Ministry of Education of the Republic of Azerbaijan

Approved by Order No. _____ of the Ministry of Education of the Republic of Azerbaijan dated _____

State Standard of Higher Education

Bachelor's Degree Program in the Specialty

Code and Title of Specialty (Program): 050706- Forestry

BACHELOR'S DEGREE EDUCATIONAL PROGRAM in the Specialty

050706- Forestry

1. General Provisions

1.1. **The Bachelor's Degree Program in the Specialty 050706 – Forestry** (hereinafter referred to as the **Specialty Education Program**) has been developed in accordance with the Law of the Republic of Azerbaijan "On Education", the relevant resolutions of the Cabinet of Ministers of the Republic of Azerbaijan, as well as the "Classification of Specialties (Programs) for the Bachelor's Level of Higher Education (Basic Higher Medical Education)".

1.2. Objectives of the Education Program:

- To define the graduate competencies in the specialty, the scope of the specialty, teaching and learning methods for each subject, assessment methods, learning outcomes, infrastructure and human resource requirements for personnel training, as well as opportunities for students to undertake internships, gain employment, and pursue further education;
- To inform students and employers about the knowledge and skills acquired by graduates, as well as the learning outcomes;
- To provide relevant information to experts involved in evaluating the compliance of personnel training with the Education Program.

1.3. The Education Program is mandatory for all higher education institutions operating in the Republic of Azerbaijan, regardless of their subordination, ownership type, or organizational-legal form, that offer bachelor's degree training in the specialty **050706 – Forestry**.

1.4. The total weekly workload for students, including both classroom and extracurricular activities, is 45 hours based on a 5-day work schedule (excluding special-purpose higher education institutions). The number of weekly classroom hours must not exceed 50% of the total weekly workload. Depending on the specific nature of the specialty, the total weekly workload may be subject to change.

2. **Graduate Competencies**

2.1. Upon completion of the Education Program, the graduate must possess the following general competencies:

- Oral and written communication skills in the Azerbaijani language within their specialty;
- Communication skills in at least one foreign language related to their specialty;
- Systematic and comprehensive knowledge of the historical, legal, political, cultural, and ideological foundations of Azerbaijani statehood, as well as its position and role in the modern world; the ability to forecast the future development of the national state;
- Ability to identify threats and challenges facing the national state;
- Ability to use information technologies in the workplace;
- Ability to work in a team and to achieve collaborative approaches to problem-solving;
- Ability to adapt to new environments, take initiative, and maintain the determination to succeed;
- Ability to identify and select additional information resources for solving problems;
- Skills to analyze, synthesize, and apply relevant information for professional purposes;
- Ability to plan and organize professional activities, improve existing skills and pursue further education, manage time effectively, and complete tasks on schedule;
- Ability to act with social and environmental responsibility, demonstrate civic consciousness and ethical behavior, and prioritize quality in their work;
- Ability to reassess situations and self-reflect to develop knowledge and skills (self-criticism);
- Competence in analyzing complex systems, identifying and understanding interrelations, comprehending the principles of interconnection between systems across different fields and levels, and functioning under conditions of uncertainty (systemic thinking competence);
- Ability to comprehend and evaluate alternative future scenarios (possible, probable, and desirable), form a clear vision of the future, assess the potential outcomes of actions, and consider risks and changes (futures thinking competence);
- Ability to collaboratively develop and implement innovative decisions aimed at ensuring and enhancing sustainability at local and broader levels (strategic vision competence);
- Ability to learn from others, understand others' needs, opinions, and actions (empathy), resolve conflicts within a group, and participate in collective and

multilateral cooperation focused on problem-solving (collaborative work competence);

- Ability to critically analyze established norms, approaches, and ideas; assess personal viewpoints and actions; and defend one's position in discussions related to sustainable development (critical thinking competence);
- Ability to critically evaluate one's role in society (self-awareness competence);
- Ability to employ different problem-oriented approaches for solving complex issues and make integrated and fair decisions based on the aforementioned competencies (complex problem-solving competence);
- Ability to understand and analyze diverse perspectives and approaches, integrate different viewpoints, and generalize the various perspectives arising from global diversity (multicultural awareness and openness);
- Ability to form interdisciplinary approaches and make decisions (interdisciplinary communication competence).

2.1. Professional Competencies

At the conclusion of the Education Program, the graduate must possess the following **professional competencies**:

- Understand the specific importance of mathematics in comprehending the world and mastering other sciences, and be able to apply this knowledge in solving problems related to their field;
- Be familiar with technologies for obtaining, storing, processing, and transmitting information; have practical experience in using software and computing technologies; and be capable of applying them in solving field-specific problems;
- Know the fundamental concepts and methods of mathematical analysis, analytic events, linear algebra, probability theory, mathematical statistics, and discrete mathematics, and apply this knowledge to specialty-related tasks;

- Be capable of applying basic methods for processing empirical data;
- Possess knowledge of major chemical systems and processes in the natural sciences, including the properties and reactivity of chemical systems and natural substances, the principles of chemical similarity, substance detection, biological forms of matter organization, and the growth and development characteristics of living systems, and be able to apply this knowledge in the field;
- Have knowledge of the biosphere and its evolution, the composition and integrity of living systems, interactions between organisms and their environment, the unity of organisms and ecological systems, principles of sustainable use and protection of nature, and ecology, and apply this knowledge to specialty-related issues;
- Be capable of developing environmentally friendly technologies, understand the potential application of the latest discoveries in natural sciences in the construction of technical devices, and carry out physical-chemical and biological modeling;
- Know and be able to apply theoretical and experimental research methods in physics, chemistry, and ecology;
- Understand the interaction between forests and meteorological, climatic, and hydrological conditions; determine optimal climatic conditions for forest plants; and plan their spatial distribution accordingly;
- Have knowledge of forest management economics, organization and development, labor management and compensation, enterprise administration, and modern marketing concepts, and apply them in professional practice;
- Understand geodetic coordinate systems and measurement tools, including their structure and operation; be able to conduct field measurements with theodolites, calculate land areas, subdivide parcels, read maps and aerial/satellite images;
- Understand plant physiological processes, laws governing these processes, their relationship with the environment, and determine favorable factors for plant life;
- Identify microorganisms based on morphology and cell structure; understand their classification, heredity, variability, ecology, physiology, biochemistry, and apply them in a beneficial way to humans;
- Understand human interaction with wildlife, sustainable hunting, the role of wildlife in nature and human life, and forest wildlife conservation and management;
- Organize forest protection activities; know the responsibilities of forestry bodies and applicable forest protection laws; conduct forest pathology examinations; plan forest protection measures; use microbiological agents and pesticides; and identify pests and

diseases affecting mature trees and foliage, as well as understand the dynamics of pest outbreaks;

- Recognize the role of dendrology in studying tree and shrub species that constitute forests, and apply this knowledge in professional practice;
- Understand the types of forest reclamation activities, tree and shrub assortments used for reclamation, project planning principles, agro-forestry reclamation techniques, and prepare corresponding technological reports;
- Analyze forest ground cover and features; interpret remote sensing data; perform morphographic analysis of forests and shrublands; and determine the density of vegetation using aerial imagery;
- Be familiar with labor protection legislation and normative documents; know the technical and engineering methods for ensuring safety; and organize labor protection processes;
- Understand the construction, operation, and future development of tractors and automobiles used in forestry; know the types of operational materials required;
- Know soil formation processes, structure, composition, properties, geographic distribution laws, soil fertility interactions with environmental factors, efficient soil use methods, and fundamentals of agriculture;
- Be familiar with the problems, goals, and objectives of genetics and breeding; understand the theoretical foundations, research methods, cytological basis of reproduction, genetic analysis, linkage inheritance, crossing-over, variability, distant hybridization, seed production of new varieties, variety replacement and renewal, and seed inspection;
- Understand methods for forest valuation, measurement procedures, determination of volume for standing and felled trees, assessment of quantity and quality of harvested wood materials, analysis of timber growth, tree height progression, and material and economic evaluation of forest cutting areas; conduct forest inventory;
- Be familiar with principal methods of afforestation; organize seed production; cultivate planting materials; and apply agro-technical care to plantations;
- Understand the role of urban greening as part of city planning in improving and purifying the urban environment; know the classification of green spaces and their creation methods; identify decorative, resilient tree, shrub, and flower species suitable for urban conditions;

- Recognize the dynamic relationship between organisms and the environment in forests; understand forest morphology, biology, and the structure of forest biogeocenoses; grasp the influence of biotic and abiotic factors; and apply basic forestry methods in managing and transforming forest ecosystems;
- Comprehend the significance of comprehensive forest study, monitoring, and registration in organizing, managing, and developing forestry; understand the contents and applications of forest management documents;
- Be able to assign forestry measures based on descriptive forest inventory data; interpret and identify designated forest plots on forest maps and project documentation; implement the silvicultural measures outlined in forest management plans;
- Utilize the goals and tasks set forth in the **National Forest Program of the Republic of Azerbaijan on the Protection and Sustainable Development of Forests (2020–2030)** (hereinafter referred to as NFP);
- Be familiar with the implementation procedures for forest restoration, expansion, and development as defined by the National Forest Program.

3. Structure of the Education Program

3.1. The Education Program in the specialty **050706 – Forestry** consists of a minimum of 240 ECTS credits**,** corresponding to 4 academic years (full-time education)**.** The distribution of credits is as follows:

Number of Courses	**Course Category**	**ECTS Credits**
General Education Courses		
1	**Azerbaijani History** This course examines the emergence, stages, formation, and development of modern statehood traditions in Azerbaijan. It analyzes and studies the political, ideological, economic, and cultural	5

	factors that have contributed to the strengthening of contemporary Azerbaijani statehood. To foster patriotism among students, the political history of states established at various historical stages and examples of heroism by notable individuals are interpreted based on historical facts. The course provides a systematic analysis of Azerbaijan's position and role in the modern world. The primary objective is to develop students' broad worldview, love of homeland, ability to analytically evaluate historical events, and capacity to draw accurate conclusions from events and political processes.	
2	**Business and Academic Communication in Azerbaijani Language** This course focuses on developing students' skills in delivering presentations, public speaking, as well as academic and professional writing in the Azerbaijani language. Special emphasis is placed on enhancing effective communication competencies necessary for both academic and business environments.	4
3	**Business and Academic Communication in a Foreign Language** This course emphasizes developing students' skills in delivering presentations, public speaking, academic and professional writing, as well as oral and written communication in one of the foreign languages relevant to their specialty.	15
	Elective Courses 6 ECTS	
4	□ Philosophy	3
	□ Sociology	
	□ Constitution of the Republic of Azerbaijan and Fundamentals of Law	
	□ Philosophy	
	Introduction to Multiculturalism	
	Fundamentals of Entrepreneurship and Introduction to Business	

5	Information Technologies in the Agrarian Sector (specialty-oriented)	3
	Information Management in Agriculture (specialty-oriented)	
	Logic	
	Political Science	
	Total	30
	Core (Compulsory) Specialty Courses	
6	**General Chemistry** The course covers fundamental concepts and laws of chemistry, classical and modern theories about the nature of solutions, atomic structure, and the characterization of the energetic states of electrons in atoms using quantum numbers. It includes classical and modern theories on the nature of chemical bonding, types of chemical bonds, mechanisms of covalent bond formation, hybridization of atomic orbitals, and the corresponding geometric shapes. The course also discusses classical and modern theories of coordination compounds, including contemporary complex formation theories (ECM, LCAO, MO), classification and nomenclature of coordination compounds, classification and general characteristics of chemical elements, and information on organogenic and biogenic elements. Additionally, detailed information is provided on laboratory work procedures, technical safety, first aid in accidents, handling of toxic and hazardous substances, etc. The physical and chemical properties of elements and synthesized substances based on them, as well as their characteristic reactions, are explained in detail.	4
7	**Mathematics** The course includes the development of skills and competencies related to matrices, determinants, solving systems of linear algebraic equations (SLAE), quadratic forms, linear spaces, limits, derivatives, integrals of functions, and their applications. Upon completion, students will be able to perform operations on matrices of various sizes and orders, calculate determinants, solve SLAEs by different methods, find extrema of single-variable and multivariable functions,	5

	compute definite and indefinite integrals, and solve related applied problems.	
8	**Physics** This course enables students to study the nature of physical processes occurring in nature, forests, tree trunks, and soil cultivation. It covers general physics topics including Mechanics, Thermodynamics, Classical Mechanics, Particle Kinematics and Dynamics, Energy and Acceleration, Conservation Laws, Rotational Dynamics, Oscillatory Motion, Gravity, Thermodynamics, and Kinetic Theory of Gases. The course also includes Electrostatics, conductors and insulators; DC circuits; magnetic forces and fields; magnetic effects of moving charges and currents; electromagnetic induction; Maxwell's equations; electromagnetic oscillations and waves. Students are introduced to geometric and physical optics, as well as sections on Optics, Atomic Physics, Nuclear Physics, and Electromagnetism.	4
9	**Botany** This course covers the classification of botanical science, classification of plant species, taxonomy and nomenclature in the plant kingdom, cellular structure, plant tissues, plant morphology, external and internal morphology of roots, main metamorphosis, primary and secondary root structure, external and internal morphology of leaves, leaf metamorphosis, structure of vegetative and generative organs, and general information about fruits and seeds. Students gain knowledge about the plant kingdom and its diversity, plant morphology and anatomy, and the structure of cells.	4
10	**Geodesy** Geodesy instruments and devices, their purpose and operating principles. Geodesy coordinate system. Mapping of Forest Fund Lands. Plans, maps, and photoplans. Aerial photogrammetry. Georeferencing of plan-cartographic materials to the geodesy	4

	coordinate system and topographic description of the area, methods and techniques of mapping. Cartography and GIS technologies. Digital maps.	
11	**Systematics of Higher Plants** The origin and development history of plant systematics. Fundamentals of the systematics of living organisms. Objectives of modern systematics. Classification, nomenclature, and phylogenetics. Taxonomy (system of classifying taxa), nomenclature (system of naming taxa), phylogenetics (relationships among taxa). Taxonomic categories and taxa, binomial nomenclature. Types and methods of systems. Primitive plants. Higher spore-bearing plants. Gymnosperms. Angiosperms or flowering plants. Linnaeus's binomial systematics. Accepted nomenclatural units in systematics. Main taxonomic units in modern systematics. WCSP and the St. Louis Code.	4
12	**Meteorology and Climatology** Structure of the atmosphere, heat and solar radiation, water vapor in the atmosphere, humidity, condensation, fog, clouds, and precipitation, pressure and wind, meteorological observations and evaluation, air masses and fronts, climate classification, climate of Azerbaijan (macroclimate types in Azerbaijan), climate changes. Long-term and current climate indicators. Climate types and climate formation. Climate variations. Considerations in planning.	4
13	**Informatics** Within this course, students learn about information, its measurement, storage, and processing methods; modern computers, their internal structure, main and auxiliary devices, functions; modern software and operating systems; algorithmization, programming languages and their usage; widely used application programs and how to use them; working with graphic editors; databases, their structure, creation, and basic management principles; computer graphics; local and global computer networks and their operation principles; information security and methods to ensure it;	4

	and the internet and how to use it. Students must learn applied methods of informatics in their specialty and be able to apply computer technologies in solving various problems in their field.	
14	**Forest Genetics and Selection** The genome and hereditary traits of forest trees and shrubs, genomics. Variability of hereditary traits and their transmission to the next generation. Methods of genomic research. Chromosome, allele, locus. DNA sequencing, replication. Tasks faced by forest selection. Methods for improving the quality of forest seeds. The role of selection in increasing the productivity and tolerance of forest tree and shrub genera. Genomics and genome research. Classical and modern selection methods.	4
15	**Dendrology** The content and main tasks of dendroflora study. Economic importance and ecological characteristics of tree plants. Area and its types, introduction, phenology. Morphology of reproductive organs of gymnosperms. Main taxonomic representatives of conifers and their distribution in Azerbaijan. Ginkgo, Pinaceae family, Pinus, Cedrus, Larix, Pseudolarix, Picea, Pseudotsuga, Tsuga, Abies, genus Taxodiaceae, Taxodium, Cryptomeria, Sequoia, Sequoiadendron, Metasequoia, Sciadopitys, Thuja, Biota, Thujopsis, Calocedrus, Cupressus, Chamaecyparis, Xcupressosyparis, Juniperus, Arceuthos genus and species. Morphology and species of various organs of angiosperms (shoot, bud, flower, leaf, fruit, seed), systematics and taxa of Angiospermae. Silvicultural features and economic importance of angiosperm trees and shrubs.	8
16	**Soil Science** Soil formation process. Soil genesis, fertility indicators, classification, descriptive attributes of soil profile. Classification of soils, soil types and subtypes. Interactions between forest and soil. Fertility and moisture indicators of soils. Elements and description of soil profile. Forest types and subtypes distributed in Azerbaijan, their	4

	protection and productivity enhancement. Methods to increase fertility of forest soils.	
17	**Labor Protection** Legislative acts ensuring human health, safety, and efficiency in the labor process; a system of organizational-technical, sanitary-hygienic, and socio-economic measures. Labor protection rules and compliance. Labor protection in hazardous activity areas (forest exploitation, pesticide application)..	3
18	**Forestry** Components of the General Forestry course. Part I is forest science, which covers the nature of the forest. The nature of the forest and processes occurring in forest life. Morphology of stands. Forest and environmental factors, their interactions and roles. Elements of stands. Natural regeneration of the forest. Differentiation of trees within the stand composition. Forest and biotic factors. Interactions between forest, soil, and climate conditions, forest morphology, main elements of the stand, tree classification, components of the forest biogeocenosis, forest and fauna, forest types, and succession of genera in the forest. Forestry and economic characteristics of genera forming forests. Consideration and evaluation of natural forest regeneration. Management of forest nature. Determination and implementation of forestry economic activities in production. Organization of main, intermediate, and additional forest use. Objectives and tasks of practical forestry training. Management of forest nature. Based on the biological and ecological characteristics of plants forming forests and the ecological functions of forests, determination and implementation of forestry economic activities in production. Organization of main, intermediate, and additional forest use.	8
19	**Forest Entomology** The role of insects in forest life. Harmful insects. Types of damage and control measures. Economic importance of insects. Development of forest entomology worldwide and in Azerbaijan. External	4

	structure of insects (morphology). Structure and functions of internal organs of insects (anatomy and physiology). Reproduction and development of insects. Methods of pest control. Collection, preparation, and preservation of insects. Classification of insects. Types of damage caused by insects. Insects damaging leaves. Insects harming buds, shoots, leaves, and needles. Insects damaging seeds and seedlings. Silk-producing insects. Insects damaging bark and cambium layers. Insects harming roots. Wood-damaging insects.	
20	**Phytopathology** Identification of biotic factors causing diseases in forest trees such as fungal, bacterial, viral pathogens, parasitic flowering plants, and weeds; determination of abiotic causes including adverse climatic and soil factors; environmental pollution; indiscriminate use of pesticides in forest trees; biological control against biotic and abiotic disease factors. Diseases of forest trees and shrubs, planting material, fruits, and seeds. Pathogenic organisms. Damage caused to forest management.	4
21	**Forest Mensuration** It covers the methods and techniques for evaluating the quantity and quality of forest resources, primarily timber, in both dynamic and static terms, as well as from material and value perspectives. The basis of forest mensuration is measurement, which determines quantity from the obtained results. Forest mensuration includes the study of measurement units, measurement methods, errors occurring during measurement, and their correction. It involves physical and mathematical mensuration methods. Simple and complex methods (mathematical formulas) for determining the volume of a felled tree trunk. Quantities characterizing the shape and structure of a standing tree trunk (coefficients), form factor, taper coefficient, and stem curve. Determining the volume of a standing tree trunk. Mensuration of roundwood assortments (logs, sawn timber, firewood, and small forest materials). Main mensuration indicators of a forest stand.	8

	Methods of forest stand mensuration. Model tree method. Evaluation of the forest from material and value perspectives.	
22	**Forest Plantations.** Establishment of the forest seed base. Seed production of tree and shrub species and factors affecting seed yield. Accounting and forecasting of seed production. Procurement, processing, and storage of seed raw materials. Selection categories of forest seeds. Documentation and certification of seeds. Quality control and improvement of seeds. Organization of nursery farms and cultivation of planting material. Nursery divisions and types of cultivated planting material. Sowing section and seedling cultivation. Growing section and seedling development. Vegetatively propagated planting material. Application of pesticides (chemicals) in nurseries. Modern technologies for cultivation of planting material. Inventory, digging, storage, and transportation of planting material. Methods and techniques for establishing forest plantations. Complete and partial forest plantations, pure (monoculture) and mixed forest plantations. Planting scheme and feeding area, planting density. Species mixing schemes in plantations. Agrotechnical care of forest plantations. Conversion of forest plantations into forest-covered areas. Inventory and examination of forest plantations.	8
23	**General Agriculture.** Theoretical foundations of soil cultivation and cultivation technology. Main tasks in soil cultivation. Methods and types of soil cultivation. Technological processes occurring in the soil during cultivation. Methods and types of soil cultivation. Multiple-crop rotation planting system. General and specific soil cultivation methods. Soil cultivation methods applied in nurseries. Soil preparation for the establishment of forest plantations. Modern soil cultivation methods.	4
24	**Forest Machines and Tractors.**	4

	Classification of machines and tractors used in forestry. Machines and tractors used in nurseries, soil preparation and soil cultivation for forest plantations, and forest management. Wheeled 4-wheel and crawler tractors. Comparative assessment of their impact on the forest environment, soil, and regeneration from ecological and forestry perspectives.	
25	Economics, Organization, and Management of Forestry Organization and management of forestry. Forestry as a part of the national economy and a long-term production process. In forestry production, the forest simultaneously serves as both a means of production and a production output. Financing of forestry. Labor wages in forestry. Forest income. Administrative and territorial organization of forestry management. Capital investment in forestry and the payback (repayment) period of expenses.	4
26	**Mathematical Statistics** Basic statistical concepts and definitions. Variable quantities. Main statistical parameters characterizing variable quantities, their calculation and evaluation. Probability theory and the normal distribution law. Chi-square, Student's t-test, and Fisher's criteria. Sampling methods. Comparison and evaluation of two populations. Concept of correlation and its calculation. Regression, analysis of variance, covariance analysis. Conducting other statistical analyses.	4
27	**Wood Science and Forest Commodities** Different types and classification of harvested wood. Forest assortments, round wood assortments, sawn timber, small-sized forest materials, and firewood. Quality and quantity indicators of wood. Macro and microstructure of wood, chemical composition. Mechanical and thermal processing of wood. Commodity characteristics of wood. Defects of wood, their classification and impact on the quality and commodity indicators of wood. Grades of round wood and processed sawn timber and methods for their determination.	4

28	The necessity and importance of conducting forest structure activities in the organization, management, and development of forestry operations on forests; the organization and regulations of forest structure activities; the composition and procedural sequence of forest structure work, and the forest structure documentation prepared; the theoretical foundations of forest structure; the Unified State Forest Fund Lands, their composition; technical and silvi cultural forms of forestry; principles of forestry operations; forest maturity; types of plan-cartographic materials and methods for their preparation; the use of GIS data in the compilation of forest maps; fundamentals of forestry organization; structure and content of the forest structure project; preparatory work for forest inventory; degrees of forest structure and division of forests into compartments; establishment and field implementation of the compartment grid; forest inventory and compilation of field mensuration descriptions; fundamentals of forestry organization and the forest structure project; forest structure methods, including plot and age-class methods; analysis of past activities of the forest structure object; organization of forest use, including clear-cutting and intermediate cutting; forest regeneration measures; and forest protection and conservation."	8
29	**Forest Reclamation and Protective Afforestation** Phytoreclamation. Forest reclamation as a principal type of phytoreclamation; types and application areas of forest reclamation. Determination of tree and shrub species composition in forest reclamation; methods of mixing plant species in plantations. Establishment of forest reclamation plantations aimed at stabilizing ravines, gullies, and sandy areas to prevent soil erosion. Creation of protective forest reclamation belts with various functional purposes."	4

30	**Ornamental Gardening and Landscape Design** The history, objectives, and tasks of the ornamental gardening discipline. The role of gardens and parks in human life. Centers of origin of ornamental plants. Classification of coniferous plants. Classification of roses and other broad-leaved ornamental plants. Methods of propagating ornamental plants. The role of ornamental gardening in the design of gardens and parks. Various forms of ornamental plants. Natural canopy forms. Habitus. Creation of canopy forms on trees and shrubs in ornamental gardening. Molds used for shaping. Types of espalier, candelabra, vase cup-shaped, and double vase-shaped molds. Methods of ornamental pruning: formative, regulating, sanitary, and rejuvenating pruning techniques. Light, medium, and heavy pruning degrees. Formation of the canopy: timing, intensity, and techniques of pruning. Principles of natural canopy forms and their creation. Execution of dry and green pruning. Vertical greening and green hedges.	4
	Total	120
	Courses Determined by Higher Education Institution **60 ECTS** The courses listed here are individually determined by each higher education institution and are included in the curriculum of the respective academic program.	60
	INTERNSHIP AND FINAL STATE CERTIFICATION -30 ECTS	
	Teaching Practice	
1	Practice-1	4,5
	Practice -2	6
	Internship	
	Practice-3	4,5

	Practice -4	6
	State Final Graduation Examination	9
	TOTAL	30
	FINAL	240

These courses are offered by the higher education institution taking into account the experience of the faculty members, research infrastructure, and local as well as international employment opportunities. The courses determined by the higher education institution must be elective for students and should also facilitate students' participation in international exchange programs.

4. Teaching and Learning

4.1. The teaching and learning environment must be organized in a way that enables students to achieve the intended learning outcomes defined in the academic program.

4.2. Teaching and learning methods must be described in relevant documents (e.g., course syllabi) and made publicly available (e.g., on the university website, in program brochures, etc.).

4.3. Teaching and learning methods should be continuously reviewed and improved in line with innovative educational practices. The regular enhancement of these methods should be an integral part of the institution's internal quality assurance system.

4.4. A variety of teaching methods must be employed during the educational process. These methods should promote a student-centered approach and encourage active student engagement in the learning process. Examples of applicable teaching and learning methods include (but are not limited to):

- Lectures, seminars, and practical assignments;
- Presentations, discussions, and debates;
- Independent study/research (e.g., working with real-life case studies);
- Project-based work;
- Problem-based learning;
- Fieldwork;
- Role-playing exercises;

- Reports;
- Peer assessment;
- Expert method;
- Video and audioconferencing technologies;
- Video and audio lectures;
- Distance learning;
- Simulations;
- Etc.

4.5. A balance between theoretical knowledge and practical training must be maintained in the educational process. Particular emphasis should be placed on strengthening practical skills in line with the evolving demands of the labor market.

4.6. The academic program should support student autonomy and foster the concept of lifelong learning. By the end of the educational process, students should be capable of working independently in their field and continuing their education throughout their lives.

5. Assessment

5.1. Assessment should be organized in a way that effectively measures the extent to which students have achieved the intended learning outcomes. It should support the monitoring of student progress, evaluation of program effectiveness, facilitate constructive feedback to students, and contribute to the continuous improvement of academic programs.

5.2. Assessment methods must be clearly described in relevant documents (e.g., course syllabi, subject descriptions) and be publicly accessible (e.g., university website, program brochures).

5.3. Assessment methods should be regularly reviewed and improved in light of innovative teaching practices. The continuous enhancement of assessment practices must be an integral part of the institution’s internal quality assurance system.

5.4. A variety of assessment methods should be employed to promote student-centered learning and encourage active student participation in the educational process. Examples of such methods include:

- written assignments;
- knowledge and skills tests, computer-based testing;
- oral presentations;
- questionnaires;
- open discussions;
- internship and fieldwork reports;
- performance-based assessment through direct observation in practice or laboratory
- settings;
- project-based reports;
- portfolio assessment;
- oral questioning;
- group and self-assessment;
- and others.

5.5. The methods used for assessing learning outcomes must be based on clearly defined criteria and allow for accurate and reliable evaluation of the knowledge, skills, and competencies acquired by students throughout their studies. In assessing learning outcomes, instructors must adhere to principles of transparency, impartiality, mutual respect, and academic integrity.

5.6. Students must be given the opportunity to discuss all aspects of their education, including the assessment process, with instructors and evaluators. Higher education institutions should establish clear procedures for appeals related to the assessment process and grading, in accordance with institutional regulations.

5.7. Academic ethics is a vital part of the educational process. Students must be educated on the importance of academic honesty and the consequences of plagiarism. They should also be made aware of intellectual property rights and the ethical use of academic and intellectual work.

6. Learning Outcomes of the Programme and Its Individual Courses

6.1. The definition of the programme learning outcomes, as well as the learning outcomes of individual courses and the development of course syllabi, fall under the authority of the higher education institution and its academic staff.

6.2. Learning outcomes shall be determined by each higher education institution in accordance with the template provided in Annex 1. The learning outcomes matrix (Annex 2) must demonstrate the alignment between individual courses and the programme-level learning outcomes.

6.3. In order to ensure that the educational programme offers theoretical and practical content that meets the evolving needs of society and the labour market, course syllabi must be reviewed and updated on a regular basis.

7. Infrastructure and Human Resources Capacity

7.1. The educational program for the "050706 Forestry" major must have a material and technical base equipped with appropriately furnished classrooms and laboratories, computer rooms, workshops, etc., fitted with relevant ICT tools to conduct lectures, practical sessions, and scientific research activities for the courses outlined in the curriculum. Students should be provided access to the university’s local network, the internet, databases, electronic libraries, and search systems.

7.2. The academic staff of higher education institutions are generally required to hold academic degrees. Additionally, highly qualified specialists from other public or private institutions and/or relevant organizations, as well as individuals with at least a master’s degree in the relevant specialty group, may also be involved in teaching.

8. Internship

8.1. Practical training is important for the application of theoretical knowledge in practice and for strengthening professional skills. The organization of practical training may be determined by the higher education institution depending on the specifics of the specialty.

8.2. The internship/practical training may be organized within institutions under the structure of the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan (such as research institutes, State Agrarian Development Centers, etc.), nurseries, research laboratories, as well as within the Azerbaijan National Academy of Sciences, universities, or international organizations and companies, among others.

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8.3. To maximize the benefits of practical training, students should be involved in preliminary preparation processes (career planning) and their relevant skills (both soft and hard skills) should be developed.

8.4. Organizing practical training is the responsibility of the higher education institution. Before the training begins, a contract must be signed between the higher education institution and the organization providing the training. The contract should include the terms and conditions of the training, the rights and responsibilities of the students, and other necessary details. Practical training can be organized in two forms. According to the signed contract, students will explore internship opportunities at relevant companies and organizations, and those positively evaluated will submit approval documents from the host institution to the university. Additionally, based on the student's individual request, permission may be granted for practical training in other organizations, including abroad, relevant to their specialty.

8.5. The second form of practical training organization involves the execution of commissioned projects originating from the business world. Research needs, improvement opportunities, and problem-solving approaches required by various private and public organizations will be analyzed and investigated jointly by students and their mentors and presented to the clients in the form of projects.

8.7. Internship supervisors are appointed from both educational and production institutions. When the internship is a continuation of an academic subject, the instructor teaching that subject is appointed as the supervisor of the internship.

8.8. The supervisor appointed by the educational institution:

- Prepares the working program for the internship together with the production supervisor;
- Is responsible for ensuring that students comply with labor protection and safety regulations;
- Participates in assigning individual tasks and determining internship topics for students, as well as in their placement at workplaces;
- Provides methodological assistance to students in fulfilling their individual tasks and helps them collect materials necessary for their final graduation work;
- Offers methodological support in preparing the report on the completion of the internship program.

8.9. The student defends the internship diary and report before a commission, and the results are evaluated with a score of up to 100 points.

9. Final State Graduation Examination

9.0. The educational program concludes with the Final State Graduation Examination. Students who have fulfilled all the requirements of the curriculum and earned the necessary credits in the prescribed courses and practical training are eligible to take the Final State Graduation Examination. The organization and conduct of the Final State Graduation Examination are carried out in accordance with the relevant normative legal acts of the Cabinet of Ministers of the Republic of Azerbaijan and the Ministry of Education.

9. Employment and Lifelong Learning

9.1. Graduates of the Educational Program in the specialty "050706 - Forestry" may work in institutions within the structure of the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan (MENR), in nursery farms, and other relevant fields. Additionally, graduates can be employed as strategic management specialists, production specialists, and project managers.

9.2. The higher education institution shall conduct regular surveys regarding the employment of graduates of the Educational Program and shall publish information about available job vacancies on its official website.

9.3. Students shall be informed about relevant job vacancies related to the Educational Program, and such information must be posted on the website.

9.4. Graduates of the Educational Program in "050706 - Forestry" have the opportunity to continue their education at the master's level in related specializations within the groups of "Forestry," "Environmental Engineering," "Ecology," and "Agronomy."

9.5. The knowledge, skills, and approaches acquired during the educational program form the foundational prerequisites for graduates to independently pursue lifelong learning.

Razılaşdırılmışdır:

Azərbaycan Respublikası Təhsil Nazirliyinin Aparat rəhbərinin müavini,
Elm, ali və orta ixtisas təhsil şöbəsinin müdiri
Yaqub Piriyev
"19" 08 2020-ci il

Kənd təsərrüfatı ixtisasları qrupu üzrə Dövlət Təhsil Proqramlarını hazırlayan işçi qrupun sədri
İbrahim Cəfərov
"08" 2020-ci il

Azərbaycan Respublikası Kənd Təsərrüfatı Nazirliyi Azərbaycan Dövlət Aqrar Universiteti

Əlavə 1

Educational Program and Learning Outcomes by Courses

Higher education institutions must define the Educational Program and expected learning outcomes for each course. The tables below should list at least six learning outcomes (separately for the Educational Program and for each course).

Learning Outcomes of the Educational Program (LOEP)
LOEP 1. Possess the ability to communicate orally in their specialty both in Azerbaijani and at least one foreign language; have systematic and comprehensive knowledge of the historical, legal, political, cultural, and ideological foundations of the Azerbaijani statehood, as well as its place and role in the contemporary world; and be capable of forecasting the prospective development of the national state.
LOEP 2. To master the fundamentals of natural and technical sciences; to know the biological and agronomic classification of agricultural crops; to properly zone them according to climatic and soil conditions; to understand the composition and properties of soil; and to implement appropriate soil cultivation and improvement measures, as well as conduct measurement and mapping activities.
LOEP 3. Implementation of the State Strategy on the Restoration and Sustainable Management of Forests in the Republic of Azerbaijan. Increasing the area and productivity of the State Forest Fund Lands.
LOEP 4. Organization of the efficient utilization of the multifunctional roles of forests and the enhancement of their ecological functions. Determination, planning, and implementation of forestry management activities.
LOEP 5. Ensuring the natural and artificial regeneration of forests and improving their species composition. Cultivation of fast-growing timber species in plantations..
LOEP 6To account for and evaluate the results of implemented forestry management activities.

Learning Outcomes for the Course (LOA)
Learning Outcomes for the Course "History of Azerbaijan" (LOA)
LOA 1 Be able to identify Azerbaijan as one of the world’s oldest human settlements and among the earliest centers of civilization.

LOA 2 Understand and analyze the conditions for the formation of statehood in Azerbaijan during ancient, medieval, and modern periods, including political and international factors.
LOA 3 Be capable of analyzing the role of ideological, economic, and cultural factors in the formation and development of the Azerbaijani people.
LOA 4 Be able to analyze the complex history of the Azerbaijani people, rich with heroic examples, and to distinguish the unique characteristics of each historical period.
LOA 5 Systematically study the place and role of the Azerbaijani state in the contemporary world.
LOA 6 Be able to draw accurate conclusions from the historical experience of Azerbaijan's development.

"Business and Academic Communication in Azerbaijani Language" (LOA)
LOA 1 Acquire knowledge about the Azerbaijani language in the context of globalization and the state support provided to it. Learn to prepare presentations on topics such as the decrees and orders concerning the state language, and "National Leader Heydar Aliyev and the Azerbaijani Language." Understand the aims and objectives of the course "Business and Academic Communication in Azerbaijani Language." Gain knowledge about the forms and functions of communication, as well as the various levels of communication.
LOA 2 To comprehend the role of auxiliary parts of speech in the process of academic communication. To study, at a level aligned with contemporary standards, the characteristics and requirements of both oral and written communication, including key qualities of speech such as correctness, precision, clarity, fluency, purity, conciseness, simplicity, richness, coherence, and other essential aspects.
LOA 3 To understand the essence of communication rhetoric, the stylistic features of the literary language, and the active and passive vocabulary of the Azerbaijani literary language. To comprehend the relationship between literary language and communicativeness, the types of communicativeness, as well as the concepts of coherence, communicative strategy, and creative technologies within the context of communicative competence.
LOA 4 To study the culture of listening and understand its essence as a form of communication. To comprehend the relationship between listening and attention, the

various forms of listening, and the importance of developing listening skills. To acquire knowledge of communication culture, speech etiquette, and address protocols. To recognize the distinctive features of structured speech (lecture, report, presentation, spontaneous speech).
LOA 5 To learn the principles and conventions of the business style of contemporary Azerbaijani language. To enhance knowledge about the role of letters in business communication, as well as electronic and online communication formats.
LOA 6 To acquire knowledge about the language of official and business documents. To gain an understanding of the types and forms of business communication, as well as their language and stylistic features. To comprehend the importance of preserving the purity of the Azerbaijani language in business communication, adhering to orthographic rules and sentence structure. To engage with both theoretical and practical aspects of business rhetoric.

Learning Outcomes of the Course "Business and Academic Communication in a Foreign Language" (LOA)
LOA 1 To acquire general English language skills in listening, speaking, reading, and writing; to understand and respond informally to everyday conversations; to construct dialogues and use complex sentences orally in correct tense forms; to write short paragraphs and informal letters in English; to comprehend short texts and answer related questions; and to master the vocabulary appropriate to A2 level.
LOA 2 To comprehend B1-level dialogues in general English; to construct complex compound and complex sentences using vocabulary appropriate to this level; to write 150-word essays with effective introductions and conclusions; to learn the structure of formal letters and acquire the ability to write business correspondence accordingly; and to develop skills in delivering formal presentations.

LOA 3 To be able to watch films and read books in general English at B2 level, to write reviews and conduct analyses of them, and to communicate the results of such analyses to an audience through presentations.
LOA 4 To acquire knowledge of economic terminology and business English vocabulary; to describe graphs, charts, and percentage-based circular diagrams orally in an academic manner using descriptive writing style; to express opinions using third-person perspective; and to engage in general academic discussions.
LOA 5 To acquire the ability to conduct fluent dialogues, discussions, and debates in a business environment; to develop skills for professional self-presentation in English.
LOA 6 Development of the ability to correctly use the second and third conditional sentences in spoken language; to convert dialogues from reported speech into direct speech for oral use; acquisition of academic vocabulary and the ability to use it effortlessly during oral communication; and to gain fluency in academic English speaking.

Learning Outcomes of the Course – General Chemistry (LOA)
LOA 1. Should understand the wide application of the achievements of chemistry in various areas of forestry and natural resource management.
LOA 2. Should recognize the importance of chemistry **i**n forestry practices, including its role in soil science, plant nutrition, pest control, and environmental monitoring.
LOA 3. Should be able to identify and explain chemical reactions and transformations occurring in soils, including nutrient cycling and the accumulation of heavy metals, and assess their implications for forest health and sustainability.
LOA 4. Should understand the assimilation and dissimilation reactions occurring in forests and within the life processes of trees, and be able to identify the factors that influence the direction and rate of these reactions.
LOA 5. Should have knowledge of the cellulose-paper industry, including the composition and production methods of rosin, turpentine, and ethyl alcohol derived from wood.

LOA 6. Should be able to identify the environmental impacts and consequences of chemical compounds and pesticides, and determine appropriate measures for their prevention.

Learning Outcomes of the course "Mathematics (LOA)
LOA 1. Should study systems of linear algebraic equations, linear spaces, linear transformations, and other mathematical objects of linear nature.
LOA 2. Should be able to analyze functions and variable quantities using differential and integral calculus.
LOA 3. Students should be able to analyze functions and variable quantities using differential and integral calculus.
LOA 4. To utilize mathematical methods and establish the theoretical foundation for the instruction of subjects requiring mathematics
LOA 5. To select effective mathematical solution methods for addressing agricultural (crop production) issues.
LOA 6. Study of the fundamentals of mathematical modeling.

Learning Outcome of the course Physics (LOA).
LOA 1. To grasp fundamental concepts and laws, key physical phenomena and principles, and their applications in science, technology, and industry.
LOA 2. Should understand the operating principles of physical devices and equipment.
LOA 3. Should know the methods for solving specific problems in various fields of physics.
LOA 4. Should be able to conduct physical experiments using modern devices and equipment.
LOA 5. Should be able to identify and analyze the specific physical essence in research problems.
LOA 6. Should possess a scientific worldview and modern physical thinking.

Learning Outcome of the course “Botany”(LOA)
LOA 1. To acquire knowledge about the structure and differentiation of plant cells, as well as the structure and functions of vegetative and generative organs.

LOA 2. To understand the reproductive forms of plants, including botanical agronomy and different modes of reproduction. To know the structure and dispersal mechanisms of seeds and fruits.
LOA 3. To work with microtechniques. To understand environmental factors and floristic characteristics.
LOA 4. To identify plants and understand their bioecological characteristics.
LOA 5. To identify cultivated and wild plants and to understand organography.
LOA 6. To manage the field and experimental areas of agronomic botany, and to identify weeds and their developmental stages.

Learning Outcome of the course “Geodesy”(LOA)
LOA 1. Should have knowledge of the Earth's shape and dimensions, the organization of geodetic services; coordinate systems; linear and angular measurements; as well as the preparation of maps, plans, profiles, terrain relief, and its description.
LOA 2. Should understand measurement errors, line orientation; planning tasks, calculation of field data and map drafting; determination of elevations and the leveling process.
LOA 3. Should be proficient in working with topographic maps; using geodetic instruments; and conducting aerophotogrammetry and geodetic tasks in forest structure management.
LOA 4. Should be able to perform measurement tasks; carry out calculations; prepare plans and profiles; measure areas; and interpret aerial photographs.
LOA 5. Should acquire the ability to apply geodetic knowledge in forest structure management, including topography, cartography, terrain relief, and its representation on topographic plans and maps.
LOA 6. Should be proficient in solving problems on topographic maps, operating modern geodetic instruments, and applying geodetic methods in aerial photogrammetry and forest structure management.

Learning Outcomes for the Course "Systematics of Higher Plants” (LOA)
LOA 1. Understand the origin and historical development of plant systematics and its fundamental principles. Comprehend the objectives and tasks of modern systematics. Have knowledge of classification, nomenclature, and phylogenetics concepts.

LOA 2. Lower (primitive) plants. Higher spore-bearing plants. Gymnosperms. Angiosperms or flowering plants. Linnaeus's binary (binomial) systematics. Accepted nomenclature and units used in systematics.
LOA 3. Plant systematics. Taxonomic nomenclature. Knowledge of the Latin names of plants..
LOA 4. Taxonomic categories and taxa, binomial nomenclature. Knowledge of types of classification systems and their methods.
LOA 5. Classification, nomenclature, and phylogenetics. Understanding the relationships among taxa.
LOA 6. The main taxonomic units in modern systematics. Knowledge of the World Checklist of Selected Plant Families and the St. Louis Code.

Learning Outcomes for the Course "Meteorology and Climatology" (LOA)
LOA 1. Should have knowledge of the composition, density, temperature, humidity, and other climatic indicators of the air. Should be proficient in meteorological observations and in the preparation of agrometeorological forecasts.
LOA 2. Should study solar radiation energy, the movement and regeneration of air masses, cloudiness, precipitation, storms, frosts, droughts, and other related phenomena.
LOA 3. Should acquire knowledge about meteorological observations and the practice of agrometeorological forecasting.
LOA 4 Should master the analysis of observations, perform calculations, and construct graphs.
LOA 5. Should be able to establish agrometeorological stations in forestry enterprises and conduct microclimate and phytoclimate observations
LOA 6. Should be able to analyze phenological and agrometeorological observations and establish international collaborations.

Learning Outcomes for the Subject "Informatics" (LOA)

LOA 1 To acquire fundamental methods and tools of information processes; to possess the skills to use computer hardware and software, applying them as means for information management; and to be capable of working with information within local and global computer networks.
LOA 2 To acquire the ability to select appropriate hardware and software tools for data processing according to the task related to the specialty field, apply them in problem-solving, analyze the calculation results, and justify the obtained outcomes.
LOA 3 To acquire the ability to collect, analyze, and prepare analytical reports using relevant data in the specialty field from internal and external literature sources as well as internet resources.
LOA 4 To possess the ability to utilize modern technical tools and information technologies for solving analytical and research problems.
LOA 5 To have the ability to solve communicative tasks, and to utilize information technologies and tools for searching and selecting professionally relevant information through internet search engines and reference systems.
LOA 6 To have the capability to use ICT tools for participation in teaching and self-learning processes.

Learning Outcomes for the Course "Forest Genetics and Selection" (LOA)
LOA 1. Should understand the manifestation of heredity in forest plants, the causes of its occurrence, their environmental requirements, and their ability to produce progeny similar to themselves.
LOA 2. Should be able to evaluate forest trees and shrubs from a selection (breeding) perspective.
LOA 3. Should be able to improve the seed production of forest tree and shrub species through selection (breeding) methods.
LOA 4. Must master the application of the main directions of selection in the improvement of forest plants.
LOA 5. Should study the influence of geographical conditions on the nature of forest tree species and learn to identify ecotypes of forest plants.

LOA 6. Should possess knowledge of the theoretical foundations of selection and genetics of forest tree species, research methods and techniques in genetics and selection, as well as the main directions and evaluation methods of forest plant selection.

" Learning outcomes for the course "Dendrology (M-1)" **(LOA)**
LOA 1. Should have knowledge of the classification, bioecological characteristics, and forestry and economic significance of tree and shrub species.
LOA 2. Should have knowledge of the distribution ranges, morphological diversity, as well as relict and endemic species of tree and shrub plants..
LOA 3. Should enhance knowledge of tree and shrub species in relation to edaphic factors, as well as introduction and acclimatization processes..
LOA 4. Must be able to determine the seasonal characteristics of tree and shrub species during winter and summer periods.
LOA 5. Should be able to conduct phenological observations and master the methodologies for carrying them out.
LOA 6. Should be familiar with the gymnosperm division and its principal representatives.

Learning outcomes for the course "Soil Science" (LOA)
LOA 1. Should understand the concept of soil and the methodological foundations of soil science..
LOA 2. Should have knowledge of soil-forming rocks and minerals, weathering processes, and soil fertility.
LOA 3. Should master the general scheme of soil formation processes and the development of the soil profile..
LOA 4. Should master the physical and physico-mechanical properties of soils, as well as their water, air, and thermal characteristics and regimes.
LOA 5. Must be able to carry out soil sampling procedures, profile pit excavation and description, determination of soil granulometric composition, humus content, cation exchange capacity, amount of absorbed bases, carbonate content, total nitrogen, phosphorus and potassium determination, as well as soil bulk density and porosity, and the assessment and evaluation of soil structure.

LOA 6. Must be proficient in understanding soil fertility and the methods for enhancing its main indicators

Learning Outcomes for the Course "Labor Protection" (LOA)
LOA 1. Must have knowledge of legislative acts in the field of labor protection and the methodological principles of monitoring the sanitary and hygienic conditions of the workplace.
LOA 2. Must acquire the ability to organize labor protection in the workplace and prevent occupational injuries
LOA 3. Must acquire the ability to apply the labor protection legislation and regulatory legal norms of the Republic of Azerbaijan.
LOA 4. Must acquire the ability to apply the requirements of legislative acts in the field of labor protection and health
LOA 5. Must be capable of addressing and resolving issues related to the implementation and assurance of labor protection and health measures
LOA 6. Must acquire the competence to work with laws, legislative acts, and regulatory documents in the field of labor protection and health

Learning Outcomes for the Course "Forestry" (M-1) **(LOA).**
LOA 1. Must know that forest science, as the first part of general forestry, focuses on the study of the natural characteristics and dynamics of forests..
LOA 2. Must possess the ability to determine the morphology, biology, and ecology of the forest stand, the principal component of the forest ecosystem.
LOA 3. Must be able to analyze the impact of the forest on soil, water, and climatic factors, as well as their interrelationships.
LOA 4. Must be knowledgeable about tree differentiation within forests, natural thinning mechanisms, classification based on growth and development, and changes in species composition in forest ecosystems.
LOA 5. Must study and be able to evaluate forest regeneration methods, including natural regeneration.
LOA 6. Must acquire the ability to identify forest types and study forest biogeocenoses.

Learning Outcomes for the Course "Dendrology (M-2)" (LOA).
LOA 1Must have knowledge of the various types and morphological structures of angiosperms (flowering plants).
LOA 2. Must comprehend double fertilization and its significance..
LOA 3. Must enrich knowledge of the systematics and taxa of Angiospermae..
LOA 4. Must be able to identify the families Casuarinaceae and Salicaceae (genera and species), as well as the families Juglandaceae and Betulaceae, among others..
LOA 5. Must be able to identify the families Fagaceae, Ulmaceae, Moraceae, Rosaceae, Leguminosae, Aceraceae, Tiliaceae, Oleaceae, and others.
LOA 6. Must acquire a thorough understanding of the forestry traits and economic significance of angiosperm woody plants, including trees and shrubs.

Learning Outcomes for the Course "Forest Entomology" (LOA)
LOA 1. Must acquire knowledge of forest plant pests, including their morphological structure, biological characteristics, distribution areas, and species composition..
LOA 2. Must gain knowledge of the role of insects in forest ecosystems and the damage they cause to forest management.
LOA 3. Must acquire knowledge of the external morphology of insects, the structure and functions of their internal organs, and the reproduction and development of insects.
LOA 4. Must acquire knowledge of insect collection, preparation, and preservation, as well as insect classification and the types of damage caused by insects.
LOA 5. Must gain knowledge about insects that damage leaves and needles, insects harmful to seeds and seedlings, insects that bore into bark and cambium layers, insects damaging roots, and wood-boring insects.
LOA 6. Must possess the ability to determine and implement integrated pest management measures against plant pests for the protection and health restoration of forest cover.

Learning Outcomes for the Course "Phytopathology" (LOA)
LOA 1. Must acquire the ability to identify biotic factors causing diseases in forest plants, including fungal, bacterial, viral pathogens, parasitic flowering plants, and weeds.
LOA 2. Must acquire knowledge of the morphological structure, biological characteristics, distribution area, and species composition of disease-causing agents in forest plants.

LOA 3. Must know the diseases of forest trees and shrubs, planting material, fruits, and seeds, as well as the damage they cause to forest management.
LOA 4. Must be able to determine integrated disease management measures against plant pathogens for the protection and restoration of forest cover.
LOA 5. Must acquire skills in establishing a forest protection system that meets modern standards, including mastering methods and techniques that result in solving preventive problems.
LOA 6. Must be aware of the environmental pollution and harm to forest trees resulting from improper pesticide use, and develop skills in biological control methods to manage plant disease agents.

Learning Outcomes for the Course "Forest Taxonomy (M-1)" (LOA)
LOA 1. Must know the main concepts and terms of taxonomy, as well as the characteristics and elements of taxonomy..
LOA 2. Must acquire proficiency in taxonomic measurement standards and techniques, including familiarity with the design, functionality, and application of taxonomic equipment and devices.
LOA 3. Must be familiar with the methods and procedures for the physical and quantitative evaluation of a cut tree stem and its components.
LOA 4. Must know the method for assessing the standing tree trunk, as well as the quantitative characteristics that describe the shape and structure of the trunk..
LOA 5. Must acquire knowledge of the main taxonomic indicators of stands and their determination..
LOA 6. Must be able to perform both complete and selective forest taxonomy.

Learning Outcomes for the Course "Forestry (M-2)" (LOA).
LOA 1. Must know the methods and techniques for managing and altering the nature of forests.
LOA 2. Must be able to organize timber harvesting from the forest and determine the main forest cutting methods
LOA 3. Must be able to determine and implement intermediate forest use and service thinning measures, as well as perform service thinnings in young stands.

LOA 4. Must be able to account for and assess natural regeneration, as well as determine and implement measures to support natural regeneration.
LOA 5. Must master new methods for increasing forest productivity and enhancing their protective and conservation functions.
LOA 6. Must acquire knowledge of ensuring the efficient and sustainable use of forest resources, as well as the latest advancements in forest restoration and development.

Learning Outcomes for the Course "Forest Plantations (M-1)" (LOA)
LOA 1. Must acquire knowledge about primary and initial reproductive material in the implementation of artificial forest regeneration and afforestation activities.
LOA 2. Must be able to organize forest seed production operations, including procurement and processing of seed raw materials, seed storage, and preparation of seeds for sowing..
LOA 3. Must acquire proficiency in forest seed documentation as well as in the methods and procedures for assessing seed quality parameters
LOA 4. Must be capable of managing the organization of the nursery farm.
LOA 5. Must be knowledgeable about the procedures for sowing in the nursery, as well as the cultivation characteristics of planting material for tree and shrub species.
LOA 6. Must master modern technologies and agrotechnical practices related to the cultivation of planting material.

Learning Outcomes for the Course 'Forest Inventory (M-2)' (LOA)
LOA 1. Must be able to classify the forest, determine the forest inventory extract, and work with inventory tables.
LOA 2. Must be able to determine and assess timber growth.
LOA 3. Must master the ability to classify forest stands into elements and visually estimate their main inventory indicators..
LOA 4. Must acquire the skills to establish sample plots in the forest, conduct counts within the samples, and prepare inventory tables.".
LOA 5. Must be able to evaluate the forest, harvested forest products, and timber in terms of quantity and value.
LOA 6. Must be capable of applying inventory methods and techniques in the implementation of forestry management activities and in evaluating their outcomes.

"Learning Outcomes for the Subject 'General Agronomy' (LOA)
LOA 1. Must understand the principles of agriculture and the optimization of plant growing conditions through improving soil fertility.
LOA 2. Must have knowledge of the principles, methods, and systems of soil cultivation.
LOA 3. Must master the organization of soil conservation measures in accordance with the scientific principles of soil erosion protection and understand zonal agricultural systems.
LOA 4. Must be able to identify the species composition of weeds and develop control measures against them..
LOA 5. Must be able to design and implement efficient crop rotation schemes.
LOA 6. Must acquire the necessary procedures for implementing subject-related issues under specific farm conditions.

Learning Outcomes for the Course “Forest Plantations (M-2)” (LOA).
LOA 1. Should be able to determine the methods and techniques for establishing forest plantations based on the category of the forest planting fund.
LOA 2. Should acquire the knowledge and skills necessary to design forest plantation projects.
LOA 3. Should be capable of conducting inspections and performing inventory assessments of forest plantations..
LOA 4. Should have a clear understanding of the contribution of forest plantations to improving the productivity of State Forest Fund lands
LOA 5. Should be able to implement the use of tolerant, fast-growing, technical, and food tree species in forest plantations, and utilize species adapted to harsh and changing environmental conditions in afforestation efforts..
LOA 6. Should acquire proficiency in progressive technologies and agro-technical practices for the creation and management of forest plantations.

Learning Outcomes for the Course "Forest Machinery and Tractors" (LOA)
LOA 1. Should know the structure, working process, and preparation for operation of tractors used in forestry enterprises.

LOA 2. Should be able to assess the quality of forestry machinery components to ensure their proper selection for aggregation with tractors..
LOA 3. Should be able to practically prepare forestry tractors and machinery for operation..
LOA 4. Should be able to operate machine-tractor aggregates.
LOA 5.1. Should possess the skills to identify faults arising during operation and implement procedures to rectify them
LOA 6. Should acquire theoretical and practical knowledge for the mechanization of forestry operations..

Learning Outcomes for the Course "Economics, Organization, and Management of Forestry Enterprises" (LOA).
LOA 1. Should know the principles of organization and efficient operation of forestry enterprises.
LOA 2. Should have the ability to manage the financing of forestry enterprises and to understand the composition and calculation of forest revenues.
LOA 3. Should acquire the skills to organize labor and calculate wages in forestry enterprises
LOA 4.; Should acquire the ability to efficiently organize forest utilization and to economically evaluate the timely implementation of forest restoration activities.
LOA 5. Should be able to justify capital investments in afforestation and forest cultivation activities, as well as manage the economic, organizational, and administrative aspects of capital investments in other forestry and management operations
LOA 6. Should possess the capability to manage the economics of the sector for the sustainable management of forests and the implementation of long-term forest utilization strategies

Learning Outcomes for the Course "Mathematical Statistics" (LOA)
LOA 1. Should be able to determine the mathematical regularities governing the occurrence of random events and processes
LOA 2. Should know variable quantities and the statistical parameters that characterize them

LOA 3. Should possess knowledge of statistical techniques used for the collection of data and the analysis of observational outcomes
LOA 4. Should develop the ability to conduct analyses in solving biometric problems based on mathematical-statistical methods.
LOA 5. Should be able to apply probability theory and the normal distribution law, as well as Chi-square, Student's t-test, and Fisher's F-test criteria in the evaluation and comparison of initial populations.
LOA 6. Should be able to select effective mathematical solution methods for implementing mathematical modeling and acquire skills in regression, variance, and covariance analysis.

Learning Outcomes for the Course "Wood Science and Forest Merchandizing" (LOA)
LOA 1. hould possess knowledge of the economic significance of wood as the principal forest product and the principles of its efficient use.
LOA 2. Should be able to identify and classify different types of harvested wood
LOA 3. Should analyze the qualitative and quantitative characteristics of wood, including its macro- and microstructure as well as chemical composition..
LOA 4. Should know the commercial characteristics of wood and learn the methods of its mechanical and thermal processing.
LOA 5. Should be able to identify wood defects, classify them, and determine their impact on wood quality and commercial value. LOA 6. Should analyze the grades of raw and processed (sawn timber) materials and the methods for their identification

Learning Outcomes for the Course "Forest Structure (M-1)" (LOA)
LOA 1. Should possess knowledge of the critical role that forest structure assessments play in the creation, organization, administration, and advancement of forestry enterprises.
LOA 2. Should know the organization, components, and documentation related to forest structure studies.
LOA 3. Should acquire a thorough understanding of forest structure classifications and the corresponding instructional guidelines

LOA 4. Should know the theoretical foundations of forest structure, forest maturity, forestry-technical management forms, and management categories..
LOA 5. Should be able to prepare plan-cartographic materials of the forest structure object.
LOA 6. Should apply GIS technologies in the preparation of plan-cartographic materials

Learning Outcomes for the Course "Forest Structure (M-2)" (LOA)
LOA 1. Should be able to perform the subdivision of forest stands into compartments and carry out their inventory
LOA 2. Should acquire the competence to compile detailed taxation descriptions of forest stands
LOA 3. Should know the fundamentals of forestry organization and forest structure methods.
LOA 4. Should be able to prepare age class tables.
LOA 5. Should acquire proficiency in developing the Forest Structure Project, the conclusive document summarizing forest structure studies.
LOA 6. Should be able to implement modern forest structure methods and the application of GIS in forest structure to ensure forest protection and sustainable management.

Learning Outcomes for the Course "Forest Melioration and Protective Afforestation" (LOA)
LOA 1. Should understand the role of forests in addressing ecological problems, preventing soil, water, and atmospheric pollution, the environmental impact of protective forest plantations, and the influence of protective forest belts on the microclimate.
LOA 2. Should know the history of protective afforestation in Azerbaijan and the state strategy in this field
LOA 3. Should be able to analyze how the establishment of ameliorative forest plantations prevents soil erosion, landslides, floods, and the risk of inundation
LOA 4. Should have the ability to apply afforestation for the reclamation of degraded lands; stabilization of ravines, gullies, and sandy areas; and improvement of natural landscapes.

LOA 5. Should possess the ability to identify advanced methods and techniques for creating sustainable and long-lasting artificial forests, as well as to determine the composition of indigenous tolerant species for protective afforestation.
LOA 6. Should have the ability to identify, evaluate, and apply tree and shrub species adapted to changing climatic and environmental conditions.

Learning Outcomes for the Course "Ornamental Gardening and Landscape Design" (LOA)
LOA 1. Should know the bioecological characteristics, origin, and classification of ornamental plants..
LOA 2. Should acquire proficiency in understanding the functions and classifications of compositions formed from ornamental plants.
LOA 3. Should be familiar with the methods of creating compositions using ornamental plants.
LOA 4. Should know the assortment of ornamental plants and their spatial arrangement within an area
LOA 5. Should be able to create various compositions using ornamental plants.
LOA 6. Should enrich the assortment of ornamental plants and implement the use of tolerant and decorative species.