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**Agrarian Faculty**

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| **"Approved"**  **Rector**  **------------------ Prof. George Ghavtadze**  **Academic Board Meeting**  **Protocol № 1 15.09.2017** |  | **"Approved"**  **Dean of Agrarian Faculty**  **-----------––––– Prof. Ketevan Kintsurashvili**  **Faculty Board Meeting**  **Protocol № 2 08.09.2017** |

**Bachelor Program**

**Agricultural raw materials for food production, technology and expertise**

**(ASCB)**

**Program Coordinators:** **Ketevan Kintsurashvili –**

Doctor of Technical Sciences, Academician of National Academy of Sciences of Abkhazia, Professor

**Ekaterine Kakhniashvili** **–**

The candidate of science and technic, Academic Doctor of Technologies, associated professor

Kutaisi

2017 – 2018

**Curriculum**

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| **Program Title** | | **ASCB**  **Agricultural raw materials for food production, technology and expertise** | |
| **Degree Awarded** | | Bachelor of Food Technology | |
| **Faculty** | | Agrarian Faculty | |
| **Program Coordinators** | | **Ketevan Kintsurashvili -** Doctor of Technical Sciences, Academic doctor of Technologies, Academician of National Academy of Sciences of Abkhazia, Professor – Agrarian Faculty, Department of subtropical crops products technology  Mobile phone number: 577 24 33 34  595 41 79 41  0(431) 27 77 66 (office)  0(431) 27-47-04 (home)  e-mail: [ketevan.kintsurashvili@atsu.edu.ge](mailto:ketevan.kintsurashvili@atsu.edu.ge)  [Q.kintsurashvili@maul.ru](mailto:Q.kintsurashvili@maul.ru)  **Ekaterine Kakhniashvili** – The candidate of science and technic, Academic Doctor of Technologies, associated professor – Agrarian Faculty, Department of subtropical crops products technology  Mobile phone number: 599 98 69 41  0(431) 21–17–51 (home)  e-mail: [ekaterine.kakhniashvili@atsu.edu.ge](mailto:ekaterine.kakhniashvili@atsu.edu.ge)  [kakhni@mail.ru](mailto:kakhni@mail.ru) | |
| **Duration of the Program (semesters, number of credits)** | | **240 ESTS credits**  **From: 1. Basic specialty (major) courses: 180 credits**  **Including:** Specialty Assistant Courses - 40 credits  Basic specialty (major) compulsory courses - 125 credits  Elective (elective) courses - 15 credits  **2. Additional specialty (minor) program - 60 credits**  **Number of semesters - 8** | |
| **Language of the Program** | | | Georgian |
| **Program development and renewal date of issues** | | | Program developed in 2010-2011  Accredited in September 16, 2011 Decree №21  Renewal date |
| **Program Prerequisits** | | | |
| Applicants of complete course of General education have the right to become students of Bachelor Program, who have certificates of confirmation of passing the unified national exams and register to the program before starting studying at the Faculty, and also for foreign citizens according to the regulations determined by the legislation system of Georgia. | | | |
| **Aims of the Program** | | | |
| Prepare a specialist of Bachelor’s academic Degree of Food Technology, having general transferring and branch competencies with basic profession – “Agricultural raw materials for food production, technology and expertise”, and teach them expertise and technology of producing ecologically pure agricultural products, such as: tea, tobacco, subtropical tinned fruits and vegetables, esenciall oils, low alcohol or alcohol free drinks and mineral waters.  Provide a specialist with skill to find and show new resources of raw materials, appreciate them and teach them producing technologies of new kinds of products, ways and conditions of ready production expertise.  Graduates must be able to make an examination of agricultural products using specific methods, State standards and other normative documents.  Provide them with the skill to use theoretical knowledge in practice, define problems of the Branch, find ways to solve these problems and base accepted decisions.  Provide students’ free choice within learning program to choose elective subjects and minor programs in order to achieve the learning result considered in Bachelor Program. | | | |
| **Learning Results (General and Branch competencies)**  **(schedule of learning results can be seen in attachment 2)** | | | |
| **Knowledge and Recognition** | Deep knowledge of the field, which includes critical comprehension of theories and principles. | | |
| * Has general knowledge in exact, natural and humanitarian disciplines, is able to integrate knowledge in the process of mastering the profession; * Realizes that food production created by processin agricultural raw materials and subtropical crops will make consumer’s market more diverse and support economic growth of the country; * Knows basic industrial breeds of raw materials necessary for producing food production made by processed agricultural raw materials, their classification, description, comparing to each other, selecting according to the standards and corresponds a processing schedule to the producing of agricultural raw materials; * Knows chemical consistence of selected fruits and vegetables and subtropical raw materials, describes their quantitative and qualitative changeability/unsteadiness, reason of these changes, processes on which substance change during their vital capacity is based on, transforming chemical consistence of raw materials and its directions, methods and conditions of ready production expertise; * Knows classifying ferments and microorganisms, describes microbial and ferment ways of producing plant substances of secondary origin, realizes their role for biotechnological processes and expertise results presenting in nature and producing system; * Knows chemical principles of biotechnological processes in details and is able to conceive the principles of microbiological synthesis; * Knows and recognizes chemical nature of ferments, acting kinetics, specifications, methods of determining, exuding and purifying, relates them to technological processes and to qualitative and medical-hygienic evaluation and expertise of the final product; * Discusses, enumerates and describes the issues related to heat engineering and refrigerator technique (active organisms, burning processes, ideal and real gases and their direct and reversible cycles, issues of thermal changes, ways to give heat energy, types or steams, boiler installations, compressors, engines, internal burning engines, thermal force installations, spheres of using cold air, types of refrigerator machines and aggregates, refrigerator systems and ice producing technique), relates them to the processes and devices of agricultural product industries, is able to examine schemes of machines and installations appropriate to the processes and compare options; * Describes different technologies of producing food products from agricultural raw materials with specific technological processes and control, transformations presented in this process, ways of ready products expertise; * Examines technological devices of food product companies of processing agricultural raw materials, by selecting options, their exploitation conditions and corresponds them to technological processes of producing food products. * Knows nutrition physiology and hygiene, agricultural safety issues and certifying conditions of agricultural products, highlights its inevitability and formulates to carry out these processes; * Is able to guide expertise process of subtropical raw material products and fruits and vegetables, and certify food products. | | |
| **Skill to use knowledge in practice** | Use several methods to solve problems, carry out research or practical projects according to preliminarily determined instructions. | | |
| * Determines quantitative and qualitative changes of basic chemical components of agricultural raw materials and food products received from their processing – using different chemical and physical methods, appreciates received data and identifies examination results of food products; * Uses standards to define agricultural raw materials and products by qualitative index and protect norms for expertise; * Has ability to make materialistic, thermal and energy balance of machines and devices appropriate to food producing processes; * Is able to provide exploitation conditions of technological devices of food products producing companies; maintain safety and calculate technological devices; * Is able to control producing process in technical-chemical and micro-biological ways, guide technological processes of processing fruits and vegetables and subtropical crops, change them according to the instructions and provide conditions for ready production expertise; * Is able to appreciate organoleptic index of food products, such as: tea, tinned fruits and vegetables, wine, tobacco, volatile oils and fatty oils, beer, alcohol free drinks and mineral waters, recognize production of low or high quality; appreciate organisms causing different processes – by examining them microscopically during medical-hygienic appreciation and examination/expertise; * Is able to highlight food safety issues, certification conditions of food products, certification inevitability and organize certifying procedures of food products; * Is able to examine and certify food production received from processed fruits and vegetables and subtropical raw materials. | | |
| **Skill to make conclusions** | Collect and explain data characteristic to the field, analyze specific data and/or situations using standard or some specific methods, make valid conclusions. | | |
| * Collects, relates, compares and takes latest data into consideration; * Analyzes received information, is able to differentiate expected results, their appreciation and make conclusions by using different methods; * Is able to analyze the situation, separate problems and find ways to solve them, form his/her own conclusions within gained competencies; * Has ability to plan the work and skill to define priorities. | | |
| **Communication skills** | Prepare detailed written estimation about ideas, current problems and ways to solve them; give information orally to specialists and unskilled specialists in Georgian and foreign languages, use modern informational and communicational technologies creatively. | | |
| * Participates in discussions with branch specialists and unqualified specialists in foreign language and is able to have oral and written communication about issues related to the profession; * Is able to prepare conference speeches and reviews and make presentations; * Creatively uses modern informational and communicational technologies. | | |
| **Learning Skills** | Successively and diversely appreciates his/her own learning process and determines needs for the next level of learning process. | | |
| * Is able to participate in group or individual works; * Is able to develop knowledge level regularly using different literature and other resources; * Realizes the need of the next level of learning on the basis of appreciation and determination of present knowledge; * Accomplishes instructions of the manager to carry out professional work. | | |
| **Values** | Participate in the process of forming values and aspiration for implementing them. | | |
| * Determines values: ethic norms, skills, expresses his/her own idea and respects different viewpoints, self-critics, professional critics; * It is very important to him/her to develop the branch of producing food products by increasing basis of raw materials of subtropical crops; * Possesses high professional values, is responsible for the issue of producing ecologically pure production, importance of food products expertise and aspires for implementing it; * Realizes the importance of healthy eating for people’s health and supporting healthy eating is important value for him/her. | | |
| **Teaching Methods** | | | |
| The whole complex of learning methods used in different components of the program, provides the achievement of learning results considered in the program.  In particular, one of the most widely spread classification of learning methods is used in the program and learning interactive methods from A and B versions of the mentioned classification, which are selected by considering learning course specification, they complement each other in the process of teaching and learning.  The following learning methods are used in various components of the program:   * Verbal or oral method; * Discussion/ debates; * Laboratorial method; * Practical method; * Method of group work; * Demonstrative method; * Inductive and deductive method; * Method of analysis and synthesis; * Brainstorming; * Writing method; * Method of working on books; * Explanation method; * Method of role and situational plays.   **(See in details in syllabuses).** | | | |
| **Program Structure** | | | |
| Study Schedule of Bachelor Program includes:   * **Compulsory courses of specialty,** which are determined torecognize basic conceptions and course of natural sciences, humanitarian and informational sciences, know the latest achievements in various fields of mentioned sciences and expand erudition; * **Compulsory courses of major specialty.** Learning these courses is aimed at recognizing basic principles, theories and conceptions of sciences; gaining systemic knowledge of technological field; forming skills to appreciate processes objectively, complex view of the events, making theoretical analysis and empirical data, having inter-disciplinary attitude necessary for student’s technological activity and for production expertise, forming students as professionals. * **The aim of the elective courses** is to give students opportunityto develop knowledge and learn second language; * **The aim of learning minor disciplines is to** get additional profession together with the major profession in order to have professional career growth and broaden the area of employment. Students have opportunity to choose additional profession from minor list offered by the university and gain additional competencies appropriate to the selected minor course. (to achieve the aim in study schedule of Bachelor Program – 10 credits are considered in each semester after second semester). Within the following program minor program is considered as additional profession: “Food Products Expertise”, which unites 9 learning courses in its Study Schedule. The aim of additional minor program is to give a bachelor the following additional competence together with the competencies of basic profession: ability to define qualitative index of agricultural products and products received from their processing, such as: tea, tobacco, tinned fruits and vegetables, wine, volatile and fatty oils, bread, beer and alcohol free drinks, their expertise and identification using State standard and other normative documents.   **(See Study Schedule in attachment 1.)** | | | |
| **Criteria and evaluation system of knowledge of a student** | | | |
| **Student knowledge assessment system:**  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:  1. Student’s credit can be obtained in the educational program only after the attainment of learning outcomes planned according syllabus, which is reflected in the credit system as one of the positive evaluations considered in sub-point “a” of the sixth paragraph.  2. It is not allowable to evaluate a student’s learning outcomes only on the basic of the final exam. Evaluating a student’s work during a semester should include:  a) midterm assessment;  b) final exam assessment.  3. Maximum assessment of the course is equal to 100 points. From the overall score of the educational program component (100 points):   * The share of intermediate assessment totals 60 points, which in turn include the following assessment forms:   - Student activity during the training semester (comprises different components of evaluation) - 30 points;  - Intermediate exam - 30 points.   * The share of the final exam is 40 points.   4. The student has the right to take the final exam, if his/her minimum competency is 18 points.  5. Evaluation system includes:  **a) Five forms of positive assessment:**  a.a) (A) Excellent – 91% and more from maximum evaluation;  b.b) (B) very good – 81-90% from maximum evaluation;  c.c) (C) good – 71-80% from maximum evaluation;  d.d) (D) satisfactory – 61-70% from maximum evaluation;  e.e) (E) sufficient – 51-60 % from maximum evaluation.  **B) Two forms of negative assessment:**  b.a) (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;  b.b) (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.  6. Evaluations considered in the fifth paragraph are obtained on the basis of the sum of midterm and final assessments.  7. The final exam should not be evaluated more than 40 points.  8. 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.  9. The number of minimum points received from the makeup final exam is 15 points.  10. The number of minimum points received from the makeup final exam, is not added to the final assessment received by the student.  11. Points received from makeup exam is a final assessment and is added to the final evaluation of the learning component of the educational program.  12. 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.  Additional criteria of evaluating student’s achievements in learning course is determined in appropriate syllabuses. | | | |
| **Employment Opportunities** | | | |
| Areas of Food technology:   * Tea factories (primary and weighing); * Processing factories of tinned fruits and vegetables; * Oil and Essential Factories; * Tobacco factories of primary and secondary produce; * Wine factories; * Beer, alcohol free drinks and mineral water factories; * Farming agriculture and other factories; * Private companies and State structures of different instances; * Accredited laboratories of certification; * Quality monitoring services, etc. | | | |
| **Supporting resources / resources necessary for learning** | | | |
| * **Human Resources:** Implementation of a Bachelor's Degree Educational Program is provided by highly qualified pedagogical staff. Educational disciplines are conducted by 57 specialists with the following degree: 2 professors, 16 associate professors, 2 assistant professors, 33 teachers (out of which 31 teachers from the language center - 15 Doctors, 2 Doctoralists, 10 Philologist), 4 invited specialists (including 3 Doctors) who have experience in professional activities and are conducting scientific-research, practical and methodical work in parallel activities.  |  |  |  |  | | --- | --- | --- | --- | | **Human resources** | **Academic degree** | **Detained**  **Position** | **Training course to be envisaged in the curriculum** | | **Agrarian Faculty**  **Department of subtropical crops products technology** | | | | | Kintsurashvili Ketevani | Doctor of Technical Sciences,  Academic Doctor of Technology | Professor | 1. Technology of preserving fruits and vegetables  2. Production expertise of producing tinned products  3. Principles of food industry | | Pruidze Makvala | The candidate of science and technic,  Academic Doctor of Technology | Professor | 1. Tea technology  2. Tobacco technology  3. Expertise of tea and tobacco production  4. Physical and chemical methods of food products analysis | | Kakhniashvili Ekaterine | The candidate of science and technic,  Academic Doctor of Technology | Associated professor | 1. Standardization and quality monitoring  2. Chemistry of raw materials of food products 3. Technology and expertise of essential oils  4. Science of commodities of agricultural raw materials  5. Science of commodities of food products | | Aplakov Varlami | The candidate of biological sciences,  Academic Doctor of Biology | Associated professor | 1. Biochemistry of plants  2. Technology and expertise wine  3. Engineering biotechnology | | Bendeliani Ekaterine | The candidate of biological sciences,  Academic Doctor of Biology | Associated professor | 1. Technology and expertise of low alcohol and alcohol free drinks and mineral waters  2. Principles of food industry  3. Tea technology | | Gogishvili Nana | Academic Doctor of Technology | Associated professor | 1. Technological devices of food products companies  2. Labor protection | | Mikaberidze Malkhazi | The candidate of science and technic,  Academic Doctor of Technology | Associated professor | 1. Thermal engineering with refrigerator technique principles  2. Processes and devices of food products producing enterprises | | Khutsidze Tamari | Academic Doctor of Engineering Sciences | Associated professor | 1. Production microbiology  2. Food physiology, hygiene and safety  3. Engineering enzymology  4. Engineering biotechnology | | Katamadze Nana | The candidate of science and technic,  Academic Doctor of Technology | Assistant  Professor | 1. Technology of preserving fruits and vegetables  2. Production expertise of producing tinned products  3. Tobacco technology | | **Agrarian Faculty**  **Department of Subtropical Crops** | | | | | Tabagari Marieta | Candidate of Agricultural Sciences,  Academic Doctor of Agriculture | Associated professor | 1. Varieties of subtropical crops, vegetables, grains and grape varieties  2. Principles of agriculture | | Kopaliani Lia | Candidate of Agricultural Sciences,  Academic Doctor of Agriculture | Associated professor | Medicinal plants | | Kapanadze Shorena | Academic Doctor of Agrarian Sciences | Assistant  Professor | Medicinal plants | | **Agrarian Faculty**  **Department of Tourism and Landscape Architecture** | | | | | Kiladze Ramazi | Candidate of Agricultural Sciences,  Academic Doctor of Agriculture | Associated professor | Protecting environment and protected territories | | Kutsia Marina | Candidate of Agricultural Sciences,  Academic Doctor of Agriculture | Associated professor | 1. Ecology  2. Protecting environment and protected territories | | **Agrarian Faculty**  **Department of agrorngineer** | | | | | Tsibadze Zurabi | The candidate of science and technic,  Academic Doctor of Agrorngineer | Associated professor | Electromotive and its automatic driving in agriculture | | **Faculty of Exact and Natural Sciences**  **Department of Physics** | | | | | Kvantaliani Inga | Academic Doctor of Physical and Mathematical Sciences | Invited specialis | Physics | | **Faculty of Exact and Natural Sciences**  **Department of Mathematics** | | | | | Bartaia Zurabi | Candidate of Pedagogical Sciences,  Academic Doctor  of Mathematics | Invited specialis | Highest Mathematics | | **Faculty of Exact and Natural Sciences**  **Department of Chemistry** | | | | | Chikovani Manuchari | Candidate of Chemistry Science,  Academic Doctor of Chemistry | Associated professor | 1 Basic and inorganic chemistry  2. Analytical chemistry | | Kakhidze Nino | Candidate of Chemistry Science,  Academic Doctor of Chemistry | Associated professor | Physicoloid chemistry | | Porchkhidze Avtandili | Candidate of Chemistry Science,  Academic Doctor of Chemistry | Associated professor | Organic chemistry | | **Faculty of Business, Law and Social Sciences**  **Department of Business Administration** | | | | | Akhaladze Zeinabi | The candidate of science and technic,  Academic Doctor of Technology | Associated professor | Economics of enterprises producing subtropical crops | | **Faculty of Exact and Natural Sciences**  **Department of Information Technology** | | | | | Lomidze Natela  Lomidze Nino  Shakaia Nana | Academic doctor of Engineering | Teacher  Specialists invited to the contract | Informatics | | **Faculty of Humanities**  **Department of Georgian Philology** | | | | | Pkhakadze Nino  Mchedldze Maka | Academic Doctor of Philology  Philologist | Associated professor Teacher invited to the contract | Academic writing | | **Faculty of Humanities**  **Language Center** | | | | | Berekashvili Elene  Mardaleishvili Tamari  Abesadze Tanari  Oniani Lela  Tavidashvili Nino | Philologist  Doctoralists  Academic Doctor of Philology  Academic Doctor of Philology | Teacher  Teacher  Teacher  Teacher  Teacher | Foreign language 1 (English):  A2.1  A2.1  A1.1  B1.1  B1.1 | | Dzenaladze Manana  Iramadze Maia  Demetradze Darejani  Meburishvili Tinatini | Philologist  Philologist  Academic Doctor of Philology | Teacher  Teacher  Teacher  Teacher | Foreign language 1 (German):  A2.1  A2.1  A1.1  B1.1 | | Apridonidze Ana  Okropilashvili Maia | Academic Doctor of Philology  Philologist | Teacher  Teacher | Foreign language 1 (French):  A2.1 A1.1  B1.1 | | Kostava Mzia  Sopromadze Ketevani | Doctor of Pedagogical Sciences  Academic Doctor of Philology | Teacher  Teacher | Foreign language 1 (Russian):  A2.1  B1.1 A1.1 | | Pipia Ana  Giorgadze Mzia  Gabadadze Maia  Oboladze Lida  Babukhadia Mariami | Doctor of Education Sciences  Philologist  Academic Doctor of Philology  Academic Doctor of Philology | Teacher  Teacher  Teacher  Teacher  Teacher | Foreign language 2 (English):  A2.2  A2.2  A1.2  B1.2  B1.2 | | Jorjoliani Ketevani  Papava Manana  Mikabadze Dali  Meburishvili Tinatini | Philologist  Philologist  Academic Doctor of Philology | Teacher  Teacher  Teacher  Teacher | Foreign language 2 (German):  A2.2  A2.2  A1.2  B1.2 | | Khvedelidze Nestani  Lortkipanidze Tamila | Philologist  Academic Doctor of Pedagogy | Teacher  Teacher | Foreign language 2 (French):  A2.2 A1.2  B1.2 | | Zautashvili Dali  Dashniani Tea | Academic Doctor of Philology  Academic Doctor of Philology | Teacher  Teacher | Foreign language 2 (Russian):  A2.2 A1.2  B1.2 | | Tavidashvili Nino  Oniani Lela  Grigalashvili Tamari  Nachkebia Maia | Academic Doctor of Philology  Academic Doctor of Philology  Academic Doctor of Philology  Doctoralists | Teacher  Teacher  Teacher  Teacher | Foreign language 3 (English):  B1.1  B1.1  B2.1  B2.1 | | Meburishvili Tinatini  Kuchukhidze Marina | Academic Doctor of Philology  Philologist | Teacher  Teacher | Foreign language 3 (German):  B1.1  B2.1 | | Koripadze Puchki  Khvedelidze Ketevani | Philologist  Doctor of Pedagogy | Teacher  Teacher | Foreign language 3 (French):  B1.1  B2.1 | | Sopromadze Ketevani  Parkosadze Mzia | Academic Doctor of Philology  Doctor of Pedagogy | Teacher  Teacher | Foreign language 3 (Russian):  B1.1  B2.1 |   The CV of the academic staff are attached to the program.   * **Training of educational-methodical provision**: Bachelor's program curriculum provided for each training course for teaching process is provided with appropriate training and methodological documents: the course syllabus, lectures, basic textbooks and supplementary sources of information, training and methodological recommendations, learning BIS technology for multimedia and audio / video materials. * **Required Material Resource:** The University's infrastructure, real and movable items owned by it, conforms to the implementation of the program and gives the opportunity to achieve learning outcomes. These are: lecture auditors and laboratories, educational and electronic libraries, working space for academic personnel, information communication technologies (computer software is educational program adequate) and other technical equipment provided by training materials. | | | |
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## Attachment 1

**Study Schedule 2017-2018**

**Program Title: Agricultural raw materials for food production, technology and expertise**

**Degree Awarded: Bachelor of Food Technology**

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| № | Course | Course code | credit | 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 | **Basic learning courses (40 credits)** | | | | | | | | | | | | | | | | | | | | |
| 1.1 | Academic writing | HLB0600 | 5 | 125 | 45 | 3 | 77 | 0/0/0/3 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.2 | Informatics | NIB0700 | 5 | 125 | 45 | 3 | 77 | 0/0/3/0 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.3 | Highest Mathematics | NMB1130 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.4 | Physics | NFB0650 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.5 | Basic and inorganic chemistry | NCB0740 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.6 | Foreign language 1 (compulsory)  English language A2.1  English language B1.1  German language A2.1  German language B1.1  French language A2.1  French language B1.1  Russian language A2.1  Russian language B1.1 | HLCB2250  HLCB2270  HLCB2300  HLCB2320  HLCB2400  HLCB2420  HLCB2350  HLCB2370 | 5 | 125 | 60 | 3 | 62 | 0/4/0/0 | 5 |  | |  | | |  | |  |  |  |  |  |
| 1.7 | Foreign language 2 (compulsory)  English language A2.2  English language B1.2  German language A2.2  German language B1.2  French language A2.2  French language B1.2  Russian language A2.2  Russian language B1.2 | HLCB2260  HLCB2280  HLCB2310  HLCB2330  HLCB2410  HLCB2430  HLCB2360  HLCB2380 | 5 | 125 | 60 | 3 | 62 | 0/4/0/0 |  | 5 | |  | | |  | |  |  |  |  | 1.6 |
| 1.8 | Foreign language 3 (compulsory)  English language B1.1  English language B2.1  German language B1.1  German language B2.1  French language B1.1  French language B2.1  Russian language B1.1  Russian language B2.1 | HLCB2270  HLCB2290  HLCB2320  HLCB2340  HLCB2420  HLCB2440  HLCB2370  HLCB2390 | 5 | 125 | 60 | 3 | 62 | 0/4/0/0 |  |  | | 5 | | |  | |  |  |  |  | 1.7 |
| **Total** | |  | **40** | **1000** | **405** | **24** | **571** | **3/16/3/3** | **30** | **5** | | | **5** | | |  |  |  |  |  |  |
| 2 | **Basic specializing learning courses (125 credits)** | | | | | | | | | | | | | | | | | | | | |
| 2.1 | Analytical chemistry | NCB0750 | 4 | 100 | 30 | 3 | 67 | 1/0/1/0 |  | 4 | |  | | |  | |  |  |  |  | 1.5 |
| 2.2 | Organic chemistry | NCB0760 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  | 5 | |  | | |  | |  |  |  |  | 1.5 |
| 2.3 | Physicoloid chemistry | NCB0770 | 3 | 75 | 30 | 3 | 42 | 1/0/1/0 |  | 3 | |  | | |  | |  |  |  |  | 1.5 |
| 2.4 | Varieties of subtropical crops, vegetables, grains and grape varieties | ASB0350 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  | 5 | |  | | |  | |  |  |  |  |  |
| 2.5 | Thermal engineering with refrigerator technique principles | ACB0070 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  | 5 | |  | | |  | |  |  |  |  | 1.4 |
| 2.6 | Principles of food industry | APB0220 | 3 | 75 | 30 | 3 | 42 | 1/0/1/0 |  | 3 | |  | | |  | |  |  |  |  |  |
| 2.7 | Biochemistry of plants | ACB0050 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | | 5 | | |  | |  |  |  |  | 1.5, 2.4 |
| 2.8 | Chemistry of raw materials of food products | ACB0060 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | | 5 | | |  | |  |  |  |  | 2.4 |
| 2.9 | Processes and devices of food products producing enterprises | ACB0140 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  |  | | 5 | | |  | |  |  |  |  | 2.5 |
| 2.10 | Engineering enzymology | ACB0080 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | | 5 | |  |  |  |  | 2.7, 2.8 |
| 2.11 | Tea technology | ACB0090 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | | 5 | |  |  |  |  | 2.8, 2.9 |
| 2.12 | Tobacco technology | ACB0100 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | | 5 | |  |  |  |  | 2.8, 2.9 |
| 2.13 | Production practice 1 | ACB0210 | 5 | 125 | 45 | 3 | 77 | 0/3/0/0 |  |  | |  | | | 5 | |  |  |  |  | 2.5, 2.9, 2,11, 2.12 |
| 2.14 | Technology of preserving fruits and vegetables | ACB0150 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | | 5 |  |  |  | 2.4, 2.8, 2.9 |
| 2.15 | Technology and expertise of essentiall oils | ACB0160 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | | 5 |  |  |  | 2.4, 2.8, 2.9 |
| 2.16 | Expertise of tea and tobacco production | ALB0110 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | | 5 |  |  |  | 2.11, 2.12 |
| 2.17 | Technology and expertise of low alcohol and alcohol free drinks and mineral waters | ACB0170 | 10 | 250 | 90 | 3 | 157 | 2/0/4/0 |  |  | |  | | |  | |  | 10 |  |  | 2.4, 2.8 |
| 2.18 | Production practice 2 | ACB0220 | 5 | 125 | 45 | 3 | 77 | 0/3/0/0 |  |  | |  | | |  | |  | 5 |  |  | 2.14, 2.15, 2.17 |
| 2.19 | Production microbiology | ACB0110 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | |  |  | 5 |  | 2.11, 2.12, 2.14, 2.15, 2.17 |
| 2.20 | Technology and expertise of wine | ACB0130 | 7 | 175 | 75 | 3 | 97 | 2/0/3/0 |  |  | |  | | |  | |  |  | 7 |  | 2.6, 2.10 |
| 2.21 | Engineering biotechnology | ACB0120 | 3 | 75 | 30 | 3 | 42 | 1/0/1/0 |  |  | |  | | |  | |  |  | 3 |  | 2.6, 2.8, 2.10 |
| 2.22 | Standardization and quality monitoring | ACB0180 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  | 5 | 2.11, 2.12, 2.14-2.17, 2.20 |
| 2.23 | Food physiology, hygiene and safety | ACB0190 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | |  |  |  | 5 | 2.11, 2.14, 2.15, 2.17, 2.20 |
| 2.24 | Technological devices of food products companies | ACB0200 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  | 5 | 2.11, 2.12, 2.14, 2.15, 2.17, 2.20 |
| 2.25 | Production expertise of producing tinned products | ACB0300 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | |  |  |  | 5 | 2.14 |
| **Total** | |  | **125** | **3125** | **1140** | **75** | **1910** | **25/16/35/0** |  | **25** | | **15** | | | **20** | | **15** | **15** | **15** | **20** |  |
| 3 | **Elective learning courses (15 credits)** | | | | | | | | | | | | | | | | | | | | |
| 3.1 | Economics of enterprises producing subtropical crops | SEB1201 | 5 | 125 | 45 | 3 | 77 | 1/0/0/2 |  |  | |  | | |  | | 5 |  |  |  |  |
| 3.2 | Medicinal plants | ALB0271 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.3 | Protecting environment and protected territories | ALB0431 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.4 | Foreign language 1 (elective)  English language A1.1  English language A2.1  German language A1.1  German language A2.1  French language A1.1  French language A2.1  Russian language A1.1  Russian language A2.1 | HLCB2451  HLCB2251  HLCB2471  HLCB2301  HLCB2511  HLCB2401  HLCB2491  HLCB2351 | 60 | 3 | 62 | 0/4/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.5 | Electromotive and its automatic driving in agriculture | AEB0411 | 5 | 125 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | |  | 5 |  |  |  |
| 3.6 | Principles of agriculture | ASB0031 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.7 | Science of commodities of agricultural raw materials | ACB0231 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  | 2.4, 2.6 |
| 3.8 | Science of commodities of food products | ACB0241 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  | 2.14, 2.15, 2.16 |
| 3.9 | Foreign language 2 (elective)  English language A1.2  English language A2.2  German language A1.2  German language A2.2  French language A1.2  French language A2.2  Russian language A1.2  Russian language A2.2 | HLCB2461  HLCB2261  HLCB2481  HLCB2301  HLCB2521  HLCB2411  HLCB2501  HLCB2361 | 60 | 3 | 62 | 0/4/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.10 | Labor protection | AEB0421 | 5 | 125 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  | 5 |  | 2.11, 2.12, 2.14, 2.15, 2.17 |
| 3.11 | Physical and chemical methods of food products analysis | ACB0251 | 45 | 3 | 77 | 1/0/2/0 |  |  | |  | | |  | |  |  |  |  |
| 3.12 | Ecology | ALB0471 | 45 | 3 | 77 | 1/2/0/0 |  |  | |  | | |  | |  |  |  |  |
| 3.13 | Foreign language 3 (elective)  English language A2.1  English language B1.1  German language A2.1  German language B1.1  French language A2.1  French language B1.1  Russian language A2.1  Russian language B1.1 | HLCB2251  HLCB2271  HLCB2301  HLCB2321  HLCB2401  HLCB2421  HLCB2351  HLCB2371 | 60 | 3 | 62 | 0/4/0/0 |  |  | |  | | |  | |  |  |  |  |
| **Total** | |  | **15** | **375** |  |  |  |  |  |  |  | | |  | | | **5** | **5** | **5** |  |  |
| **Additional profession „minor” learning courses (60 credits)** | | | | | | | | | | | | | | | | | | | | | |
| **Additional specialty „minor”** | |  | **60** | **1500** |  |  |  |  |  |  | | **10** | | | **10** | | **10** | **10** | **10** | **10** |  |
| **Total by study schedule** | |  | **240** | **6000** |  |  |  |  | **30** | **30** | | **30** | | | **30** | | **30** | **30** | **30** | **30** |  |

**Attachment 2.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **№** | **Course** | **Competencies** | | | | | |
| **Knowledge and Recognition** | **Skill to use knowledge in practice** | **Skill to make conclusions** | **Communication skills** | **Learning Skills** | **Values** |
|  | | | | | | | |
| 1. | Academic writing | **×** | **×** | **×** | **×** | **×** | **×** |
| 2. | Informatics | **×** | **×** |  | **×** |  |  |
| 3. | Highest Mathematics | **×** | **×** | **×** |  | **×** |  |
| 4. | Physics | **×** | **×** | **×** |  |  |  |
| 5. | Basic and inorganic chemistry | **×** | **×** |  |  | **×** |  |
| 6. | Foreign language 1 (compulsory) |  | | | | | |
|  | English language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | English language B1.1 | **×** | **×** | **×** | **×** | **×** |  |
|  | German language A2.1 | **×** | **×** |  | **×** | **×** | **×** |
|  | German language B1.1 | **×** | **×** |  | **×** |  |  |
|  | French language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | French language B1.1 | **×** | **×** |  | **×** |  |  |
|  | Russian language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | Russian language B1.1 | **×** | **×** |  | **×** | **×** | **×** |
| 7. | Foreign language 2 (compulsory) |  | | | | | |
|  | English language A2.2 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | English language B1.2 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | German language A2.2 | **×** | **×** |  | **×** | **×** | **×** |
|  | German language B1.2 | **×** | **×** |  | **×** |  |  |
|  | French language A2.2 | **×** | **×** |  |  |  | **×** |
|  | French language B1.2 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | Russian language A2.2 | **×** | **×** |  | **×** | **×** | **×** |
|  | Russian language B1.2 | **×** | **×** | **×** | **×** | **×** | **×** |
| 8. | Foreign language 3 (compulsory) |  | | | | | |
|  | English language B1.1 | **×** | **×** | **×** | **×** | **×** |  |
|  | English language B2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | German language B1.1 | **×** | **×** |  | **×** |  |  |
|  | German language B2.1 | **×** | **×** |  | **×** | **×** |  |
|  | French language B1.1 | **×** | **×** |  | **×** |  |  |
|  | French language B2.1 | **×** | **×** |  |  |  |  |
|  | Russian language B1.1 | **×** | **×** |  | **×** | **×** | **×** |
|  | Russian language B2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
| 9. | Analytical chemistry | **×** | **×** |  |  | **×** |  |
| 10. | Organic chemistry | **×** | **×** | **×** |  | **×** |  |
| 11. | Physicoloid chemistry | **×** | **×** | **×** |  | **×** |  |
| 12. | Varieties of subtropical crops, vegetables, grains and grape varieties | **×** | **×** | **×** | **×** |  | **×** |
| 13. | Thermal engineering with refrigerator technique principles | **×** | **×** | **×** | **×** | **×** | **×** |
| 14. | Principles of food industry | **×** | **×** | **×** |  | **×** |  |
| 15. | Biochemistry of plants | **×** | **×** | **×** |  | **×** |  |
| 16. | Chemistry of raw materials of food products | **×** | **×** | **×** |  | **×** |  |
| 17. | Processes and devices of food products producing enterprises | **×** | **×** | **×** | **×** | **×** | **×** |
| 18. | Engineering enzymology | **×** | **×** | **×** | **×** | **×** | **×** |
| 19 | Tea technology | **×** | **×** | **×** | **×** |  | **×** |
| 20. | Tobacco technology | **×** | **×** | **×** | **×** | **×** | **×** |
| 21. | Production practice 1 |  | **×** | **×** | **×** |  |  |
| 22. | Technology of preserving fruits and vegetables | **×** | **×** | **×** | **×** | **×** | **×** |
| 23. | Technology and expertise of essentiall oils | **×** | **×** | **×** | **×** | **×** | **×** |
| 24. | Expertise of tea and tobacco production | **×** | **×** | **×** | **×** |  | **×** |
| 25. | Technology and expertise of low alcohol and alcohol free drinks and mineral waters | **×** | **×** | **×** | **×** | **×** |  |
| 26. | Production practice 2 |  | **×** | **×** | **×** |  |  |
| 27. | Production microbiology | **×** | **×** | **×** | **×** | **×** |  |
| 28. | Technology and expertise of wine | **×** | **×** | **×** |  | **×** |  |
| 29. | Engineering biotechnology | **×** | **×** | **×** |  | **×** |  |
| 30. | Standardization and quality monitoring | **×** | **×** | **×** | **×** |  | **×** |
| 31. | Food physiology, hygiene and safety | **×** | **×** | **×** | **×** | **×** |  |
| 32. | Technological devices of food products companies | **×** | **×** | **×** | **×** | **×** |  |
| 33. | Production expertise of producing tinned products | **×** | **×** | **×** |  | **×** |  |
| 34. | Economics of enterprises producing subtropical crops | **×** | **×** | **×** | **×** |  |  |
| 35. | Medicinal plants | **×** | **×** | **×** | **×** | **×** |  |
| 36. | Protecting environment and protected territories | **×** | **×** | **×** |  |  | **×** |
| 37. | Foreign language 1 (elective) |  | | | | | |
|  | English language A1.1 | **×** | **×** |  | **×** | **×** |  |
|  | English language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | German language A1.1 | **×** | **×** |  | **×** |  |  |
|  | German language A2.1 | **×** | **×** |  | **×** | **×** | **×** |
|  | French language A1.1 | **×** | **×** |  | **×** | **×** |  |
|  | French language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | Russian language A1.1 | **×** | **×** |  | **×** | **×** | **×** |
|  | Russian language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
| 38. | Electromotive and its automatic driving in agriculture | **×** | **×** | **×** |  | **×** |  |
| 39. | Principles of agriculture | **×** | **×** | **×** | **×** | **×** |  |
| 40. | Science of commodities of agricultural raw materials | **×** | **×** | **×** | **×** | **×** | **×** |
| 41. | Science of commodities of food products | **×** | **×** | **×** | **×** | **×** | **×** |
| 42. | Foreign language 2 (elective) |  | | | | | |
|  | English language A1.2 | **×** | **×** |  | **×** | **×** |  |
|  | English language A2.2 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | German language A1.2 | **×** | **×** |  | **×** |  |  |
|  | German language A2.2 | **×** | **×** |  | **×** | **×** | **×** |
|  | French language A1.2 | **×** | **×** |  | **×** | **×** |  |
|  | French language A2.2 | **×** | **×** |  |  |  | **×** |
|  | Russian language A1.2 | **×** | **×** |  | **×** | **×** | **×** |
|  | Russian language A2.2 | **×** | **×** |  | **×** | **×** | **×** |
| 43. | Labor protection | **×** | **×** | **×** | **×** | **×** |  |
| 44. | Physical and chemical methods of food products analysis | **×** | **×** |  |  | **×** |  |
| 45. | Ecology | **×** |  | **×** |  | **×** | **×** |
| 46. | Foreign language 3 (elective) |  | | | | | |
|  | English language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | English language B1.1 | **×** | **×** | **×** | **×** | **×** |  |
|  | German language A2.1 | **×** | **×** |  | **×** | **×** | **×** |
|  | German language B1.1 | **×** | **×** |  | **×** |  |  |
|  | French language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | French language B1.1 | **×** | **×** |  | **×** |  |  |
|  | Russian language A2.1 | **×** | **×** | **×** | **×** | **×** | **×** |
|  | Russian language B1.1 | **×** | **×** |  | **×** | **×** | **×** |