

**NON-PROFIT JOINT-STOCK COMPANY «KAZAKH NATIONAL AGRARIAN  
RESEARCH UNIVERSITY»**

**EDUCATIONAL PROGRAM DEVELOPMENT PLAN**

**Forest resources and forestry**

**for 2024-2028**

Recommended by the Council of the Faculty  
of Water, Land and Forest Resources  
Minutes No. 10Б dated 14.06.2024  
Considered at an extended meeting of the  
Department of Forest resources, Game  
management and fisheries  
Minutes No.13 dated 30.05.2024

**Almaty, 2024**

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## 1. Passport of the development plan of the educational program

1	Reasons for developing a development plan for an educational program	Strategic plan for the development of the department until 2028
2	The main developers of the development plan of the EP	Head of the department, associate professor, PhD Toktasynova F.A., candidate of agricultural sciences, senior lecturer Satybaldieva G. Employers: Director of the RSOE «Kazakh Forest Management Enterprise» Baimukhanbetov S.S. Director of the Almaty branch of LLP «KazSRIF» named after A.N. Bukeikhan Akhmetov R.S. Student: LR-21-03K Omirzak A. Graduate of 2023 Khasen Zh.
3	Deadlines for the implementation of the development plan of the EP	2024-2028
4	Volume and sources of funding	Financing from the state budget, attraction of external sources of financing
5	Expected final results of the implementation of the development plan of the EP	Training of qualified specialists in the field of forestry in accordance with the requirements of national and international standards.

## 2 Analytical justification of the program

### 2.1 Сведения об образовательной программе

The educational program «6B08302-Forest Resources and Forestry» was developed on the basis of the State Compulsory Education Standard of all levels of education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated July 20, 2022 No. 2. Registered in the Ministry of Justice of the Republic of Kazakhstan on July 27, 2022 No. 28916) and in accordance with the National Qualifications Framework and professional standards, aligned with the Dublin Descriptors and the European Qualifications Framework, designed on the basis of a modular system for studying disciplines.

### 2.2 Information about students

The contingent of students is presented in Table 1.

Table 1 – Contingent of students in the educational program «Forest Resources and Forestry»

Academic year	EP Forest Resources and Forestry								
	6B08302						7M08302	7M08305	8D08302
	Total	Grant	courses				Total		Total / Grant
			1	2	3	4	Gr	paid	
2020-2021	324	293	86/78	107/93	84/77	47/45	6		7
2021-2022	433	322	164/154	100/85	87/85	82/8	7		2
2022-2023	461	420	99/90	169/158	100/83	93/89	8		1
2023-2024	511	474	143	99/90	169/158	100/83	8		5

2024-2025	603	448	219/66	136/78	80/8	154/3	3	2	9
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### ***2.3 Internal conditions for the development of the educational program***

For the implementation of educational programs, the faculty has material and technical support that meets current sanitary and technical standards and ensures the implementation of all types of laboratory, practical, disciplinary and interdisciplinary training and research work of students, as provided for by the curriculum.

To organize the educational process, the Department of Forest Resources, Game Management and Fisheries has a room occupying an area of 1181 sq.m., has 22 classrooms, including: 3 lecture halls, 12 for practical classes, 2 for laboratory classes, 10 teaching staff offices, and 1 master's class.

The main factor in the development and use of new innovative technologies is the availability of modern computer equipment, network equipment for creating a unified information and educational environment at the university, and modern software. The annual increase in the amount of computer equipment allows us to meet the needs of students. In particular, the following equipment and tools are available for conducting classes: 6 Epson multimedia projectors, a camera, a garden shredder, a seed spreader, a drying cabinet, an electron microscope, electronic scales, an electronic measuring fork, a laser rangefinder, an altimeter, a moisture meter, a tablet computer, and a GPS navigator.

In terms of educational and methodological support of disciplines, such as the state compulsory educational standard, curricula, working curricula of disciplines, academic calendars, catalogs of elective disciplines, and teaching and methodological complexes in all areas of study have been developed in accordance with existing regulatory documents.

For the development of the educational program, the university has a scientific and electronic library, as one of the most important divisions of the university, which is a scientific and information institution, a support base for the educational, educational-methodical and scientific process for the training of qualified agricultural specialists.

In the educational process, the department's teachers use innovative teaching technologies covering all types of educational work (lectures, laboratory and practical, seminar classes) using a multimedia teaching system demonstrated and controlled using interactive devices, which allows solving problems at a fundamentally new information level. Work on academic mobility of students in partner universities is successfully underway.

### ***2.4 Characteristics of the surrounding society***

When training specialists for the forestry industry, much attention is paid to the integration of the department with research institutes and various production structures, with which agreements have been concluded on joint cooperation in conducting classes, undergoing educational, industrial and professional practices.

60 agreements have been concluded on undergoing industrial practices for bachelors, masters and doctoral students, in particular with the Committee for Forestry, Fisheries and Hunting under the Ministry of Agriculture of the Republic of Kazakhstan, and also closely cooperate with research institutes.

The students of the department conduct scientific research and undergo educational, industrial and professional practices in: KazSRIF LLP, Kazakh forest management enterprise «Kazlesproekt», RSE Kazakh state design and survey institute «Kazgiproleskhoz», Ile-Alatau, Charyn, Sairam-Ugam SNNP, JSC «Forest Nursery» of the Ministry of Education and Science of the Republic of Kazakhstan, JSC «Astana-Zelenstroy», Republican state forest seed institution and others, in 20 state forestry institutions of the republic.

The department conducts dual training based on agreements with the heads of republican forestry institutions, where practical classes are held in production. Most of the employees working in production are graduates of the faculty.

Table 2 – Dual education for the 2024-2025 academic year

№	Name of the organization	Educational program	Discipline	Group	Full name of the teacher
1	Almaty branch of the Kazakh Research Institute of Forestry and Agroforestry named after A.N. Bukeikhan	6B08302 - Forest Resources and Forestry	Forest taxation Forest management	FR-22-04R FR-22-01K FR-22-02K FR-22-03K	Dosmanbetov Daniyar Akhmetovich
2	Branch of the south-eastern region of the State Enterprise «Republican Forest Selection and Seed Center»	6B08302 - Forest Resources and Forestry	Afforestation and reforestation	FR-21-06R FR-21-22P FR-21-01K FR-21-04K FR-21-05K	Toktasynov Azamat Zhailauovich
3	Committee of Forestry and Wildlife of the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan State Enterprise «Production Association Okhotzooprom»	6B08301- Game management and fur farming	Game animal registration	O3-22-09K	Akoev Mukhit Tursynkhanovich
4	«Scientific and Production Center for Fisheries»	6B08402 – Aquaculture and aquatic biological resources	Aquaculture	AC-22-03P	Isbekov Kuanysht Baybolatovich

### ***2.5 Information about the teaching staff implementing the educational program***

The implementation of educational programs of the Department of Forest Resources and Game Management is carried out by a teaching staff of 11 people.

Table 3 – Human resources potential of the Department of Forest Resources and Game Management

Human resources potential	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Number of full-time teaching staff, quantity	21	22	23	24	34
leading classes in this specialty, q-ty, % total: including those with academic degrees and titles	15/8	15/9	17/11	18/12	30/4
The number of teaching staff conducting classes in BD and the number	15	15	17	18	20
PD, q-ty,% total:	9/71	9/68	9/74	9/74	12/70
including those with academic degrees and titles, q-ty.	8	9	11	12	19
Number of teaching staff conducting classes in general education disciplines, qty, % total:	10/90	11/92	11/92	12/92	12/90
including those with academic degrees and titles	10	11	11	12	12
Number of Masters of Science, qty.	7	6	7	7	3
Number of PhD students, qty	2	4	3	4	5
Number of members of other public academies of sciences, qty	1	1	1	1	1
Number of recipients of state grants “Best University Lecturer”, qty	-	-	-	-	-

Table 4 – Personnel involved in the implementation of the EP

Academic year	Total number of teaching staff	Of which doctors of science	Of which candidates of science	Of which PhD	Of them masters	Of them without a degree
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2020-2021	15	4	2	2	7	0
2021-2022	15	4	2	3	6	0
2022-2023	17	4	4	3	6	0
2023-2024	24	7	3	3	1	0
2024-2025	34	3	5	8	12	0

The department's degree rate is 69%, which has a tendency to grow annually.

The department's employees annually undergo advanced training courses in the taught disciplines in the training centers and specialized departments of the Kazakh Forest Management Enterprise, «Kazgiproleskhoz» LLP, the Republican Forest Selection and Seed Center, a branch of the south-eastern region, KazSRIF, etc. As well as in the countries of the far and near abroad of the Russian Federation and far abroad countries (Germany, the People's Republic of China, Poland, the Czech Republic).

Sarsekova D.N. completed advanced training from July 7 to September 18, 2023, 72 hours under the program «Fundamentals of Scientific Research», No. 75; from February 14 to February 28, 2022, 72 hours under the program «Advanced Technologies for Growing Planting Material», No. 41; from March 27 to April 10, 2023, she completed a 72-hour advanced training course under the program «Forest Legislation», No. 66; from March 27 to April 10, 2023, she completed a 72-hour advanced training course under the program «Forest Legislation», No. 66; from June 19 to June 29, 2023, she completed a 72-hour advanced training course under the program «Specially Protected Natural Areas»; from August 1 to August 14, 2022, she completed a 72-hour advanced training course on the program «Decorative Planting Materials», No. 107;

Zhilkibaeva E.S. completed an advanced training course on the topic «Recreational forestry. Forest park management» in the period from 01.11.2023 to 21.11.2023 in the amount of 72 hours; in the period from 24.08.2023 to 08.09.2023 in the amount of 72 hours in the taught disciplines: Forestry. General forestry.

Toksabaeva B.S. completed the training program at the professional advanced training courses «Module: «Hydrobiology», «Sanitary Hydrobiology», «Toxicology of Reservoirs» in the period from 31.07.2023 to 19.08.2023; «Module: «Technology of Growing Hydrobionts», «Pond, Farm and Industrial Fish Farming», «Fish Breeding and Selection in Fisheries» in the period from 28.08.2023 to 16.09.2023, in the amount of 72 hours; «Module: «Ichthyology», «History of Ichthyological Research in Kazakhstan», «Methods of Fisheries Research», «Assessment of the State of Aquatic Bioresources» in the period from 25.09.2023 to 14.10.2023, in the amount of 72 hours»; «Module «Technology of fish product production», «Methods for assessing the quality of fish products», «Reproduction of natural fish stocks» in the period from 03.07.2023 to 22.07.2023 in the amount of 72 hours.

Ramazan K.B. completed an advanced training course on the program: «Aquariumology, aquaponics» in the amount of 72 hours. In the period from 06.12. to 24.12.2021; «Zoology» in the amount of 72 hours in the period from 18.04 to 06.05.2022; «Fish farming and breeding» in the amount of 72 hours, in the period from 13.05 to 01.06.2022; «World fish farming» in the amount of 72 hours, in the period from 03.10 to 15.10.2022; «Fish nutrition and feeding» in the amount of 72 hours in the period from 19.04 to 15.05.2023.

In 2024, access was granted to the Coursera platform for faculty, resulting in many teachers receiving certificates. Management and department heads also completed the course «Generative Artificial Intelligence for University Leaders».

Akimzhanov D.Sh., senior lecturer of the department, completed the following courses:

University of Colorado Boulder, «The Changing Status and Perception of Animals», Jun 26,2024; University of Colorado Boulder, «Animals, Self, and Society», Jun 26,2024; Universitat

Zurish, «Asian Environmental Humanities: Landscapes in Transition», Jun 28, 2024; University of California, Irvine «Инициирование и планирование проектов», Jun 14, 2024;

Zhubanyshova A.T., senior lecturer of the department, completed the course:

University of California, Irvine «Инициирование и планирование проектов», Sep 10, 2024.

Abaeva K.T., professor of the department, completed courses: UNSW Sydney, «Жұмыс болашағын жобалау», Jun 11, 2024; University of California, Irvine «Жақсы іскери хат жазу», May 26, 2024.

Shynybekov M.K., senior lecturer of the department, completed the following courses: University of California, Irvine «Жақсы іскери хат жазу», Jun 16, 2024; Macquarie University «Бизнеске арналған Excel дағдылары. Орташа деңгей (I)», May 29, 2024; Macquarie University «Бизнеске арналған Excel дағдылары. Орташа деңгей», May 29, 2024.

Sarsekova D.N., professor of the department, completed the courses: University of California, Irvine «Инициирование и планирование проектов», Jun 14, 2024; University of California, Irvine «Simple Past Tense», May 30, 2024; «Генеративный искусственный интеллект для руководителей университетов»

Zhilkibaeva E.S. associate professor of the department completed courses: Macquarie University «Organizational Behavior: Knowing People», Aug 6, 2024; «Generative AI for University Leaders».

Toktasynov A.Zh., senior teacher of the department passed the course University of Minnesota «Management of employee performance», July 7, 2024.

## ***2.6 Characteristics of the achievements of the educational program***

Student research work (SRW) is an integral part of the educational process and serves as an effective means of improving the level of professional training of competitive specialists. On average, up to 18.0% of full-time students participate in SRW at the department annually.

Together with the department staff, scientific articles have been published, textbooks have been prepared for publication, and long-term cooperation agreements have been signed within the faculties and departments. The department intends to further develop relations with these and other universities in foreign countries.

Master's students of the educational programs 7M08302/7M08305 - «Forest Resources and Forestry» undergo internships at the research institutes Almaty branch of LLP «Kazakh Research Institute of Forestry and Land Reclamation» named after A.N. Bukeikhan, State Enterprise «Kazakh Forest Management Enterprise», Branch «South-Eastern Region» of the State Enterprise «Republican Forest Selection and Seed Center» of the Committee for Forestry and Wildlife of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, and doctoral students of the department of the educational program 8D08302 - «Forest Resources and Forestry» undergo internships at universities in distant and neighboring foreign countries (Czech Republic, Netherlands, Spain, Italy, Russia, Lithuania).

Scientific research at the department is characterized by a wide range of areas and includes fundamental and applied research.

Scientific research work of the department's teachers is divided into the following types: search and initiative, carried out in accordance with the department's subject plan and included in the individual plans of the teaching staff; financed from the republican and local budgets, as well as on the basis of business contracts with enterprises and organizations; carried out within the framework of international agreements and financed by international organizations.

The department's research activities are carried out in 3 research institutes, 1 research center and 1 research laboratory. The most important and productive applied research topics are the following:

1. Design and development of a plan for afforestation of non-forested lands on the dried bed of the Aral Sea (Contract No. 1099-TO1-ERAS-KAZNARU USAID Contract No. 72011520C00007)
2. Growing decorative planting material for landscaping the Turkestan region (Agreement No. 03.21 from LLP «Kaskasu LTD and K»)

3. Inventory of green spaces and development of a dendrological plan for the city of Kulsary (State administration «Office of the akim of the city of Kulsary of regional significance»)

The total amount of funding for research and development in the area of the educational program (indicating the area of research under the contract) for the last calendar year (research grants from the Ministry of Education and Science of the Republic of Kazakhstan, research and development under business contracts, international grants) totals **69,849,951.98**.

The department conducts scientific research on projects in which doctoral students directly participate. The topics of their diploma papers, master's and doctoral dissertations correspond to this area of scientific research.

Every year, students of the educational program «6B08302-Forest Resources and Forestry» participate in the Republican Subject Olympiad and take prize places accordingly.

Taking into account the requirements of the labor market and at the suggestion of employers, new elective disciplines are being introduced into the work curricula and catalogs of elective disciplines.

After graduating from the university, graduates will be employed in all areas of the forestry profile

### **3 Characteristics of the problems that the educational program development plan aims to solve**

1) Pay more attention to international cooperation, participation of scientists in international scientific and educational programs and projects;

2) To keep under special control the effectiveness of the implementation of research results in production and the educational process;

3) Pay attention to the introduction of patents and licenses for inventions into production;

4) Make greater use of the opportunity to publish in foreign publications;

5) To increase the participation of students in grants, contractual, state-funded scientific works and conferences of other universities.

### **4 The main goals and objectives of the educational program development plan**

The purpose of the educational program *6B08302 - Forest resources and forestry* is to train qualified forestry personnel with knowledge in the field of green construction, landscape art and IT technologies that meet modern international requirements

The purpose of the educational program *7M08302 - Forest Resources and Forestry* is to train forestry industry specialists who are competitive in the labor market for state, local, regional, and foreign institutions, as well as to train scientific and pedagogical personnel for higher educational institutions and colleges.

The goal of the educational program *7M08305 - Forest Resources and Forestry* is the implementation of educational and scientific results, achievements of science and technology in the preparation of students for competitive master's degree specialists in the labor market.

The purpose of the educational program *8D08302 - Forest Resources and forestry* is to train specialists with a high level of professional culture, competitive in the modern labor market, with fundamental educational, methodological and research training, ready to join the ranks of scientists and obtain a PhD degree.

The main objective of the educational development plan is:

1. Development of human resources.

2. Providing students with professional knowledge and practical skills to carry out all types of professional activities in the field of forestry.

3. Training highly qualified personnel in the field of forestry, ensuring high-quality performance of professional duties, able to solve practical tasks and problems in various situations, be competent in the field of forestry and landscaping.

*To achieve the goal, it is necessary to solve the following tasks:*



-Improving the quality of education in accordance with the requirements of domestic and international standards.

-Formation of theoretical and practical knowledge, skills and abilities necessary for their implementation in further professional activity.

-Consultation of employers and scientists of the Research Institute in the selection of relevant and practically significant topics of theses, master's and doctoral dissertations.

#### **5. Expected final results of the implementation of the educational program:**

- The demand for postgraduate education programs will increase annually;
- to strengthen the integration of education, science and production through a continuous system of training specialists at the following levels: bachelor's degree – Master's degree-doctoral degree;
- to improve the professional level through foreign internships, etc.

#### **6. Measures to reduce the impact of risks for the educational program**

- Creation of an innovative educational environment;
- Expansion of the educational space;
- Attracting talented young people to scientific work;
- Development of multilingual education in order to expand the range of languages studied;
- Development of a system for advanced training of teaching staff;
- Expansion of international cooperation of the university with universities in the near and far abroad within the framework of scientific projects and academic mobility of students and teaching staff;
- Ensuring the demand for graduates in the labor market;
- Implementation of innovative teaching technologies and results of scientific work of the department's teaching staff in the educational process;
- Equipping the educational process with modern equipment.

#### **7 List of activities of the plan for the implementation of the educational program**

№	Events	Implementation dates
1	Improving the educational program of bachelor's, master's and doctoral programs taking into account the opinions of potential employers and aimed at mastering	2024-2028
2	Active implementation of academic mobility of students and teaching staff	2024-2028
3	Expanding scientific cooperation and partnerships with leading foreign universities and research centers, attracting leading foreign scientists to carry out scientific research and give lectures to students	2024-2028
4	Equipping classrooms with modern equipment	2024-2028
5	Submission of applications for the competition for scientific projects of the Ministry of Agriculture, the Ministry of Education and Science of the Republic of Kazakhstan, etc., as well as those carried out by order of regional agricultural production cooperatives and business entities	2024-2028
6	Publication of scientific articles in journals included in the Web of Science and Scopus databases, in scientific journals with an impact factor	2024-2028
7	Passing independent national specialized accreditation for the EP	2026

8	Participation in the national ranking of educational programs among universities of the Republic of Kazakhstan	annually
9	Preparation and participation of students in the Republican University Olympiads on this EP	annually
10	Develop courses on the taught disciplines on the international Coursera platform	2024-2028
11	Strengthen dual education with subsequent employment of graduates	2024-2028

Those responsible for the activities for the implementation of the EP are the head of the department, the developers of the EP and the teaching staff of the department.

### **8 Mechanism for implementing the educational program development plan**

- To carry out targeted work to increase the number of grants for the OP.
- For the implementation of educational programs, the staff of the department will develop catalogs of elective disciplines with the direct participation of employers.
- Trips of students to basic farms, to higher educational institutions of the near and far abroad countries will be organized.
- Leading scientists from near and far abroad will be invited to give lectures and practical classes to students.
- Stakeholders will be invited to give guest lectures.
- During the organization of the "Graduate Fair", employers from all spheres of various forms of economic entities of forest institutions from other regions of the Republic of Kazakhstan will be invited.

### **9 Evaluation of the socio-economic efficiency of the implementation of the educational program development plan**

As a result of the implementation of educational programs, scientific developments and recommendations of the department's scientists will be implemented in farms. Targeted work will be carried out to implement the employment of graduates, as well as career guidance work among graduates of the faculty.

## **10. SWOT – analysis**

<b><i>S - strength</i></b> <ul style="list-style-type: none"> <li>- Quite a high annual student intake for the EP</li> <li>- Enhanced student practice base</li> <li>- Student participation in social and sports life with winning prizes</li> <li>- Developed educational and methodological base</li> <li>- Developed public relations</li> <li>- Dynamically developing material and technical base</li> <li>- The power of the rector's authority</li> <li>- Information openness (availability of a website)</li> <li>- High motivation of the teaching staff</li> </ul>	<b><i>W - weakness</i></b> <ul style="list-style-type: none"> <li>- Material and technical base</li> <li>- Lack of a university-wide program for attracting and retaining young teachers</li> <li>- Overload of methodological work</li> <li>- Limited financial resources</li> <li>- Low activity of research and development</li> <li>- Aging of PhD staff</li> <li>- Low level of proficiency of teaching staff in foreign languages;</li> </ul>
<b><i>O - opportunity</i></b> <ul style="list-style-type: none"> <li>- Attracting teachers - professors, candidates of science from other universities, by creating a flexible schedule and the possibility of increasing salaries</li> <li>- Improving the image of the university through advertising in the media</li> <li>- Investment of foreign and private entrepreneurs in the educational process</li> </ul>	<b><i>T - threat</i></b> <ul style="list-style-type: none"> <li>- Competition in attracting students;</li> <li>- Outflow of young people and school graduates abroad;</li> <li>- Reduction of state grants</li> <li>- Natural disasters and natural cataclysms</li> </ul>

## 11. Model of a graduate

	6B08302- Forest resources and forestry	7M08302/7M08305- Forest resources and forestry	8D08302- Forest resources and forestry
Be able to:	<ul style="list-style-type: none"> <li>- develop and implement projects for forest nurseries, forest crops, forest melioration, forest thinning, forest exploitation, mechanization of forestry work, forest management, forest taxation;</li> <li>- control forest management work and production of its acceptance;</li> <li>- organize and carry out work on the protection of forests from fires, poisoning, unauthorized cutting, as well as on the control of forest pests and diseases;</li> <li>- compile current and annual reports of state forestry institutions, national nature parks and other specialized enterprises;</li> <li>- organize and carry out work on the design, construction, major repairs and operation of landscape architecture objects, reconstruction of green spaces and parks; drawing up acts on forest fires and other forest violations.</li> </ul>	<ul style="list-style-type: none"> <li>- master the methods of planning and conducting scientific research;</li> <li>- use the methods of statistical analysis and obtaining reliable information; organization of a permanent forest seed base, with methods of harvesting, storing and processing seeds, preparing them for sowing, growing planting material and creating sustainable forest plantations;</li> <li>- design ornamental nurseries, propagation of tree and shrub species by seeds, cuttings, inventory of planting material;</li> <li>- carry out forest taxation work on, inventory of forests and methods of processing field materials using special computer programs, laying forest management trial areas, accounting sites, selecting model trees, samples and making their measurements;</li> <li>- collection and use of types of wood and non-wood raw materials;</li> <li>- apply forest legislation in forest resource management; in matters of using aerial and space survey materials in forestry, the essence of space survey;</li> </ul>	<ul style="list-style-type: none"> <li>- use digital information in statistical analysis methods; conduct analysis of legislative acts and by-laws and measures for state support of entrepreneurial activity and individual types of production in Kazakhstan;</li> <li>- analyze environmental processes and set specific tasks and priorities in environmental protection activities;</li> <li>- manage the forest sector and regulate forest relations;</li> <li>- master the methodology of economic assessment of forest resources; analysis, generalization and conclusion based on the results of scientific work;</li> <li>- give lectures, conduct practical and seminar classes on forestry disciplines;</li> </ul>
Know and understand:	<ul style="list-style-type: none"> <li>- morphology and biology of woody plants, patterns of development of forest biogeocenoses, forest typology, structure of forest resources;</li> <li>- methods of thinning and final forest use that ensure its reproduction;</li> </ul>	<ul style="list-style-type: none"> <li>- ecology and biology of forest plants, adaptive traits of plants, problems and solutions of introduction activities;</li> <li>- innovative methods of forest cultivation, progressive technologies of forest seed production, organization of forest seed base on genetic and</li> </ul>	<ul style="list-style-type: none"> <li>- requirements for the organization and planning of a scientific experiment in forestry experimental work;</li> <li>- basic methods of studying forest objects;</li> <li>- modern computer programs for processing statistical data;</li> <li>- methods of conducting private</li> </ul>

	<ul style="list-style-type: none"> <li>- methods of forest seed production, organization of a permanent forest seed base on a selection and genetic basis;</li> <li>- methods and technologies for growing planting material, methods for creating forest crops, protective and greening forest plantations;</li> <li>- forest management and wood processing technology, use of non-wood forest usefulness;</li> <li>- methods and rules of forest management and forest taxation, application of aerospace methods for forestry purposes;</li> <li>- technologies of forest reclamation and landscape taxation.</li> </ul>	<p>selection basis;</p> <ul style="list-style-type: none"> <li>- modern methods and technologies of growing planting material; sustainable management of forest resources;</li> <li>- progressive methods of forest management and forest taxation, interpretation of aerospace images;</li> <li>- history and philosophy of forest science, fundamentals of psychology and pedagogy; modern technology, methodology and technical means of teaching;</li> <li>- methods of laying forest management trial plots, accounting and circular sites, planning and conducting scientific experiment; modern methods of forest protection and conservation;</li> <li>- rational use of forest resources, progressive technologies of growing forest and plantation crops taking into account world achievements in the field of forest science.</li> </ul>	<p>forestry; experience of growing forests on a private basis in other countries; possibilities for organizing private forestry in Kazakhstan; development of schemes for the application of private forestry methods for the conditions of Kazakhstan;</p> <ul style="list-style-type: none"> <li>- general patterns of interaction between living organisms and the environment; distribution of living organisms in space and time, changes and regulation of the number of organisms, the flow of energy through living systems and the cycle of substances, the functioning of ecological systems and the biosphere as a whole;</li> <li>- principles of rational nature management; fundamentals of forest ecology; the consequences of the impact of unfavorable environmental factors on specific tree species;</li> <li>- ways and methods of determining the stability of trees and plantings; theoretical aspects of forest seed business and principles of forest seed zoning; factors favorable to the occurrence and development of forest fires, causes of forest fires;</li> <li>- preparatory work, extinguishing forest fires, tactics and techniques for extinguishing forest fires; forest fire registration, assessment of the consequences of forest fires; main types of non-timber forest products;</li> <li>- modern directions of complex use of non-timber forest products; ways of rational use and protection of forest non-timber resources.</li> </ul>
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Be competent:	<ul style="list-style-type: none"> <li>- in the performance of their professional functions;</li> <li>- development and implementation of projects for forest nurseries, forest crops, forest melioration, forest thinning, mechanization of forestry work, forestry;</li> <li>- organization and implementation of work on forest taxation, forest management, protection of forests from fires, unauthorized logging, as well as in the fight against forest pests and diseases;</li> <li>- preparation of current and annual reports of state forestry institutions, national nature parks and other specialized enterprises.</li> </ul>	<ul style="list-style-type: none"> <li>- in conducting scientific theoretical and experimental research;</li> <li>- in drafting and implementing complex research projects;</li> <li>- in matters of scientific methodology, use of modern software products, processing of obtained results and forms of their presentation;</li> <li>- in the field of social and economic policy of the state, economics and management of state institutions, organizations and enterprises of the forestry industry;</li> <li>- in matters of organizing, planning, conducting all types of professional activities related to forestry;</li> </ul>
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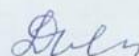
Dean of the Faculty of Forestry and Land Resources



D. Sarsekova

Head of the Department of Forest Resources,

Game Management and Fisheries



F. Toktassynova