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| --- | --- | --- |
| **Program Title** | | Agronomy |
| **Degree Awarded** | | Bachelor of Agrarian Sciences |
| **Faculty** | | Faculty of Agriculture |
| **Program Coordinators** | | ***Roza Lortkipanidze*** – Doctor of Agricultural Sciences, professor  Mobile phone number**: 599 23 64 79; 577 282 854;**  **Mail:** [**subtropikiroza.@yahoo.com**](about:blank) **roza.lortqifaidze@atsu.edu.ge** |
| **Duration of the Program (semesters, number of credits)** | | Duration of the Bachelor Program is 4 academic years (8 semesters) – 240 ECTS credits (6000 hours), which are distributed as follows:   1. Major courses:   180 credits:  40 credits – compulsory courses;  65 credits – compulsory courses of basic profession;  60 credits – elective specializing modules;  a) module 1 – Agrotechnology;  b) module 2; Agroecology;  - 15 – elective courses and  2. minor courses: 60 credits  The Program gives Bachelors the opportunity to choose minor programs of the specialty: “Agrotechnology” or “Agroecology”. |
| **Language of the Program** | | Georgian |
| **Program development and renewal date of issue;** | | Program developed in 2010-2011,  Accredited in September 16, 2011 Decree N18 |
| **Program Prerequisits** | | |
| Bachelor student can become an applicant who preliminarily registers in unified national exams centre, passes the unified national exams. Foreign citizens must have received secondary or equivalent education in a foreign country corresponding to the laws of this country. | | |
| **Aims of the Program** | | |
| ***The aim of the Program is*** to prepare a Bachelor, who eill learn to: lead the Branch of agricultural economy, biological peculiarities of agricultural crops and technologies of caring and processing them, methods of producing agricultural products;  Know rules and instructions to use rich soil rationally; use opportunities to protect plants and land; learn agromelioration ways to improve richness and fertility of soil;  Learn classifications to create agrobiological economy; learn basic principles to use natural resources, protect and reproduce them. | | |
| **Learning Results (General and Branch competencies) Learning Results schedule is attached to the file.**  **See attachment 2.** | | |
| **Knowledge and Recognition** | **Knowledge and Recognition**  ***After successful completion of the courses a student:***   * Describes the condition of tea-growing, its role in ecological culture and relates its importance on slopes to the phenomenon against erosion. * Considers subtropical fruit-growing as a leading field in the region, describes them according to the groups in details, knows features of breeds and principles to care and process them. * Defines morphological and anatomic figure of plants and regularity of their development, defines their dependence to environmental conditions and distinguish them according to their variation and plant cover, knows botanical description of subtropical fruits, tea and vine, relates them to the vegetation period and prognosis of productivity. * Knows methods how to cultivate agricultural products, describes the ways of land cultivation and knows the classification of weeds, methods of agro-chemical analysis, kinds of natural resources and forms to use them productively. * Describes meliorative and mechanical arrangements according to agricultural specifications of soil, defines agrotechnological and agroecological environment for agricultural crops and raw materials for regions. * Makes explanations of regulations and conditions of using opportunities to protect plants. * Describes the role of using crop rotation and organic-mineral fertilizers according to agricultural fields to get high quality and abundant crop. * Knows agroecological technologies for protecting and improving natural resources: soil, water, air, forest, fossil and recreational environment. * Knows and describes land resources, forms of using them, describes forest resources and categories of protected areas, defines conditions of preserving water and biological diversity, explains soil erosion and downpour condition, realizes rules to make use of useful minerals, knows hoe to protect resort, touristic zones and other recreational areas. * Describes processes of forming soil, its consistence and qualities; appreciates genesis of soil and distinguishes types of soil according to the classification, describes geography of soil. * Describes the vital factors of plants, enumerates weeds according to the classification, explains arrangements of preventing from them, defines ways and systems of cultivating the soil, distinguishes agrotechnologies of caring and processing agricultural crops. * Describes genetical regularities, which define breeding new forms and breeds of plants. * Knows the breeds of field crops and distinguishes them with morphological signs; is able to select field crops and breeds - spread for producing, according to the regions. * Knows vegetables for open or deep soil, knows its biological qualities and specifications and technologies to care and produce them. * Describes agricultural raw materials processing, transporting, preserving specifications. * Knows the factors effective to preserving agricultural raw materials, preserving methods and changes during their preservation. * Realizes the importance of standardization and describes standards and their structure. * Knows preserving specifications of agricultural raw materials and types of preserving stockrooms. * Knows principles of processing agricultural raw materials (tea, tobacco, volatile oils, fatty oils, technical crops, subtropical fruits, vegetables, fruits and citrus). * Realizes public and industrial importance of tea producing and relates it to the developing branches of the field. * Has general knowledge of the main plants of the forests of Georgia (trees, bushes, grasses), their names, botanical description, outer description, growing and spreading area, their useful qualities, importance and usage, forest problems and arrangements to solve them, opportunities to use forest crops in green cultivation. * Describes harmful insects of agricultural crops according to the names of their species, eating specialization of these insects, distinguishes them from useful insects and types of their reproduction; describes their relation to the environment and forms of plant spoil (root, stem, branches, leaves), describes symptoms of organisms causing different diseases to agricultural crops, reveals which microorganisms caused these diseases (fungus, bacterial viruses, microplasms); makes appropriate plans to destroy them. * Realizes the importance of agricultural biotechnology as so-called “high technology” in agriculture; knows biotechnological methods, their opportunities and using them to plant selection; describes methods of genetic engineering to receive solid plants to herbicides, diseases and harmful insects, knows ways to receive transgenic plants by genetic engineering and realizes possible risks. * Knows biotechnological ways to receive bacterial and organic fertilizers and realizes their effectiveness in agriculture. * Knows specifications to work on isolated cellular crops and ways of using cultivating cells in agricultural technology. * Describes construction of the earth crust and originating of fossil in conditions of the remote and modern periods; recognizes firm and liquid area presented on the basis of processes in lithosphere, describes these processes by appropriate formulation, classifies and registers fertile soil. * Knows biotechnology to receive biological substances to use them against harmful organisms and perspectives of improving ecological condition by minimalizing chemical pesticides while using them. * Highlights the field of agricultural ecology as the branch of agronomical ecology, describes the achievements of scientific and technical progress in details and describes its role in agriculture. | |
| **Skill to use knowledge in practice** | Skill to use knowledge in practice   * Is able to describe index of soil fertilization, their physical and chemical consistence according to the classification and prepares analysis of genesis. * Is able to use ways of soil cultivation and classify weeds using land cultivation methods. * Has ability to use agrochemical analysis methods to make vegetable analysis of soil and agricultural crops. * Knows regularities of heredity characteristics and qualities of plants and vegetables; processes of originating individual development forms. * Lead processes of originating individual development forms considering hereditary characteristics and qualities of plants and vegetables. * Uses the fund of soil, water and forest resources and is able to do agroecological monitoring. * Is able to distinguish options of previous diagnosis (soil airing process and nitric fixation, conditions of rust-recovery and alkaline solidity of soil, filtration etc.) * Uses soil resources, prepares forms of its usefulness and profit, calculates categories of forest resources and protected areas; presents preservation of biological diversity with illustrations; evaluates using and preserving water resources, is able to classify soil erosion and territories of downpour danger. * Practically uses actions against spreading weeds according to weed classification; defines fixed dates and ways to cultivate soil according to soil types; defines the system of crop rotation by considering conditions of particular soil climatic conditions and biological qualities of plants. Determines the role of middle crops in crop rotation. * On the basis of received theoretical knowledge is able to breed vine and saplings practically, trim, farm, operate on green parts of plants and do other caring actions. * Is able to define regularities of changeability and heredity qualities of plants in the process of close and remote hybridization. * Is able to use modern research methods of cytogenetics and select producing pairs. * Will be able to give fertilizers to the soil and relate to cultivating system of the soil, define issues of decreasing environmental pollution caused by fertilizers, select chemical melioration methods of reaction change of soil area in order to improve its qualities. * Prepares soil to care and produce cereals, citrus and other kinds of agricultural and technical crops and is able to grow crop capacity. * Is able to plan actions in private farming against harmful diseases of agricultural crops. | |
| **Skill to make conclusions** | Skill to make conclusions   * Defines natural condition of agricultural land to cultivate selected agricultural crops. * Is able to evaluate natural resources, preserve and improve them using agroecological technologies. * On the basis of agroecological monitoring, defines and evaluates condition of environmental effect and makes appropriate decisions to select agricultural breeds to cultivate them in open and close(d) soil. * Defines and evaluates previous diagnostic options and makes decisions by considering requirements to the environmental conditions in order to cultivate tea, subtropical fruits, vine and vegetables. * Defines conditions to use agricultural mechanization according to agricultural land type. * Defines land resource funds and evaluates conditions of categories of the forest resources and protected areas according to the methods of preserving bio diversity, preserving water resources and conditions of using them; discusses and makes conclusions about issues related to the conditions of soil erosion and downpour areas, instructions and regulations of using rich fossils and minerals; selects forms of using resort and other recreational zones. * Defines and evaluates systematic location of plants according to morphological characteristics by considering their type, breed and group. * Separates horizons in soil sections in order to define its natural qualities; explains the factors of originating and classifies them according to morphological features: 1. Define soil thickness and construction; 2. Soiol colour; 3. Soil structure; 4. Soil consistence; 5. Soil additional substances and new formations; makes conclusions about rules of cultivating soil in conditions of using soil in agriculture. * Defines and evaluates opportunities to cultivate meliorative lands in farming. * Selects technologies of caring and producing agricultural crops on the basis of conclusions, explains the inevitability of crop rotation. * Defines methods of cultivating soil, sowing field crops and its optimal dates according to the breed types and regions. * Defines optimal dates of sowing vegetables and selects breeds for open and closed soil. * Defines and evaluates effectiveness of using organic and mineral fertilizers, selects form of mixed/combined fertilizers and calculates the percentage of the elements in it. * Defines the cost of fertilizer, quantity and quality of expected productivity of crop; selects form of the fertilizer by counting and estimating active elements. * Has ability to select perspective forms from youn crops according to the correlative features. * Is able to evaluate plants according to their fruiting, frost-resistance and preserving resources, makes decisions to use them in practice and maintains his/her decision. * Has ability to evaluate selective materials by considering resistance to diseases and harmful insects, maintains accepted decision. * Explains the ways to create conditions of growth and development of agricultural crops by regulating soil moisture; separates improving microclimate of agricultural lands by watering; maintains the results of mechanical activities of the year by the analysis of agroecological monitoring. * Is able to diagnose plant diseases and harmful insects and make different resistential activities against them. Selects pesticides, uses them, makes appropriate conclusions with the purpose of economical effectiveness. * Has ability to see agricultural biotechnological methods as the most useful methods compared with other traditional selective methods in simplifying and hastening selective processes of plants; maintains the advantage of the ways of clone micro producing of plants by comparing them with traditional ways of vegetative producing of plants. * Selects breeding pairs in interbreeding by considering regularities of hereditary qualities and characteristics. | |
| **Communication skills** | **Communication skills**   * Is able to communicate about profession realted issues (problems, ideas, innovations, ways to solve problems), communicate with branch leading specialists and with other interested people in native and foreign languages; is able to prepare innovative projects and present them by using different sources of information. * Explains form of using land resources, discusses the methods of preserving forest resources, protected territories and their categories, explains and defines preservation and conditions of using water resources; reacts to soil erosion and conditions of territories with downpour danger; teaches regulations and instructions of using fossils; presents resort and other recreational zones and forms and biodirections to use them productively. * Summarizes conditions of using organic-mineral meliorants, defines increase of productivity on meliorative cultivating lands by using them and teaches regulations and instructions of using meliorative mechanization; protects appropriate agro-meliorative technologies. * Defines physical and chemical; qualities of meliorative soils, explains and presents a project of improving their condition; discusses and argues about increasing productivity agrotechnology; coordinates carrying out prepared project. * Is able to find information about harmful insects and diseases of agricultural crops; is able to think in logical way, realize problems, form and express different ideas, communicate with the leaders and coordinators in oral and written ways in native language. * Coordinates teaching of geological effect of the sea; summarizes possible condition of technical changes going in the earth crust; defines conditions and results of geological research of the sea. | |
| **Learning skills** | **Learning skills**   * Is able to: find sources and work out them independently to receive deeper knowledge. * **Selects** material about the whole complex of meliorative activity system for erosive soils; studies erosive conditions of soil, evaluates level of erosion on the basis of studies material and defines recultivating conditions. * Defines appropriate ways and metjhods to cultivate soil; determines the ways to resist against different types of weeds. * Evaluates and summarizes knowledge received from vine-growing course on the basis of differentiating information and determines opportunities to use possessed skills. * Discusses issues about individual development of organisms and opportunities of artificial leading hereditary and changeability processes; evaluates genetical regularities and opportunities to create new breeds and forms interstiong for a person. * Selects form and types of fertilizers according to the needs of soil; relates them to the vegetation period of agricultural crops and explains the necessity of fertilization. * Discusses the roles of cultivating cells in the process of selecting plants, massive agamic reproduction of plants and strengthening seeding materials and protecting them from viruses and other patogenes. * Learns frequency of geological processes going in lithosphere and evaluates its condition by discussing the issues; defines the value and cost of soil-forming rocks by ranging system. * Defines different live organism and their interaction in soil; studies the regularity of their interrelation; relates the processes of organism live action towards surrounded area. * Has ability to evaluate his/her own learning process and plan needs of the following level of learning. | |
| **Values** | **Values**   * Defines conditions about microclimate formed by atmosphere influence, maintains urbanization conditions about land ownership of nonagricultural importance; recommends forest crops to make tracks against the wind. * One of the important values for him/her is that a plant is the major precondition of preserving and keeping ecological balance and life on the earth (provides each live organism with food and oxygen, decreases carbon dioxide level in theair). * Defines and evaluates opportunities to have rich productivity of agricultural crops by considering civic and branch opportunities. Considering the same opportunities, he/she carries out agromeliorative activities and works out the opportunities to broaden agricultural cultivation lands; decides cost of newly meliorated soils in agricultural and industrial rotation. * Takes responsibility of values characteristic to professional work and does appropriate activities in changeable situations, has disciplined and punctual attitude to the taken responsibility and is able to draw a simple financial estimate. * Realizes negative agricultural importance of harmful insects and diseases and determines the norms, doses and concentrations of pesticides to use against them by keeping professional ethic norms. * One of the important values is the issue to preserve forest life and lead the process of plant growth and development to get ecological balance; uses fire resisting activities and in case of fire liquidates it by considering professional values; tries to use forest plants in green cultivation. * Studies the uniqueness of natural conditions of protected areas and reservations of Georgia, realizes the importance of preserving them in order to keep and restore biodiversity of the world. * Discusses about areas of agricultural monitoring, evaluates the results of complex ecological and toxic monitoring; summarizes and makes conclusion to cultivate ecologically safe agrotechnologies. * Takes responsibility of values characteristic to professional work and does appropriate activities in changeable situations, has disciplined and punctual attitude to the taken responsibility and is able to draw a simple financial estimate. | |
| **Learning Methods** | | |
| ***Methods to achieve learning results:***  In learning process a lecturer represents lecture material by presentation, which also includes verbal explanation; discussion takes place, students are given task to do independent and individual work, which is done by working on books, making records etc. in the process of teaching and learning, methods take turns and supplement with each other.  Oral or verbal method: method of working in books which includes the activities of the following: making extracts and records, making short piece of the material.  Laboratorial method and demonstrative method, practical methods, discussion/debates, collaborative work, heuvristic method, method of synthesis, method of explanation, action oriented learning also take place in the process of teaching. | | |
| **Program structure** | | |
| In Study Schedule university compulsory courses have 40 credits. Basic courses – 65 credits, elective courses – 15 credits. Module 1 – “agroecology” – 60 credits; module 2 – “agrotechnology” – 60 credits; module 3 – “preserving plants” – 60 credits. Additional minor programs – 60 credits.  **See the study schedule in attachment 1.** | | |
| **Criteria and evaluation system of knowledge of a student** | | |
| The assessment of the academic performance of students of higher education programs at Akaki Tsereteli State University is carried out by the modern indicators with the order N3 (05.01.2007), and August 18, 2016, №102/N of the Minister of Education and Science of Georgia, defined principles of Akaki Tsereteli State University academic council. The assessment system of students changed at Akaki Tsereteli State University (Decree №45 (16/17) June 30, 2017).  Assessment system of educational program component includes (100 points), the specific share includes 60 points (which itself includes: a student’s active learning process during each semester – 30 points and mid-term exam – 30 points), final exam – 40 points.  **A student is evaluated as the following:**  A student’s active learning during each semester (comprises different components of evaluation) – 30 points;  Mid-term exam – 30 points;  Final exam – 40 points.  The student has the right to take the final exam, if his/her minimum competency is 18 points.  **Evaluation system includes:**  **a) Five forms of positive assessment:**  **A) (A) Excellent – 91% and more from maximum evaluation;**  **B) (B) very good – 81-90% from maximum evaluation;**  **C) (C) good – 71-80% from maximum evaluation;**  **D) (D) satisfactory – 61-70% from maximum evaluation;**  **E) (E) sufficient – 51-60 % from maximum evaluation.**  **B) Two forms of negative assessment:**  **(FX) (Administrative Fail in course for grade/could not pass) A student gets 41-50% from maximum evaluation which means, that s/he is required to work more for passing the exam, and that s/he is entitled to take a makeup exam only once through personal study;**  **(F) (Academic Fail) – A student gets 40% and less from maximum evaluation, which means that the work done by him/her is not sufficient and s/he has to retake the course.**  According to educational component of educational program, in case of adoption of FX, a makeup exam will be appointed no less than 5 calendar days after the conclusion of the final exam results.  The number of minimum points received from the makeup final exam is 15 points.  The number of minimum points received from the makeup final exam, is not added to the final assessment received by the student.  Points received from makeup exam is a final assessment and is added to the final evaluation of the learning component of the educational program.  According to the assessment 0-50 points received from the makeup final exam, in the final evaluation of the educational component, the student will be evaluated the F-0 score.  **Remark: Midterm and final (makeup) exams take place in exam center of ATSU.**  **Evaluation criteria in particular/specific courses are determined in appropriate course syllabus.** | | |
| **Employment Opportunities** | | |
| Is able to work at State organizations of protecting environment, in appropriate fields of “agriculture and Food” and “natural resources”; stateless industries and expertise centres. At ecological monitoring services, at protected reservations, at farming industry and regional services of protecting environment. Theay can also work successfully at learning and scientific research institutes, colleges and schools, State and nongovernmental programs of appropriate profiles. | | |
| **Supportive resources** | | |

**Study Schedule -2017**

**Program Title: “Agronomy”**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| № | Course | Course code | Credits | Number of hours | | | | l/pr/lab/gr | Semester | | | | | | | | | | Preconditions |
| Total | Contact | | Ind. | I | II | III | IV | V | | VI | | VII | VIII |
| Local | Midterm and final exams |
| **1** | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | 15 | | 16 | 17 | 18 |
| **1** | **Compulsory courses** |  | | | | | | | | | | | | | | | | | |
| **1.** | Foreign language 1 (English, German, French, Russian) | A2.1 **-HLCB2250**  B.1.1- **HLCB2270**  A 2.1- **HLCB2300**  B.1.1- **HLCB2320**  A2.1 **-HLCB2400**  B.1.1- **HLCB2420**  A2.1 **- HLCB2350**  B.1.1- **HLCB2370** | 5 | 125 | 60 | 3 | 62 | 0/4/0/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **2.** | Foreign language 2 (English, German, French, Russian) | A2.2.- **HLCB2260**  B1.2.- **HLCB2280**  A2.2.- **HLCB2310**  B1.2.- **HLCB2330**  A2.2.- **HLCB2410**  B1.2.- **HLCB2430**  A2.2.- **HLCB2360**  B1.2.- **HLCB2380** | 5 | 125 | 60 | 3 | 62 | 0/4/0/0/0 |  | 5 |  |  |  | |  | |  |  |  |
| **3.** | Foreign language 3 (English, German, French, Russian) | B1.1- **HLCB2270**  B2.1- **HLCB2290**  B1.1- **HLCB2320**  B2.1- **HLCB2340**  B1.1- **HLCB2420**  B2.1- **HLCB2440**  B1.1- **HLCB2370**  B2.1- **HLCB2390** | 5 | 125 | 60 | 3 | 62 | 0/4/0/0/0 |  |  | 5 |  |  | |  | |  |  |  |
| **4.** | Academic writing | HLB0600 | 5 | 125 | 45 | 3 | 77 | 0/3/0/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **5.** | Calculus | NMB1120 | 5 | 125 | 45 | 3 | 77 | 0/3/0/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **6.** | Agroanalytic chemistry | ALB0300 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **7.** | Informatics | NIB0700 | 5 | 125 | 45 | 3 | 77 | 0/0/3/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **8.** | Science of nature tenure | ASB0090 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 | 5 |  |  |  |  | |  | |  |  |  |
| **Total** | |  | **40** | **1000** | **405** | **24** | **571** |  |  | | | | | | | | | |  |
| **II. basic courses** | |  | | | | | | | | | | | | | | | | | |
| **9.** | Botany | ASB0020 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  | 5 |  |  |  | |  | |  |  |  |
| **10.** | Basic soil science | ASB0140 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  | 5 |  |  |  | |  | |  |  | 8; |
| **11.** | Land cultivation | ASB0110 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  |  |  | 5 |  | |  | |  |  | 8; |
| **12.** | Vine-growing | ASB0180 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  | 5 | |  | |  |  |  |
| **13.** | Plant genetics | ASB0100 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  |  |  |  | 5 | |  | |  |  | 9; |
| **14.** | Plant-growing | ASB0160 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  | 5 | |  | |  |  | 9,10,11; |
| **15.** | Vegetable-growing | ASB0170 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | | 5 | |  |  | 9,10,11; |
| **16.** | Agrochemistry | ASB0120 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  |  | 5 |  |  | |  | |  |  | 8; |
| **17.** | General selection | ASB0390 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | | 5 | |  |  | 9,12 |
| **18.** | Agricultural melioration | AEB0770 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | | 5 |  | 8,10,11; |
| **19.** | Integrated preserving of plants | ASB0190 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | |  | 5 | 9,12,14,15; |
| **20.** | Preserving and processing agricultural raw materials | ACB0030 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  |  |  |  |  | |  | |  | 5 | 6,9,12,15 |
| **21.** | Agro-microbiology | ACB00 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  | 5 |  |  |  | |  | |  |  | 6.8. |
| **Total** | |  | **65** | **1625** | **585** | **39** | **1011** |  |  |  |  |  |  |  | |  | |  |  |
| **module 1: agrotechnology** | |  |  | | | | | |  | | | | | | | | | | |
| **22** | Soil microbiology | ALB0040 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0/0 |  |  | 5 |  |  | |  | |  |  | 6. 21 |
| **23** | Cattle-breeding | ALB0360 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | |  | 5 | 14; |
| **24** | Decorative gardening | ALB0370 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | | 5 |  | 8,9; |
| **25** | Subtropical technical crops | ALB0350 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  | 5 |  |  |  | |  | |  |  | 9; |
| **26** | Soil science with melioration principles | ASB0200 | 5 | 125 | 45 | 3 | 77 | 1/1/1/0/0 |  |  |  | 5 |  | |  | |  |  | 8,10; |
| **27** | Tea-growing | ALB0330 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  | 5 |  |  |  | |  | |  |  |  |
| **28** | Subtropical fruit-growing | ALB0340 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  | 5 |  |  | |  | |  |  | 9; |
| **29** | Agricultural machines | AEB0370 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | | 5 |  | 12,14,15,27; |
| **30** | Forest crops | ALB0380 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  | 5 |  | |  | |  |  | 8,9; |
| **31** | Harmful insects and diseases of agricultural crops | ASB0220 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  | 5 | |  | |  |  | 9,12; |
| **32** | Agro-biotechnology | ASB0210 | 5 | 125 | 45 | 3 | 77 | 2/0/1/0/0 |  |  |  |  |  | |  | |  | 5 | 13,17; |
| **33** | Industrial practice in agrotechnology | ALB0390 | 5 | 125 |  | 3 | 77 | 0/0/0/0/3 |  |  |  |  |  | | 5 | |  |  | 12,14,15,25, 27,28; |
| **module 1** | |  | **60** | **1500** | **495** | **36** | **969** |  |  | | | | | | | | |  |  |
| **module 2: agroecology** | |  |  | | | | | |  | | | | | | | | | | |
| **34** | Geology with the principles of soil science | ASB0270 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  | 5 |  |  |  | |  | |  |  | 8; |
| **35** | Forestry | ALB0190 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | | 5 |  | 8,9; |
| **36** | Private soil science | ASB0300 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  | 5 |  |  | |  | |  |  | 8,10; |
| **37** | Subtropical cultures | ALB0440 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  | 5 |  |  |  | |  | |  |  | 8; |
| **38** | Protecting environment and protected territories/areas | ALB0430 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | | 5 |  | 8; |
| **39** | Ecology of subtropical plants | ALB0420 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  | 5 |  |  | |  | |  |  | 8, 9,10,37; |
| **40** | Pitopathology | ASB0290 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  | 5 | |  | |  |  | 9,12,37; |
| **41** | Ecological biotechnology | ASB0330 | 5 | 125 | 45 | 3 | 77 | 2/0/1/0/0 |  |  |  |  |  | |  | |  | 5 | 13,17; |
| **42** | Entimology | ASB0280 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  | 5 |  | |  | |  |  | 9,12; |
| **43** | Agricultural ecology | ASB0310 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  | 5 |  | |  | |  |  | 8,9,10; |
| **44** | Agroecological monitoring | ASB0320 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | |  | 5 | 8,9,10,12,14,  15; |
| **45** | Process practice in agroecology | ASB0340 | 5 | 125 |  | 3 | 122 | 0/0/0/0/3 |  |  |  |  |  | | 5 | |  |  | 10,11,18,19,35; |
|  | |  | **60** | **1500** | **495** | **36** | **969** |  |  | | | | | | | | | |  |
| **Elective courses** | |  |  | | | | | |  | | | | | | | | | | |
| **46** | Foreign language 1 (English, German, French, Russian) | A 1.1-HLCB2451  A 2.1- HLCB2251  A 1.1- HLCB2471  A 2.1- HLCB2301  A 1.1- HLCB2511  A 2.1- HLCB2401  A 1.1- HLCB2491  A 2.1- HLCB2351 | 5 | 125 | 60 | 3 | 62 | 0/4/0/0/0 |  |  |  | 5 |  | |  | |  |  |  |
| **47** | Hydrotechnical melioration | AEB0381 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  | |  | |  |  | 10; |
| **48** | Plant physiology | ASB0050 |  |  |  |  | |  | |  |  | 9; |
| **49** | Soils of Georgia | ASB0251 |  |  |  |  | |  | |  |  | 10; |
| **50** | Foreign language 2 (English, German, French, Russian) | A 1.2-HLCB2461  A 2.2- HLCB2261  A 1.2- HLCB2481  A 2.2- HLCB2301  A 1.2- HLCB2521  A 2.2- HLCB2411  A 1.2- HLCB2501  A 2.2- HLCB2361 | 5 | 125 | 60 | 3 | 62 | 0/4/0/0/0 |  |  |  |  |  | | 5 | |  |  |  |
| **51** | Controlling soil resources | AEB0111 |  | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  |  |  |
| **52** | Ampelography of Georgia | ASB0261 |  |  |  |  |  | |  |  | 10; |
| **53** | Science of plant breeds | AEB0401 |  |  |  |  |  | |  |  | 9,10; |
| **54** | Subtropical plant ecology | ALB0420 |  |  |  |  |  | |  |  |  |
| **55** | Foreign language 3 (English, German, French, Russian) | A 2.1-HLCB2251  B 1.1- HLCB2271  A 2.1- HLCB2301  B 1.1- HLCB2321  A 2.1- HLCB2401  B 1.1- HLCB2421  A 2.1- HLCB2351  B 1.1- HLCB2371 | 5 | 125 | 60 | 3 | 77 | 0/4/0/0/0 |  |  |  |  |  | |  | | 5 |  |  |
| **56** | Automobiles and tractors | SEB1171 | 45 | 3 | 77 | 1/2/0/0/0 |  |  |  |  |  | |  | |  | 12; |
| **57** | System of land tenure and geodesy principles | ASB0231 |  |  |  |  |  | |  | |  |  |
| **58** | Using electric energy in agriculture | ASB0241 | 1/0/2/0/0 |  |  |  |  |  | |  | |  |  |
| **Total elective courses** | |  | **15** | **375** | **375** | | |  |  |  |  |  |  | |  | |  |  |  |
| **Minor credits** | |  | **60** | **1500** | **1500** | | |  |  |  | **10** | **10** | **10** | | **10** | | **10** | **10** |  |
| **Study schedule in total** | |  | **240** | **6000** | **2115** | **96** | **3789** |  | **30** | **30** | **30** | **30** | **30** | | **30** | | **30** | **30** |
| **+1500** | | |

* **The Program includes specializations: module 1. – agrotechnology (240 credits: 40 +65 +15+ 60+ 60 minor) , module 2 agroecology (240 credits: 40 +65 +15 + 60+ 60 minor)**