
Physical Culture

Kazakh language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26177 (3013067)
Course	1
Term	2
Credits count	5
Practical and seminar classes	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
The discipline is aimed at expanding language literacy, free communication with the environment and mental and ideological skills of the student, understanding the role of language in the process of mastering world-class knowledge through the formation of a future specialist`s worldview based on national consciousness and cultural code, improving the knowledge of the state language by future specialists, increasing the scope of use of the Kazakh language by specialists.

Purpose of studying of the discipline
Ensuring high-quality mastery of the Kazakh language as a means of social, intercultural, professional communication through the formation of communicative competencies at all levels of language use.

Learning Outcomes
ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
Kazakh language

Postrequisites
Basic and profile disciplines of the EP

Foreign language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26176 (3013065)
Course	1
Term	2
Credits count	5
Practical and seminar classes	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
The content of the discipline «Foreign language» assumes the formation of students` linguo-cultural, socio-cultural, cognitive and communicative competencies at B2 level.The discipline is aimed at deep and extended study of productive and receptive language material. As a result, the student must be able to understand all types of speech activity in accordance with the requirements of B2 level and master the subject content of the discipline and speech.

Purpose of studying of the discipline
Formation of linguo-culturological, socio-cultural, cognitive and communicative competence of students in the process of foreign language education at the B2 level, pan-European competence. Depending on the level of training, the student at the time of completing the course reaches the level B2 of the common European competence, if the language level of the student at the start is higher than the level B1 of the common European competence.

Learning Outcomes
ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
Foreign language

Postrequisites
Basic and profile disciplines of the EP

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26180 (3013159)
Course	1
Term	2
Credits count	8
Lections	30hours
Practical and seminar classes	45hours
Independent work of a student under the guidance of a teacher	55hours
Independent work of the student	110hours
Total	240hours
Knowledge control form	Examination

Short description of discipline
The module of socio-political knowledge involves the study of four scientific disciplines – sociology, political science, cultural studies, psychology, each of which has its own subject, terminology and research methods. Interactions between these scientific disciplines are carried out on the basis of the principles of information complementarity; integrativity; methodological integrity of research approaches of these disciplines; generality of the methodology of learning, result-oriented; unified system representation of the typology of learning

outcomes as formed abilities.

Purpose of studying of the discipline

Formation of social and humanitarian worldview of students in the context of solving the problems of modernization of public consciousness, defined by the state program "Looking into the Future: Modernization of Public Consciousness".

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

School course

Postrequisites

Philosophy

Russian language

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26178 (3013069)
Course	1
Term	2
Credits count	5
Practical and seminar classes	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

The discipline is intended for the development of the language personality of the student, who is able to carry out cognitive and communicative activities in Russian in the areas of interpersonal, social, professional, intercultural communication; to teach the scientific style of speech as a language of specialty, the creation of secondary texts, the formation of skills for the production of oral and written speech in accordance with the communicative goal and the professional sphere of communication, instilling the skills of speech etiquette, business rhetoric.

Purpose of studying of the discipline

The purpose of the program is to form the socio-humanitarian worldview of students in the context of the national idea of spiritual modernization, involving the development on the basis of national consciousness and cultural code of the qualities of internationalism, tolerant attitude to world cultures and languages as translators of world-class knowledge, advanced modern technologies, the use and transfer of which can ensure the modernization of the country and personal career growth of future specialists.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

Russian language

Postrequisites

Basic and profile disciplines of the EP

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26179 (3013074)
Course	1
Term	2
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline

It provides for the joint cooperation of a teacher and a student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline, the ability to exercise control and self-control in the process of classes, gaining knowledge on health promotion, hardening and increasing the body`s resistance to the effects of adverse factors of labor activity, mastering methods of selection of physical exercises and sports.

Purpose of studying of the discipline

The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

Physical Culture

Postrequisites
Physical Culture

Information and communication technology

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26187 (3013158)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline is aimed at mastering the conceptual foundations of the architecture of computer systems, operating systems and networks by students; formation of the ability to critically understand the role and signifcance of modern information and communication technologies in the era of digital globalization, new "digital" thinking, knowledge about the concepts of developing network and web applications, skills in using modern information and communication technologies in various felds of professional activity, scientifc and practical work, for self-educational and other purposes.

Purpose of studying of the discipline
Formation of the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, methods of collecting and transmitting information through digital technologies

Learning Outcomes
ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
School course

Postrequisites
Basic and profile disciplines of the EP

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26186 (3013075)
Course	2
Term	1
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline
Provides for the joint cooperation of the teacher and the student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline; increasing the level of physical fitness and developing physical qualities; mastering the technique of sports; education of discipline, collectivism, comradely mutual assistance; education of mental stability, development and improvement of basic motor qualities - endurance, strength, speed, dexterity, flexibility.

Purpose of studying of the discipline
The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

Learning Outcomes
ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites
Physical Culture

Postrequisites
Physical Culture

World of Abai

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	26188 (3013146)
Course	2

Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline

The discipline is aimed at studying historical facts, the philosophical and artistic foundations of the works of Abay Kunanbaev, Shakarim Kudaiberdiev, which form worldview and aesthetic values, the student`s ability to express his opinion, practical skills and perception of such human qualities as morality, honesty, artistic character. The genius of the writers of Kazakh literature and the role of M. Auezov in the study and popularization of Abai`s heritage, the significance of his works for history, literature and science are determined.

Purpose of studying of the discipline

Formation of the meaning of philosophical and ideological being, understanding of the problems raised in the works of Abai Kunanbayuly, Shakarim Kudaiberdiuly, Mukhtar Auezov and application of the acquired knowledge in the practice of everyday life.

Learning Outcomes

ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Postrequisites

Basic and profile disciplines of the EP

Physical Culture

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26189 (3013145)
Course	2
Term	2
Credits count	2
Practical and seminar classes	60hours
Total	60hours
Knowledge control form	Differentiated attestation

Short description of discipline

Provides for the joint cooperation of the teacher and the student in the process of physical education throughout the training in the context of the requirements for the level of mastering the discipline; acquisition of versatile abilities and skills for the development of physical abilities, socio-cultural experience and socio-cultural values of physical culture and sports; development of communication skills, thinking, self-development, the formation of experience in the implementation of sports and recreational and training programs.

Purpose of studying of the discipline

The purpose of the program is the formation of social and personal competencies of students and the ability to purposefully use the means and methods of physical culture, ensuring the preservation, strengthening of health to prepare for professional activities; to the persistent transfer of physical exertion, neuropsychic stress and adverse factors in future work.

Learning Outcomes

ON 1 Demonstrate socio-cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

Physical Culture

Postrequisites

Basic and profile disciplines of the EP

Philosophy

Discipline cycle	General educational disciplines
Discipline component	Compulsory component
SubjectID	26191 (3013072)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline is aimed at developing students` openness of consciousness, understanding their own national code and self-consciousness, spiritual modernization, competitiveness, realism and pragmatism, independent critical thinking, the cult of knowledge and education, a holistic view of philosophy as a special form of understanding the world, mastering key worldview concepts, as well as the development and strengthening of the values of tolerance, intercultural dialogue and a culture of peace.

Purpose of studying of the discipline

Formation in students of a holistic view of philosophy as a special form of knowledge of the world, its main sections, problems and methods of studying them in the context of future professional activities.

Learning Outcomes

ON 1 Demonstrate socio- cultural, economic, legal, environmental knowledge, communication skills, apply information technologies taking into account current trends in the development of society.

Prerequisites

History of Kazakhstan The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Postrequisites

Basic and profile disciplines of the EP

Module 2. Informatization of forestry

Geographic Information Systems

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28508 (3013092)
Course	1
Term	2
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the phenomena, processes of natural components in geographical complexes of different ranks; types, structure and functions of geoinformation systems; software tools; ways to create a digital basis; bindings and vectorization of the raster layer; visualization and publication of materials; geological maps of various complexity; instrumental and aerospace surveys of the area

Purpose of studying of the discipline

The purpose of studying the discipline is the introduction of GIS technologies in forestry, which means the transfer of cartographic databases to forestry enterprises, which makes it possible to independently obtain and print working versions of forest maps for an object of interest.

Learning Outcomes

ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.

Prerequisites

Bases of economics, law and ecological knowledge

Postrequisites

Digitalization in forestry

Engineering geodesy

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28507 (3013091)
Course	1
Term	2
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline

The discipline studies topographic maps and plans; measuring instruments, geodetic measurements and terrain surveys; geometric modeling; computer graphics software; design and technological documentation; methods and tools for the development and design of technical documentation, theodolite surveys, evaluation of the accuracy of geodetic measurements, leveling, center work, geometric parameters of structures during construction, measurement of lengths and squares.

Purpose of studying of the discipline
The purpose of studying the discipline is to study the issues and tasks of creating topographic and geodetic materials for the design of engineering structures, including forestry enterprises, as well as the development of measurement methods for carrying projects out to the terrain, construction and operation of structures.
Learning Outcomes
ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.
Prerequisites
Bases of economics, law and ecological knowledge
Postrequisites
Digitalization in forestry

Engineering and computer graphics

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28512 (3013093)
Course	1
Term	2
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline
The discipline studies digital graphics, algorithms of computational geometry and geometric modeling, construction of curves and surfaces; raster graphics; drawing graphic lines, circles, ellipses; execution and reading of drawings; classification of axonometric projections; types of buildings and stages of their design; working drawings; drawings of structures; design of a real object.
Purpose of studying of the discipline
The purpose of studying the discipline is - the execution and reading of drawings for various purposes and the solution of engineering and geometric problems used in forestry
Learning Outcomes
ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.
Prerequisites
Bases of economics, law and ecological knowledge
Postrequisites
Digitalization in forestry

Aerospace methods in forestry

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28536 (3013096)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies methods of taxation, measurement decoding; creation of forest maps; field, aerial, desk decoding; technogenic impact on forest ecosystems; pyrologic monitoring; creation of forest maps, aerial, space photography; aircraft of their types, types; principles of landscape planning; natural, anthropogenic formations; decoding of the composition of the stand; spectral reflectivity of wood rocks; forest phototones.
Purpose of studying of the discipline
The purpose of the discipline is the acquisition by students of knowledge and skills of studying and controlling the economic use of forest resources based on aerospace methods.
Learning Outcomes

ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.

Prerequisites

Engineering geodesy

Postrequisites

Forest taxation

Forest pyrology

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28535 (3013095)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the conditions of occurrence, spread, behavior of forest fires; classification of forest fires, signs; specialized forest fire departments of forestry enterprises; methods, methods of extinguishing forest fires; post-pyrogenic restoration of forests; conditions for stopping burning, forecasting the development of forest fires, the organization of preventive fire-fighting measures; measures to protect against possible consequences.

Purpose of studying of the discipline

The purpose of studying the discipline is to acquire skills in protecting forests from fires, their prevention, timely detection and prompt elimination, as the main direction for ensuring the environmental safety of the state.

Learning Outcomes

ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.

Prerequisites

Engineering geodesy

Postrequisites

Forest taxation

Ornithology

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	29575 (3013137)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

Ornithology is a science that studies birds. Systematics, structure, functions, evolution, migration, reproduction, ecology, behavior of birds. Species diversity, the number of individuals in the studied territories. Ethology, physiology, ecological features, groups of birds, bird phenology, problems of protection of rare species (artificial nesting sites for birds, ornithological reserves).

Purpose of studying of the discipline

The purpose of this course is to study the biology of birds, to develop the biological foundations of the rational use of the resources of commercial birds, their protection and reproduction.

Learning Outcomes

ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.

Prerequisites
Animal biology
Postrequisites
Biotechnological and breeding of game birds

Digitalization in forestry

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28534 (3013094)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies an automated forest resource management system, the development of digital infrastructure; an automated workplace; methods of obtaining and processing digital spatial information; independent control of forest management processes; laser scanning of wood; remote sensing; unmanned aerial vehicles; digital environment; infocommunication and web technologies; multispectral satellite images for assessing forest plantations.
Purpose of studying of the discipline
- formation of organizational skills, skills, evaluation of forestry measures for the introduction of new equipment and technology
Learning Outcomes
ON 2 Perform measurements with geodetic instruments and perform their mathematical processing; master the basic concepts of GIS, modern methods of creating and organizing spatial data; perform geometric modeling, designing curves and surfaces; to develop digital models, forecasting processes and phenomena in forestry using information technologies; possess the conditions of occurrence of forest fires, the rules of work of forest fire services; carry out the decryption of information using aerospace methods.
Prerequisites
Engineering geodesy
Postrequisites
Forest taxation

Module 3. Biological diversity

Forest botany

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	31082 (3013081)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies the diversity of the plant world, the external and internal structure of woody and herbaceous plants, methods of reproduction of taxonomy, ecology, geobotany, plant phytogeography, age and seasonal changes, taxonomic categories of modern plant taxonomy, a rational approach to the use of the plant world, plant life forms, phenological observations of plant growth and development.
Purpose of studying of the discipline
Өсімдіктердің анатомиясы мен морфологиясын, көптүрлілігін, олардың шығу тегін, таралуын, тіршілік ортасымен байланысын және адам үшін маңызын, эволюциясын жеткілікті деңгейде меңгеруі қажет.
Learning Outcomes
ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.
Prerequisites
School course

Postrequisites
Basic and profile disciplines of the EP

Systematics of higher plants

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	31083 (3013082)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies the systematic, morphology, physiology, geography of plants, the patterns of ontogenesis, ecology of representatives of the main species of higher plants, classification, archegonia plants, mosses, planiform, fern-like division, ferns sub-division, angiosperm class, or flowering plants, subclass magnoliids, rosids, asterids, monocotyledons, phylogeny of taxonomic groups, patterns of taxonomy of higher, features of ontogenesis of gymnosperms.

Purpose of studying of the discipline
The objectives of the discipline are to study the basics of the systematics of higher plants, to create a fundamental level of knowledge, skills and abilities of students about the main stages and trends of development, distribution of higher plants.

Learning Outcomes
ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.

Prerequisites
School course

Postrequisites
Basic and profile disciplines of the EP

Systematics of lower plants

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28502 (3013142)
Course	1
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies taxonomic units, virus, bacteria, general characteristics (construction, nutrition, reproduction, meaning); the main ecological groups of fungi, classification principles, taxonomic (systematic) units, virus, bacteria, general characteristics (construction, nutrition, reproduction, meaning), various methods of collection, storage, the study of water, distribution, economic significance, real fungi, lichenized fungi, the importance of biodiversity for the sustainability of the biosphere.

Purpose of studying of the discipline
The objectives of the discipline are to study the basics of the systematics of lower plants, to create a fundamental level of knowledge, skills and abilities of students about the main stages and trends of development, distribution of lower plants.

Learning Outcomes
ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.

Prerequisites
School course
Postrequisites
Basic and profile disciplines of the EP

Animal biology

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	28526 (3013087)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the species composition of birds, animals, practical measures for the protection, reproduction of birds, mammals, their significance, systematics, anatomy, morphology, physiology, nature, methods of nutrition, reproduction, dynamics abundance, an overview of regional amphibians, reptiles, the rational use of game birds, based on modern methods, the number of predatory animals, rodents, waterfowl, upland, field game.
Purpose of studying of the discipline
The main purpose of studying the discipline is to study the structure, vital activity of animals, the patterns of their settlement and the relationship with the environment.
Learning Outcomes
ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.
Prerequisites
School course
Postrequisites
Ornithology

Biotechnological and breeding of game birds

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	26465 (3013097)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the use of methods and tools for extracting prey; the use of modern methods of wild breeding; breeding work in wild breeding; methods of breeding, crossing animals and game; zootechnical accounting, tagging used in animal husbandry and wild breeding; improvement of habitat conditions for game, and methods of keeping animals; organization of wintering places.
Purpose of studying of the discipline
The purpose of the discipline is to provide knowledge about the basics of biotechnics, the essence of biotechnical measures in hunting farms and wild breeding technologies
Learning Outcomes
ON 3 To be guided in the systematics, anatomy, morphology, physiology, laws of the ontogenesis of animals and birds; rational use of hunting and commercial birds, based on modern methods; to regulate the number of forest animals, to carry out biotechnical measures; to organize and carry out accounting works of predatory animals, rodents, waterfowl, records of hog and field game; to carry out accounting of feeds of plant and animal origin, mushroom, twig; to carry out bonitization and assessment of hunting assigned, forest, steppe, swamp, mountain lands, to make a report on the accounting of hunting grounds.
Prerequisites
Ornithology
Postrequisites

Hunting and commercial bioresources

Module 4. Increasing forest productivity

Introduction to the specialty

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	28503 (3013147)
Course	1
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline

The discipline studies the history of forestry development, professional, labor education, the basic laws of natural science disciplines in professional activities, regulatory documents in the field of forestry, meeting the needs of the state in wood, preserving the environment-forming, sanitary and hygienic, recreational functions of the forest, modern problems forest industry, prospective development, experience of foreign countries.

Purpose of studying of the discipline

The purpose of studying the discipline is to master the system and methods of conducting forestry activities.

Learning Outcomes

ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites

School course

Postrequisites

Educational practice

Educational practice

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	28504 (3013084)
Course	1
Term	2
Credits count	2
Study practics	60hours
Total	60hours
Knowledge control form	Total mark on practice

Short description of discipline

Botanical description of forest plants. Functions of forests. The history of the formation of forestry. Practical measures for the protection, rational use reproduction of birds and forest animals. Systematics of higher and lower plants. Phylontogenesis of forest animals. Observations, experiments, experiments. The number of predatory, forest birds. External, internal structure of insects. Pests, useful forest insects.

Purpose of studying of the discipline

The purpose of the training practice is to obtain the necessary practical skills to master the ability in the field to give a botanical characteristic of the surveyed area, to determine the stage of age development of forest insects and animals.

Learning Outcomes

ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites

Introduction to the specialty

Postrequisites

Dendrology

Dendrology

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	28531 (3013090)
Course	2
Term	1

Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies the anatomical structure of woody plants, morphological and anatomical features of conifers, geographical distribution and economic use, ecological features of woody and shrubby plants, characteristics of the main types of forest-forming forest and forest-steppe zones, form varieties, compositions of trees and shrubs, taking into account their decorative and biological properties.

Purpose of studying of the discipline

The purpose of mastering the discipline "Dendrology" is free orientation in the native and introduced dendroflora, the ability to use information about the morphological and ecological features of tree species in professional activities.

Learning Outcomes

ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites

Forest botany

Postrequisites

Forestry

Forest Biometrics

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	29562 (3013144)
Course	2
Term	2
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline

The discipline studies methods of conducting quantitative experiments in forestry, forest taxation; trends in the patterns of the studied objects, the results of experiments, observations, experiments, variational statistics, correlation and variance analysis; modeling patterns of formation of forest objects; practical application of statistical models; laws of distribution of random variables; parameters and criteria for the reliability of regression models; models of the course of growth and productivity of stands.

Purpose of studying of the discipline

The purpose of this course is to ensure the disclosure of the content of the basic principles, laws and concepts of each section of the course and the development of genetic thinking skills for conscious perception and assimilation of genetic methods.

Learning Outcomes

ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites

Bases of economics, law and ecological knowledge

Postrequisites

Forest taxation

Forestry

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	29574 (3013138)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the components of the forest, the signs of the stand, their origin, the organization, conduct of work on forest reproduction, reforestation, increasing forest productivity, methods of logging, protection, protection of forests, forest care, the structure of the forest fund, forestry measures, conservation of ecological functions, technology of logging, forestry requirements for machines.

Purpose of studying of the discipline
The purpose of mastering the discipline "Forestry" is to study the theoretical foundations of forestry at the present stage of its development, based on the provisions and requirements of the current forest legislation.

Learning Outcomes
ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites
Dendrology

Postrequisites
Forest crops

Seed business

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	29564 (3013139)
Course	2
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies seeds of woody and shrubby plants, biological characteristics of species, interstate standards, forecasting methods, accounting for seed yields, harvesting methods, storage rules, preparation for sowing, quality control of forest seeds, zoning of seeds, creation of a permanent forest seed base, forest seed plantations, processing of deciduous fruits, coniferous cones.

Purpose of studying of the discipline
The purpose of this course is to get acquainted with the main issues of forest seed business.

Learning Outcomes
ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites
Dendrology

Postrequisites
Sylvulas

Methodology of scientific research in forestry

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	30994 (3013164)
Course	4
Term	1
Credits count	4
Lections	15hours
Practical and seminar classes	30hours
Independent work of a student under the guidance of a teacher	25hours
Independent work of the student	50hours
Total	120hours
Knowledge control form	Examination

Short description of discipline
The discipline studies the role of science in forestry, scientific research, its essence, stages of implementation, methods of scientific cognition, their use at the empirical, theoretical level of research, methods of field experiments, planning, forecasting, research, topic selection, study of scientific literature, keeping work records, statistical indicators of aggregates, scientific style of speech, processing of

experimental data.

Purpose of studying of the discipline

The purpose of studying the discipline is to acquire skills in the effective use of scientific research methods, conducting scientific research in forestry.

Learning Outcomes

ON 4 To use the process of forest formation and design various types of logging and reforestation; to predict the yield and determine the sowing qualities of forest seeds; to conduct a morphological analysis of the structure of plants as a whole and their individual organs; to determine the biometric characteristics of forest stands and individual trees.

Prerequisites

Bases of economics, law and ecological knowledge

Postrequisites

Final examination

Module 5. Forestry logging technology and machines

Mechanization of forest operations

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28527 (3013088)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the operation of machinery, finding and troubleshooting; machines for reforestation and afforestation, planting, care, logging, protection; equipment for protecting forests from pests, diseases, fires; machines and equipment for harvesting cones, seed treatment; the device of garden, plantation, shrub-marsh plows; design parameters of pointed paws; portable motor tools, electrical equipment of cars and tractors.

Purpose of studying of the discipline

The purpose of the discipline "Mechanization of forestry works" is to master students` theoretical knowledge of the main sections of the discipline and their practical application in solving applied problems of complex mechanization of forestry production, to create prerequisites for the successful development of special disciplines and to ensure comprehensive technical training of future specialists.

Learning Outcomes

ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.

Prerequisites

Engineering geodesy

Postrequisites

Forest management

The system of machines in forestry

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28532 (3013149)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the methods of operation of technical means and methods of rational use of machine systems in forestry, the organization of work on the operation of machines, mechanisms and specialized equipment; technological systems, labor organization and technical and economic calculations of the effectiveness of machine systems in forestry; technological processes with a completed production cycle.

Purpose of studying of the discipline
to prepare students for practical activities on the implementation of mechanized technological processes with a complete production cycle using zonal systems of machines in forestry and rational acquisition of the machine-tractor fleet of the enterprise, to master the organization of labor and technical and economic calculations of the effectiveness of machine systems.
Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Engineering geodesy
Postrequisites
Forest management

Operation of the machine park

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28529 (3013089)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the rational use of the machine-tractor fleet in agriculture and forestry; the assembly of aggregates; the choice of the method of organizing field work; ways to increase the coefficient of useful effect of aggregates, the maximum annual production of power plants; technical service in the machine-tractor fleet; the design of the composition of the machine-tractor fleet of an agricultural enterprise and the calculation of the projected machines; the provision of maintenance and diagnostics of machines.
Purpose of studying of the discipline
The purpose of the discipline "Operation of the machine and tractor fleet" is to acquire knowledge, skills and abilities for the rational and highly efficient use of machine and tractor units to maximize crop production at the lowest cost and taking into account environmental requirements.
Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Engineering geodesy
Postrequisites
Forest management

Hydrothermal wood processing and protection

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31076 (3013120)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the thermal properties of wood; the technological process of hydrothermal treatment of wood; environmental parameters, indicators of wood properties; the duration of moisture, heat treatment, conditioning of wood in the chamber; the values of the stack filling coefficient; design of drying shops; wood protection products; calculation of the processes of heating, thawing wood.
Purpose of studying of the discipline
To give the student the necessary theoretical knowledge and practical skills in the field of hydrothermal wood processing: the ability to use technical means to measure the main parameters of the technological process; the ability to analyze the technological process as an

object of management.

Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Forest Management
Postrequisites
Production practice 3

Forest commodity science

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31080 (3013117)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the classification, standardization of the quality of materials; methods of accounting, control, evaluation of goods in accordance with GOST standards; causes of defects, their impact on the quality of wood; determination of wood species, advantages, disadvantages; thermal decomposition of wood, bark; hydrolysis and yeast production; cutting wood spirally; processing for cellulose, wood pulp.
Purpose of studying of the discipline
Professional training of forestry specialists in the field of studying the structure, properties and defects of wood that form the consumer properties of forest materials and products obtained from the trunk, roots and crown of a tree, the basics of standardization of forest products, commodity science fundamentals of product quality management.
Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Forest Management
Postrequisites
Production practice 3

Technology and equipment of sawmill production

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31059 (3013136)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the dimensional and qualitative characteristics of raw materials, lumber and blanks; the creation of imitation, mathematical models of the forms of whips and logs; the organization of woodworking industries; methods of logging, timber transport and woodworking industries; design of technological processes; mechanisms of woodworking industries; modern composition of the timber industry.
Purpose of studying of the discipline
The purpose of studying the discipline "Technology and equipment of sawmilling production" is to form students` systematized knowledge, skills and abilities in the field of theory and practice of sawmilling production, development and rational application of technological processes, research of the technological process of obtaining lumber and operational characteristics of equipment.

Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Forest management
Postrequisites
Pre-graduate practice

Logging technology and wood science

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31057 (3013151)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline design and implementation of allotment of forest plots; taxation; heat- producing and vapor- forming ability of wood; texture, fibrousness, pattern and shine of wood; specific weight of wood substance and bulk weight of wood; porosity of wood; time of cutting and debarking; abnormal coloring of wood; parasitic defects; planning and control of logging operations.
Purpose of studying of the discipline
The purpose of studying the discipline is to gain knowledge and skills in the field of types and properties of wood products and its processing processes.

Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.
Prerequisites
Forest crops
Postrequisites
Final examination

Wood processing technology and commodity science

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31078 (3013119)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies equipment, tools used in wood processing; artistic finishing, quality control; manufacturing of parts, assembly of mechanisms; decorative processing of objects made of wood; means of information, automated systems; analysis of the causes of defects; defects in production; process control, production of fibrous semi-finished products; production of paper, cardboard, fiberboard; forest chemical products.
Purpose of studying of the discipline
The purpose of this course is to provide students with professional training of forestry specialists in the field of wood processing technology, which includes the technology of sawmilling, hydrothermal wood processing, technology of integrated use of wood.
Learning Outcomes
ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and

methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Module 6. Protection of forests from harmful organisms, ensuring sanitary safety in forests

State forest pathology monitoring

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28520 (3013085)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies methods of reconnaissance, detailed forest pathology examination; forest quarantine, examination of soil occupancy by root pests; methods of supervision and examination in pest foci; in foci of coniferous leaf-gnawing insects; pheromone supervision; dynamics of forest condition changes; analysis of remote observation data; determination of the average score of crop damage; forecast, timely detection of deviations.

Purpose of studying of the discipline

The purpose of studying the discipline is to study the features of forest pathology monitoring

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

Animal biology

Postrequisites

Forest protection

Forest Entomology

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28521 (3013086)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies the phases of insect development; damage caused to wood-shrub, ornamental vegetation; fruit, seed pests; root pests of nurseries; coniferous, leaf-eating pests; stem, technical pests; control measures, methods, technical means of forest protection; conditions for the spread, development of foci of forest pests; entomophages, harmful forest insects; species damage to wood species; pests of harvested wood

Purpose of studying of the discipline

The purpose of mastering the discipline is to study the basics of morphology, anatomy, ecology, biology of pests of the main forest-forming species; mastering the skills of diagnostics and conducting methods of combating the main pests of forest crops in the region.

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the

operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

Animal biology

Postrequisites

Forest protection

General Entomology

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28519 (3013083)
Course	2
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies the general structure of insects, morphology, biology, ecology, systematics, external and internal structure, stages of development, types of nutrition, determinants, segmental composition of the head, specialization of the thoracic department, limb structure, leg types, wing structures in various insect orders, abdominal department, the basics of modern insect classification.

Purpose of studying of the discipline

The purpose of studying the discipline is to prepare students – in the field of determining the species of pests and their characteristics.

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

Animal biology

Postrequisites

Forest protection

Production practice 1

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	28533 (3013080)
Course	2
Term	2
Credits count	5
Working practice	150hours
Total	150hours
Knowledge control form	Total mark on practice

Short description of discipline

Application of forestry machines: for tillage, planting and others. Methods of collecting seeds of tree species. Assessment of their quality. Remote survey of forest resources. Logging, forest care. Fighting fires. Accounting of ungulates, predatory animals, accounting of rodents and birds. Identify harmful and beneficial insects. Make geodetic measurements and work. Choose the optimal electronic document management system.

Purpose of studying of the discipline

The purpose of practical training 1 is to acquire practical skills in accounting for animals, birds, insects; processing topographic maps; designing logging, forecasting yields

Learning Outcomes

ON 5 Use machines, machine-tractor fleet and technological processes in forestry and agriculture; use ways to increase the efficiency of aggregates, the development of power plants; use the theory of cutting logs for sawn products; use the forms of whips, logs and methods for determining their volumes; apply heat treatment processes and their technologies; apply classifications and standardization of forest products in accordance with GOST standards; to determine resource-saving technologies in logging production.

Prerequisites

Educational practice

Postrequisites

Production practice 2

Sylvulas

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	30717 (3013100)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies the design of forest nurseries, the technology of growing different types of planting material of tree and shrub species, soil preparation, production of seeds and seed care, cultivation of seedlings, seedlings and vegetative planting material, the use of fertilizers and herbicides.

Purpose of studying of the discipline

- formation of special professional knowledge and competencies in the field of planting material production, reforestation and protective afforestation.

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

Seed business

Postrequisites

Forest crops

Diseases of animals and birds

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30715 (3013099)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies infectious, invasive diseases; planning preventive measures for diseases of animals and birds; using methods of clinical research of animals and birds; making an accurate diagnosis; prescribing effective, timely treatment; analysis of feeding conditions, maintenance, occurrence, manifestation of the disease; physiological data of diseases of birds of prey, bees, fur-bearing animals, exotic animals, commercial fish.

Purpose of studying of the discipline

The main purpose of the discipline is to study pathogenic microbes-pathogens of infectious diseases of animals and birds (zoonoses), as well as the concepts of non-infectious and contagious diseases, the role of microorganisms, viruses and parasites in the infectious pathology of animals, the relationship of microbiology with epizootology and epidemiology

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

General Entomology

Postrequisites

Protection of animals and birds

Forest phytopathology

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30723 (3013140)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies the nature of pathological changes in various types of diseases; pathogenic organisms; methods of diagnosis of major diseases of infectious and non-infectious nature; viral diseases caused by ultramicroscopic living protein substances; etiology of mucus, gum, tarring; sporulation of basidiomycetes; imperfect fungi; types of phytopathogenic bacteria; symptoms of chlorosis, etiolization; treatment of dying shoots, bark burn.

Purpose of studying of the discipline

The purpose of studying forest phytopathology is the professional training of forestry engineers in the field of protecting forest plantations from diseases and harvested timber from bio-damage.

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

General Entomology

Postrequisites

Protection of animals and birds

Forest protection

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	33010 (3013098)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

The discipline studies forestry methods of forest protection; accounting, evaluation of indicators of the radio ecological state of forests; development of measures for the protection of forest vegetation; biological, chemical, physical protection of forests; environmental legislation, preparation of a radioecological report in the prescribed form; types of impact of economic activity on the environment; health and sanitary measures.

Purpose of studying of the discipline

The purpose of the discipline is the formation of students` knowledge and skills in the protection of wood and ornamental species from diseases and pests, skills in the use of biological and chemical protection of wood and ornamental species in forestry, contributing to increased productivity of plantings and environmental protection

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

General Entomology

Postrequisites

Protection of animals and birds

Forest crops

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	30990 (3013108)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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

Theory, practice of forestry, mastering the skills to creatively apply this knowledge in the specific conditions of forestry in the design, creation and cultivation of forest crops and all types of protective plantations.Cultivation of forest planting material, creation and cultivation of highly productive and sustainable forest plantations for various purposes.

Purpose of studying of the discipline

The purpose of studying the discipline is the professional training of bachelors of agriculture in the specialty 6B08303 - Forest resources and hunting in the field of reforestation and afforestation.

Learning Outcomes

ON 6 Apply technologies and methods of growing various types of planting material in nurseries; to grow forest-cultural planting material; determine the harmfulness of pests of agricultural crops; analyze information about the forest pathological state of forests, and the operational impact on the causal factor; to determine the species of forest pests; apply biological, chemical, physical, forestry methods of protection against pests and diseases; to conduct phytopathological examinations; to diagnose and spread diseases of migrating animals and birds and their significance in forestry and medicine.

Prerequisites

Sylvulas

Postrequisites

Forest management

Module 7. Greening and protection of national resources

Reserved business

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30975 (3013111)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the categories, systems, structure of the reserve fund in the world; management and analysis of the activities of reserves; ecologization of nature management; development and design of projects of reserve objects; model of the biosphere reserve; the importance of conservation for the water management complex; problems of conservation in the world, region.

Purpose of studying of the discipline

To provide knowledge about the existing specially protected nature protection zones in the Republic of Kazakhstan and methods of their management.

Learning Outcomes

ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites

Biotechnological and breeding of game birds

Postrequisites

Forest legislation

Landscape design

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30979 (3013115)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies methods of designing landscape architecture objects, creating compositions from plants; small architectural forms, planning, stylistics, zoning, sketching; methods of landscape research; landscaping of public places; development of a landscape project of a site; methods of individual landscape projects for territories of various types; methods of geoplasty and visualization of landscape landscape.

Purpose of studying of the discipline

The purpose of teaching the discipline Landscape Design is to study the theoretical and practical foundations of landscape design.

Learning Outcomes

ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites

Dendrology

Postrequisites

World forest resources

National natural parks and reserves of Kazakhstan

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30988 (3013141)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies a set of measures for the development and conservation of biodiversity; planning measures to control the number of harmful fauna; conservation of rare animals, birds and plants; aesthetic advantages of the surrounding landscape; scientific, pragmatic, aesthetic forecast of approaches to the organization of national parks; objects of historical and cultural heritage; ecological tourism.

Purpose of studying of the discipline

The purpose of teaching the discipline is to know the regional patterns of formation, functioning, spatial differentiation, economic use and ecological state of the natural environment of the Republic of Kazakhstan.

Learning Outcomes

ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites

Biotechnological and breeding of game birds

Postrequisites

Forest legislation

Landscaping of populated areas

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30978 (3013114)

Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies methods, methods, types of creation and operation of plantings; aesthetic, sanitary and hygienic and functional qualities of systems; engineering and agrotechnical preparation of green construction territories; the role of green spaces in the formation of the external environment; design of territories for landscaping settlements; operation of green spaces in settlements.

Purpose of studying of the discipline
- formation of special knowledge of the theory of landscape architecture, landscape design and landscape design, practical skills of landscape organization of urban and recreational areas, landscaping of landscape architecture objects, as well as the development of creative abilities of students in general.

Learning Outcomes
ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites
Dendrology

Postrequisites
World forest resources

Protection of animals and birds

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30976 (3013112)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the compatibility of animal groups, factors of hunting animals and birds; measures to protect useful fauna; habitat of forest animals and birds; the importance of conservation, reproduction and rational use of wildlife; distribution and causes of changes in the number of forest animals and birds; forecasting, assessment of anthropogenic impact on natural components.

Purpose of studying of the discipline
The purpose of mastering the discipline is to study the species composition of forest birds and animals, their ecology and biology, population dynamics, distribution, biocenotic role and forestry significance; formation of biological knowledge in the field of protection and rational use of forest species of birds and animals.

Learning Outcomes
ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites
Biotechnological and breeding of game birds

Postrequisites
Forest legislation

Floriculture and greenhouse business

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30989 (3013143)
Course	3
Term	2
Credits count	5

Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the structure of flower and ornamental plants; the influence of environmental factors; mechanization technological processes; compilation, design of flower expositions; technique, technology of modern floriculture, landscaping; biologically stable flower compositions; methods of reproduction, cultivation of flowers in protected, open ground; seed production of flower plants; care of flower; greenhouse floriculture; the place of flowers in gardening.

Purpose of studying of the discipline
The purpose of the discipline is to teach students the knowledge and skills necessary for the cultivation of ornamental flowering plants based on modern achievements of science and practice in the field of green construction, namely, floriculture.

Learning Outcomes
ON 7 Manage specially protected natural territories; carry out measures for the protection of animals and birds, in the fight against poaching, stray dogs, harmful animals and birds; analyze the effectiveness of the activities of national natural parks and reserves of Kazakhstan; develop and design projects of landscaping objects; apply a set of measures for the cultivation of flower, greenhouse trees, shrubs and ornamental plants; use natural territorial complexes of forests, methods of landscape research.

Prerequisites
Dendrology

Postrequisites
World forest resources

Module 8. Soil and forest monitoring

Soil Bonitization

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28517 (3013102)
Course	1
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies the calculation of bonus points; bonus scales for individual crops; soil combinations in land assessment; differential rent, prospective assessment of soil fertility; granulometric composition, density of the solid phase of soils, saturation of soils with bases; morphological properties of the soil profile; soil maps, cartograms; land monitoring technologies

Purpose of studying of the discipline
The objectives of mastering the discipline are to assess the soil as a natural-historical body with fertility, which forces us to abstract from specific organizational and economic conditions and evaluate soils based on the properties and characteristics that the soil has acquired in the process of both natural-historical and socio-economic development.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Forest botany

Postrequisites
Forest crops

Land resources

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28518 (3013103)
Course	1
Term	2
Credits count	5

Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies the factors of soil formation; principles of land management; causes of changes in structure; systematization, processing and accounting of information about land plots; conservation of the natural environment; patterns of geography of the world`s soils, their properties, genesis, nature of economic use, productive potential; world soil classifications; use of soil cover.

Purpose of studying of the discipline
- acquisition of theoretical knowledge in the field of global laws of geography and genesis of soils, the state of world land resources, as well as in obtaining practical skills in analyzing the content of world soil maps and world soil classifications

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Forest botany

Postrequisites
Forest crops

Forest soil science

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	28515 (3013101)
Course	1
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	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
The discipline studies the properties, composition, classification of soils; soil formation; soil-geographical zoning; soil fertility; methods of soil research; the regime of heat, moisture, air and light in forest soils; the effect of logging, forest fires on soil properties; cattle grazing; soil fertilization in forestry; absorption capacity of soil acidity.

Purpose of studying of the discipline
-- study of soil formation processes depending on the type of vegetation and their differences under different types of forests; study of soil types depending on the type of forest, formation of professional knowledge about the forest-growing properties of soils, ecological functions, methods of study, principles of forest soil assessment.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Forest botany

Postrequisites
Forest crops

Aerial forest reclamation

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30722 (3013133)
Course	3
Term	1
Credits count	5
Lections	15hours

Practical and seminar classes	30hours
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
The discipline studies physical processes, phenomena in a free atmosphere; irrigation system, its elements, irrigation methods; soil and irrigation zoning of the territory; hydraulic engineering works; the use of fertilizers on eroded soils; grain- steam, grain- tillage crop rotations; afforestation and consolidation of sands; snow-regulating influence of forest strips; the factor of the relationship of trees and shrubs.

Purpose of studying of the discipline
- to equip students with knowledge about the role of protective plantings in reducing soil erosion, stabilizing highly productive production of environmentally safe agricultural products, improving the habitat of human society, to create, form and reconstruct protective forest plantings to perform diverse functions in specific conditions with the expectation of ensuring their maximum effect.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Dendrology

Postrequisites
Landscaping of populated areas

Forest reclamation

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30713 (3013104)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the construction of forest strips; protective afforestation; forest strips on non-irrigated lands; afforestation of mountain slopes, economic use of sand; pasture-protective forest strips; erosion, deflation of soils; the positive multifunctional role of forest-reclamation plantations; studies the interconnected system of forest strips; violations, restoration, transformation, conservation of natural landscapes; biological measures to combat land degradation.

Purpose of studying of the discipline
To give students the theoretical foundations of knowledge about the methods and techniques of complex interaction in order to increase the productivity of reclamation lands and rational nature management.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
General Entomology

Postrequisites
Protection of animals and birds

Chemical reclamation

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30718 (3013105)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours

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
The discipline studies methods of optimizing mineral nutrition of plants; agrochemical properties of soil; doses of fertilizers, methods of their application in crop rotations; balance of nutrients phytocenoses; determination of the removal of nutrients by plants; liming, gypsum, acidification; cycle management, balance regulation of growth factors; inactivation of mobile forms of heavy metals, reducing their intake into plants.

Purpose of studying of the discipline
- to provide theoretical and practical training of students in the field of knowledge about the chemical composition, properties of soils and features of chemical processes in the functioning of soils as a special natural-historical body, as well as its constituent mineral, organic and organomineral components.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Dendrology

Postrequisites
Landscaping of populated areas

Production practice 2

Discipline cycle	Basic disciplines
Discipline component	University component
SubjectID	31039 (3013079)
Course	3
Term	2
Credits count	5
Working practice	150hours
Total	150hours
Knowledge control form	Total mark on practice

Short description of discipline
Technology of cultivation of various types of planting material of tree, shrub species, land reclamation. Methods of forest protection from pests and diseases. Taxational measurements of the tree. Logging. Nature reserves, national nature parks. The role of green spaces is the cultivation of forest crops. Changes in the structure of land resources under the influence of anthropogenic activity.

Purpose of studying of the discipline
Technology of cultivation of various types of planting material of tree and shrub species, soil preparation, land reclamation. Methods of forest protection from pests and diseases. Taxational measurements of the tree. Logging. Nature reserves, national nature parks. The role of green spaces is the cultivation of forest crops. Assessment of forest suitability of soils. Changes in the structure of land resources under the influence of anthropogenic activity. Design of the territory for landscaping of populated places.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Production practice 1

Postrequisites
Production practice 3

Radiation monitoring of forests

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	31610 (3013131)
Course	4
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours

Knowledge control form	Examination

Short description of discipline
The discipline studies radioactive radiation; zones of radioactive contamination; accumulation of radionuclides by woody plants of forest biogeocenoses; forestry and edaphic factors; accumulation of radionuclides in forest food products; interaction of radioactive radiation with matter; levels of intensity and degree of danger of radioactive radiation; research methods in the field of radiation ecology of forests; accumulation of radionuclides by forest animals; assessment of radionuclide stocks in the main components of forest biogeocenoses.

Purpose of studying of the discipline
preparation of students for practical activities in the field of organization of forestry production in the conditions of radiation pollution of forest biogeocenosis

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Digitalization in forestry

Postrequisites
Final examination

Radioecological rationing in forestry

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	31055 (3013130)
Course	4
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Laboratory works	0hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline
The discipline studies forestry methods of forest protection; accounting, evaluation of indicators of the radio ecological state of forests; forecast of changes in the state of the ecosystem; biological, chemical, physical protection of forests; preparation of a radioecological report in the prescribed form; types of environmental impacts of economic activities; health and sanitary measures.

Purpose of studying of the discipline
The purpose of teaching the discipline is the assimilation by students of the assessment of the radioecological state of forests, under the influence of anthropogenic factors at the moment.

Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites
Digitalization in forestry

Postrequisites
Final examination

Forest meteorology

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31064 (3013132)
Course	4
Term	1
Credits count	3
Lections	15hours
Practical and seminar classes	15hours
Independent work of a student under the guidance of a teacher	20hours
Independent work of the student	40hours
Total	90hours
Knowledge control form	Examination

Short description of discipline
The subject, tasks, basic concepts of meteorology. Research methods, organization of meteorological observations. Wind, air currents in the atmosphere. Solar radiation, its spectral composition. Measurement of wind speed and direction. The temperature of the soil, air, plant. Humidity, precipitation. Forest and meteorological factors. Climate, the main factors of climate formation.
Purpose of studying of the discipline
The most important task of forest meteorology is the study of meteorological conditions and climate that characterize the physical state of the environment in which the forest lives.
Learning Outcomes
ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.
Prerequisites
Digitalization in forestry
Postrequisites
Production practice 3

Module 9. Sustainable forest management

Forest taxation

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30719 (3013106)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the methods of taxation of forest plantations and forest products, forest sorting; methods for determining the growth of individual trees; taxation of felled trees, the current increase in the volume of trunks; tree stands of the tier; forest inventory; taxation of tree growth, woodlands and cutting stock; material and monetary assessment of cutting areas; desk processing; accounting for stocks of plantings.
Purpose of studying of the discipline
– teaching students the theoretical foundations of forest taxation, the basic methods of taxation of forest objects, obtaining practical skills in performing forest taxation works in relation to various objects of forest taxation, training in the proper organization and management of integrated forestry related to forest and logging funds.
Learning Outcomes
ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.
Prerequisites
Forest Biometrics
Postrequisites
Forest Management

Specially protected natural areas

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30721 (3013107)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies intangible cultural heritage, natural heritage; world value, integrity criteria, preservation; state regime for the protection of cultural heritage monuments; law on specially protected natural territories; planning, organization of environmental protection measures; buffer zones; analysis of the effectiveness of nature reserves, biosphere reserves, nature reserves, natural parks, natural monuments, national parks, arboretums parks, botanical gardens.

Purpose of studying of the discipline

formation of students` knowledge about specially protected natural territories in accordance with the competencies being formed.

Learning Outcomes

ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.

Prerequisites

Forest Biometrics

Postrequisites

Forest Management

Assessment and accounting of forest plant resources

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	29590 (3013150)
Course	3
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies morphology, species diversity, geographical distribution, woody, pulp-and-pulp plants, subshell of deciduous, coniferous species: raw material base, ecology of subshell, exploitation of resin deposits; accounting, use of root systems; forest medicinal plants, forest food plants, characteristics, classification, value, stock assessment; comprehensive assessment; productive, protective, socio-economic functions of forest resources; expediency of using raw materials.

Purpose of studying of the discipline

– formation of in-depth professional knowledge in the field of forestry, forestry, forest management, forest taxation.

Learning Outcomes

ON 8 To determine the level of soil fertility, their compliance with the requirements of forest crops; to use methods, technologies for monitoring land and soil bonity; to possess methods of protection, management of land resources; to determine the types of soil erosion and deflation; to control and improve the land reclamation condition; to combat soil salinization during the operation of irrigation systems; to assess the radioecological state of forests; to apply background monitoring of the content of pollutants in natural environments; to measure wind speeds and directions, soil, air and plant temperature.

Prerequisites

Forest Biometrics

Postrequisites

Forest Management

Forest management

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30971 (3013109)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the methods of calculating the permissible volumes of use; the impact of the intensity of forest use on the quality of forest resources, ecosystem services of the forest; the state; organization, provision of technological processes of logging, wood processing industries; modern machines, mechanisms for logging; requirements of the forest legislation of the Republic of Kazakhstan.

Purpose of studying of the discipline

The purpose of teaching the discipline "Forest Management" is the formation of professional competence of future forestry technicians

in the field of technological and organizational work related to the implementation of forest uses on the lands of the state forest fund.

Learning Outcomes

ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.

Prerequisites

Forest taxation

Postrequisites

World forest resources

Rational use of natural resources

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30985 (3013134)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies methods, methods, types of creation and operation of plantings; aesthetic, sanitary and hygienic and functional qualities of systems; engineering and agrotechnical preparation of green construction territories; the role of green spaces in the formation of the external environment; design of territories for landscaping settlements; operation of green spaces in settlements.

Purpose of studying of the discipline

The purpose of mastering the discipline "Landscaping of populated areas" is to master the skills of students in creating and caring for landscaping objects in populated areas.

Learning Outcomes

ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.

Prerequisites

Forest taxation

Postrequisites

World forest resources

Inspection activities in hunting science

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31079 (3013118)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies methods of preserving the biological properties of land; calculations of use and determination of the specific direction of the economy; determination of the carrying capacity of the territory; preparation of a hunting map of the object; conditions, regime of humidification; regulation of drainage of forests, swamps; laying of fodder fields; security, economic measures.

Purpose of studying of the discipline

Mastering of theoretical knowledge and practical skills by future specialists in the implementation of control over the use of hunting grounds; organization of work on the protection, maintenance of the number and rational use of resources of hunting animals.

Learning Outcomes

ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply

modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Forest management

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31068 (3013116)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the management, planning of forestry development; the structure of forest management bodies; calculation of the permissible amount of forest use; land, property relations; cadastral valuation and registration of real estate; land monitoring; conservation of valuable natural objects; preservation of the forest environment; forest dynamics in the conduct of economic activity; legal regulation of forest use.

Purpose of studying of the discipline

The purpose of teaching the discipline "Forest management and forest resources" is to assimilate the theoretical and methodological foundations of the ecological and economic approach to forest management, practical criteria, indicators of sustainable forest management and forest management.

Learning Outcomes

ON 9 To make taxational descriptions of plantings; to analyze and use information about the state of forests; to plan environmental protection measures on the territory of nature reserves, parks, reserves; to apply technological processes of logging operations; apply modern concepts of nature protection and rational use of natural resources; get different types of side use; organize economically sustainable forest management.

Prerequisites

Forest Management

Postrequisites

Final examination

Module 10. Use of hunting resources

Secondary use

Discipline cycle	Basic disciplines
Discipline component	Electives
SubjectID	30972 (3013110)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the types of secondary use; products of lifetime use, documentation, the right to implement secondary forest management; technology of obtaining, pickling, drying; evaluation of the quality of medicinal herbs; processing, use of forest chemical raw materials; industrial harvesting of berries, mushrooms, medicinal plants, tree juices; control over compliance with the rules of secondary forest use.

Purpose of studying of the discipline

The purpose of studying the discipline is to study the methods of accounting, rational use and reproduction of non–wood products.

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and

birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Forest taxation

Postrequisites

World forest resources

Hunting management in modern conditions

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31061 (3013135)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

Classification of hunting farms: commercial, sports. Means of production, hunting grounds, hunting animals. Fund equipment of the hunting farm. Gross, marketable products Profitability, specialization of hunting farms and a combination of industries. On- farm planning. The economy of hunting farms. Analysis of economic activity. The cost of production of hunting farms.

Purpose of studying of the discipline

The purpose of mastering the discipline is to form students` scientific worldview on the management and management of hunting farms in modern conditions.

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Forest legislation

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31058 (3013148)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies a set of regulatory legal acts; regulation of forest relations; forest Code - the central act of the forest legislation system; use of forest fund lands; state forest control; registration of forest declarations; forest management methods; state forest control; preservation of forests of high environmental value.

Purpose of studying of the discipline

The purpose of the discipline is to form a system of theoretical knowledge and practical skills among students on issues of regulatory regulation in the field of use, protection, protection, reproduction of forests, as well as forest management, forest
planning, ownership rights to forest plots, powers of authorities and local governments in the field of forest relations and responsibility for violation of forest legislation.

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of

commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Bases of economics, law and ecological knowledge

Postrequisites

Pre-graduate practice

Rationing the use of hunting resources

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31074 (3013122)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the management of hunting animal populations; natural productivity of hunting grounds; organizational, economic and biological features; systems of rational use of hunting animal resources; interests of hunters; controlled hunting withdrawal of animals; obtaining the maximum amount of products; the size of biological and economic gains; the dynamism of the hunting fauna and fishing standards.

Purpose of studying of the discipline

The purpose of studying the discipline is to form students` concepts of project activities in order to organize scientifically - based management of hunting resources and farming.

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Organization of inturohota

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31075 (3013121)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the development of intro- hunting fishing; foreign experience in hunting; zoogeographic distribution of representatives of hunting, mmercial animals, birds; scientific research, reproduction, use of wildlife; evaluation of various groups of trophies; storage, transportation of captured animals in winter, summer; killing of wounded; development of hunting tourism; primary processing, preparation of hunting trophies.

Purpose of studying of the discipline

The main purpose of studying the discipline is to broaden the horizons and train the ability to navigate in the business sphere, the ability to conduct business correspondence and negotiations.
Protection of animals and birds
Forest management

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Hunting and commercial bioresources

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31072 (3013124)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies production and technological biological work; methods of accounting for the number of commercial animals; methods of studying wild game; habitats of terrestrial vertebrates of various classes; climatic features of the seasons within different subzones; limiting distribution of representatives of different classes; number, dynamics, factors affecting the state of resources.

Purpose of studying of the discipline

The purpose of mastering the discipline is to take into account and evaluate hunting and fishing resources; to establish the habitat of wild animals and birds, their territorial location, numbers in various lands for subsequent hunting activities and planning of hunting use.

Learning Outcomes

ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites

Forest Management

Postrequisites

Production practice 3

Ecology of game animals and birds

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31073 (3013123)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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

The discipline studies the structure, physiology, behavior, ecology of commercial species; classification of ecological features of commercial animals; zoogeographic distribution of representatives of hunting commercial animals, birds; seasonal hunting activities; daily biorhythms, seasonal phenomena in the life, reproduction of commercial animals; legislative framework in the field of protection, reproduction of hunting commercial animals; artificial wild breeding.

Purpose of studying of the discipline

The purpose of mastering the discipline is to study the basics of hunting and hunting studies, familiarization with the morphobiological features of the main types of hunting and commercial species of animals and birds, methods of hunting, biotechnical measures and legislative bases in hunting.

Learning Outcomes
ON 10 Apply the classification of hunting farms: commercial and sports; possess the main legislative acts in the field of hunting and the Forest Code in the Republic of Kazakhstan; own the main legislative acts of the Republic of Kazakhstan in the field of hunting; use the results of accounting work, data on production during seasonal hunting events; possess the features of biology, distribution of commercial animals and birds; apply the features of zoogeographic distribution of representatives of hunting commercial animals and birds; use an algorithm of actions when detecting violations of andatory requirements in the field of hunting and conservation of hunting resources.

Prerequisites
Forest Management

Postrequisites
Production practice 3

Module 11. Current state of forest resources

Forest Management

Discipline cycle	Profiling discipline
Discipline component	University component
SubjectID	30992 (3013113)
Course	3
Term	2
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
Forest management is the science of forestry, which studies the features of the structure of forests in statics and dynamics, methods of accounting and economic evaluation of forest resources, their spatial distribution, determination of stocks and commodity structure of stands. Planning and reporting.

Purpose of studying of the discipline
The purpose of studying the discipline is - professional training and obtaining knowledge in the field of forestry, studying the organization and management of forestry to ensure the preservation of forests, reforestation, rational and integrated use of forest resources to meet the needs of the state and society in wood, by-products and social functions of the forest

Learning Outcomes
ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites
Forest taxation

Postrequisites
Forest management

Forest economy

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31071 (3013125)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the use of production assets and the economic efficiency of the forest industry in a market economy system; the production cycle of forest cultivation; forestry financing; principles and methods of indicative planning; labor resources and labor productivity; remuneration of employees; technical labor rationing; prices and pricing; economic and social development of state forestry institutions.

Purpose of studying of the discipline
The purpose of studying the discipline is to provide theoretical and practical training of specialists in the economics of the industry to develop and make effective decisions at different levels of forest management to balance supply and demand for products and services

in a market economy.

Learning Outcomes
ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites
Forest Management

Postrequisites
Final examination

World forest resources

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31067 (3013128)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the resource availability of forest natural resources of the countries of the world; cross-border problems related to natural resources; principles of allocation of forest resources of the countries of the world; special geographical maps; geographical features of countries; exhaustible and inexhaustible, replaceable and irreplaceable, primary and secondary, simple and integral natural resources; density of concentration of resources; combination of resources; availability of resources; resource cycles; potential natural vulnerability; information and analytical references.

Purpose of studying of the discipline
formation of students` understanding of the types, conditions of education and renewal of natural resources, responsibility for their rational use in the world community, respect for the environment.

Learning Outcomes
ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites
Forest crops

Postrequisites
Final examination

Recreational resources and tourism

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31065 (3013129)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the types of recreational activities; recreational development; tourist resource; assessment of the aesthetics of landscapes; hydrological conditions of recreation organization; tourist and recreational potential of the territory; territorial recreational systems; recreational and recreational sphere; types of tourist nature management; loads on natural complexes and methods of their determination; recreational district formation and zoning.

Purpose of studying of the discipline
The purpose of studying the discipline is to study the conditions of formation, development and placement of territorial and recreational complexes, familiarization with the systems. organizing the activities of the population to restore physical and spiritual strength:

recreation, wellness and spa treatment, tourist travel.

Learning Outcomes
ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites
Forest crops

Postrequisites
Production practice 3

Economics and management at the enterprise (forest complex)

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31056 (3013127)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies methods of taxation in the forest industry; use of enterprise resources; ergonomic indicators; balance of production capacities, average annual production capacity; calculation methods; estimation of demand, costs; strategy of periodic discounts; technological maps, their role in the organization of production; management of the production process; classifications innovations in management.

Purpose of studying of the discipline
The purpose of the study is to form students` knowledge about the role of the forest complex in the national economy of the country and its relationship with other industries; mastering the methodological foundations of choosing rational solutions when solving economic problems at the level of the forest complex; developing skills for conducting economic analysis of the costs and results of forestry facilities; evaluating the effectiveness of the organization in the forest complex.

Learning Outcomes
ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites
Forest Management

Postrequisites
Production practice 3

Industry economics

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31070 (3013126)
Course	4
Term	1
Credits count	5
Lections	15hours
Practical and seminar classes	30hours
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
The discipline studies the investment and forestry activities of the forestry industry; taxation of enterprises; distribution of the planned volume of goods, works, services between groups of consumers in the market; personnel, labor productivity; nomenclature, assortment and quality of products; indicators of maintainability, reliability, durability, preservation, manufacturability; indicators of standardization and unification.

Purpose of studying of the discipline
The main objectives of studying the discipline "Industry Economics" are the formation of knowledge on the economic problems of

enterprise development, the development of economic thinking and a sense of responsibility for the results of the production and financial activities of the enterprise.

Learning Outcomes

ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites

Forest Management

Postrequisites

Final examination

Pre-graduate practice

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31178 (3013078)
Course	4
Term	2
Credits count	15
Undergraduate practice	450hours
Total	450hours
Knowledge control form	Total mark on practice

Short description of discipline

Progressive forms of labor organization. Methodology, technique of analysis of the production activity of the farm, its specialization in the industry, economic assessment of technological, organizational measures. Achievements of science, digitalization, in the field of forestry. The moral, psychological situation in the workforce. Independent planning, solution of production tasks with the involvement of modern technical means.

Purpose of studying of the discipline

The purpose of the pre-graduate internship is to master the skills of managing divisions of different ranks in the forestry industry, practical implementation of production processes, documentation management

Learning Outcomes

ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites

Production practice 2

Postrequisites

Final examination

Production practice 3

Discipline cycle	Profiling discipline
Discipline component	Electives
SubjectID	31195 (3013153)
Course	4
Term	2
Credits count	15
Working practice	450hours
Total	450hours
Knowledge control form	Total mark on practice

Short description of discipline

Increasing forest productivity. The technology of obtaining lumber. The economy of hunting farms. Measures for the protection, reproduction and rational use of hunting and commercial biological resources. National wealth of the countries of the world. Assessment of the radioecological state of forests. The Constitution on Nature Protection. Forest legislation of the Republic of Kazakhstan.

Purpose of studying of the discipline

The purpose of the internship 3 is to obtain the necessary practical skills in the application of the requirements of the Forest Code, laws on the protection of endangered animals, birds; requirements of forest management, logging production, the economy of the country.

Learning Outcomes

ON 11 To evaluate the worlds forest resources to evaluate balneological and mud- healing recreational resources own forest management documentation to manage the main production funds, and the economic efficiency of their use own the structure of the industry, evaluate competition in the commodity markets, antimonopoly legislation and concentration in the industry understand the role of the forest complex in the countrys economy, be guided by forest legislation.

Prerequisites

Production practice 2

Postrequisites

Final examination

Final examination

Writing and defending a thesis or preparing and passing a comprehensive exam.

Graduate work

Credits count	8

Comprehensive exam

Credits count	8

4.Summary table on the scope of the educational program

«6B08303 - Forest resources and hunting»

Name of discipline	Cycle/ Component	Term	Number of credits	Total hours	Lec	SPL	LC	IWST	IWS	Knowledge control form
Module 1. Fundamentals of social and humanitarian knowledge										
Foreign language	GER/CC	1	5	150		45		35	70	Examination
History of Kazakhstan	GER/CC	1	5	150	30	15		35	70	Qualification examination
Kazakh language	GER/CC	1	5	150		45		35	70	Examination
Bases of economics, law and ecological knowledge	GER/US	1	5	150	15	30		35	70	Examination
Russian language	GER/CC	1	5	150		45		35	70	Examination
Physical Culture	GER/CC	1	2	60		60				Differentiated attestation
Kazakh language	GER/CC	2	5	150		45		35	70	Examination
Foreign language	GER/CC	2	5	150		45		35	70	Examination
The module of socio-political knowledge (sociology, political science, cultural studies, psychology)	GER/CC	2	8	240	30	45		55	110	Examination
Russian language	GER/CC	2	5	150		45		35	70	Examination
Physical Culture	GER/CC	2	2	60		60				Differentiated attestation
Information and communication technology	GER/CC	3	5	150	15	15	15	35	70	Examination
Physical Culture	GER/CC	3	2	60		60				Differentiated attestation
World of Abai	BS/US	3	3	90	15	15		20	40	Examination
Physical Culture	GER/CC	4	2	60		60				Differentiated attestation
Philosophy	GER/CC	5	5	150	15	30		35	70	Examination
Module 2. Informatization of forestry										
Geographic Information Systems	BS/CCh	2	3	90	15	15		20	40	Examination
Engineering geodesy	BS/CCh	2	3	90	15	15		20	40	Examination
Engineering and computer graphics	BS/CCh	2	3	90	15	15		20	40	Examination
Aerospace methods in forestry	BS/CCh	4	5	150	15	30		35	70	Examination
Forest pyrology	BS/CCh	4	5	150	15	30		35	70	Examination
Ornithology	BS/US	4	5	150	15	30		35	70	Examination
Digitalization in forestry	BS/CCh	4	5	150	15	30		35	70	Examination
Module 3. Biological diversity										
Forest botany	BS/CCh	1	5	150	15	15	15	35	70	Examination

Systematics of higher plants	BS/CCh	1	5	150	15	15	15	35	70	Examination
Systematics of lower plants	BS/CCh	1	5	150	15	15	15	35	70	Examination
Animal biology	BS/US	3	5	150	15	30		35	70	Examination
Biotechnological and breeding of game birds	AS/US	5	5	150	15	30		35	70	Examination
Module 4. Increasing forest productivity										
Introduction to the specialty	BS/US	1	3	90	15	15		20	40	Examination
Educational practice	BS/US	2	2	60						Total mark on practice
Dendrology	BS/US	3	5	150	15	15	15	35	70	Examination
Forest Biometrics	BS/US	4	3	90	15	15		20	40	Examination
Forestry	BS/US	4	5	150	15	30		35	70	Examination
Seed business	BS/US	4	5	150	15	15	15	35	70	Examination
Methodology of scientific research in forestry	BS/US	7	4	120	15	30		25	50	Examination
Module 5. Forestry logging technology and machines										
Mechanization of forest operations	BS/CCh	3	5	150	15	30		35	70	Examination
The system of machines in forestry	BS/CCh	3	5	150	15	30		35	70	Examination
Operation of the machine park	BS/CCh	3	5	150	15	30		35	70	Examination
Hydrothermal wood processing and protection	AS/CCh	7	5	150	15	30		35	70	Examination
Forest commodity science	AS/CCh	7	5	150	15	30		35	70	Examination
Technology and equipment of sawmill production	AS/CCh	7	5	150	15	30		35	70	Examination
Logging technology and wood science	AS/CCh	7	5	150	15	30		35	70	Examination
Wood processing technology and commodity science	AS/CCh	7	5	150	15	30		35	70	Examination
Module 6. Protection of forests from harmful organisms, ensuring sanitary safety in forests										
State forest pathology monitoring	BS/CCh	3	5	150	15	15	15	35	70	Examination
Forest Entomology	BS/CCh	3	5	150	15	15	15	35	70	Examination
General Entomology	BS/CCh	3	5	150	15	15	15	35	70	Examination
Production practice 1	BS/US	4	5	150						Total mark on practice
Sylvulas	BS/US	5	5	150	15	15	15	35	70	Examination
Diseases of animals and birds	BS/CCh	5	5	150	15	15	15	35	70	Examination
Forest phytopathology	BS/CCh	5	5	150	15	15	15	35	70	Examination
Forest protection	BS/CCh	5	5	150	15	15	15	35	70	Examination
Forest crops	AS/US	6	5	150	15	15	15	35	70	Examination
Module 7. Greening and protection of national resources										
Reserved business	BS/CCh	6	5	150	15	30		35	70	Examination

Landscape design	BS/CCh	6	5	150	15	30		35	70	Examination
National natural parks and reserves of Kazakhstan	BS/CCh	6	5	150	15	30		35	70	Examination
Landscaping of populated areas	BS/CCh	6	5	150	15	30		35	70	Examination
Protection of animals and birds	BS/CCh	6	5	150	15	30		35	70	Examination
Floriculture and greenhouse business	BS/CCh	6	5	150	15	30		35	70	Examination
Module 8. Soil and forest monitoring										
Soil Bonitization	BS/CCh	2	5	150	15	15	15	35	70	Examination
Land resources	BS/CCh	2	5	150	15	15	15	35	70	Examination
Forest soil science	BS/CCh	2	5	150	15	15	15	35	70	Examination
Aerial forest reclamation	BS/CCh	5	5	150	15	30		35	70	Examination
Forest reclamation	BS/CCh	5	5	150	15	30		35	70	Examination
Chemical reclamation	BS/CCh	5	5	150	15	30		35	70	Examination
Production practice 2	BS/US	6	5	150						Total mark on practice
Radiation monitoring of forests	BS/CCh	7	3	90	15	15		20	40	Examination
Radioecological rationing in forestry	BS/CCh	7	3	90	15	15	0	20	40	Examination
Forest meteorology	AS/CCh	7	3	90	15	15		20	40	Examination
Module 9. Sustainable forest management										
Forest taxation	BS/CCh	5	5	150	15	30		35	70	Examination
Specially protected natural areas	BS/CCh	5	5	150	15	30		35	70	Examination
Assessment and accounting of forest plant resources	BS/CCh	5	5	150	15	30		35	70	Examination
Forest management	BS/CCh	6	5	150	15	30		35	70	Examination
Rational use of natural resources	BS/CCh	6	5	150	15	30		35	70	Examination
Inspection activities in hunting science	AS/CCh	7	5	150	15	30		35	70	Examination
Forest management	AS/CCh	7	5	150	15	30		35	70	Examination
Module 10. Use of hunting resources										
Secondary use	BS/CCh	6	5	150	15	30		35	70	Examination
Hunting management in modern conditions	AS/CCh	7	5	150	15	30		35	70	Examination
Forest legislation	AS/CCh	7	5	150	15	30		35	70	Examination
Rationing the use of hunting resources	AS/CCh	7	5	150	15	30		35	70	Examination
Organization of inturohota	AS/CCh	7	5	150	15	30		35	70	Examination
Hunting and commercial bioresources	AS/CCh	7	5	150	15	30		35	70	Examination
Ecology of game animals and birds	AS/CCh	7	5	150	15	30		35	70	Examination
Module 11. Current state of forest resources										

Forest Management	AS/US	6	5	150	15	30		35	70	Examination
Forest economy	AS/CCh	7	5	150	15	30		35	70	Examination
World forest resources	AS/CCh	7	5	150	15	30		35	70	Examination
Recreational resources and tourism	AS/CCh	7	5	150	15	30		35	70	Examination
Economics and management at the enterprise (forest complex)	AS/CCh	7	5	150	15	30		35	70	Examination
Industry economics	AS/CCh	7	5	150	15	30		35	70	Examination
Pre-graduate practice	AS/CCh	8	15	450						Total mark on practice
Production practice 3	AS/CCh	8	15	450						Total mark on practice
Final examination										
Graduate work		8	8	240						
Comprehensive exam		8	8	240						