MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER EDUCATION
FAR EASTERN FEDERAL UNIVERSITY
(FEFU)
ADVANCED ENGINEERING SCHOOL «INSTITUTE OF BIOTECHNOLOGY, BIOENGINEERING AND FOOD SISTEMS»

APPROVE
Director of the Advanced
Engineering School
«Institute of Biotechnology,
Bioengineering and Food Systems»

_____ Л.А. Текутьева

«3» ноября 2022 г.

Collection

annotations of work programs of disciplines

19.04.01 Biotechnology

Master's program

Agri-food biotechnology

Форма обучения: *full-time*
Нормативный срок освоения программы
(очная форма обучения) ___2_ *года*

Владивосток
2022

Оглавление

Abstract

English for Academic Purposes

Master's degree in 19.04.01 «Biotechnology»

Master's Program «Agri-Food Biotechnology**»**

Course title: «English for Academic Purposes»

Basic part of Block 1, 8 credits

Instructor: Lim C.V.

At the beginning of the course a student should be able to:

– the ability to use modern methods and technologies (including information) in professional activities;

– hold the basic methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– possession of experimental design, processing and presentation of the results;

– the ability to participate in the development of technological projects in the group of authors;

– the ability to develop and implement normative documents on standardization, certification of food products.

Learning outcomes:

GC-7 ability to free scientific and professional communication in a foreign language environment;

GPC-2 readiness for communication in oral and written forms in the state language of the Russian Federation and in a foreign language for solving problems of professional activity.

Course description: The content of the discipline covers a range of issues related to the formation of students' level of communicative competence, ensuring the use of a foreign language for practical purposes in the framework of general communicative and professionally-oriented activities, mastering the methods of

forming and developing the ability and readiness for communication in oral and written forms language to solve problems of professional activity.

Main course literature:

1. English language: guidelines and control tasks / [status. Yu. A. Krikunova]; Far Eastern State Technical University. Vladivostok: Far Eastern Technical University Publishing House, 2010. - 15 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:381467&theme=FEFU

2. English for the energy industry: Express series / Simon Campbell. - Oxford; New York; Auckland: Oxford University Press, 2013. - 123 p. (5 copies) https://lib.dvfu.ru:8443/lib/item?id=chamo:737801&theme=FEFU

Form of final knowledge control: credit, exam.

Abstract

Research scientific methodology in biotechnology

Master's degree in 19.04.01 – «Biotechnology».

Master's Program «Title» «Agri-food Biotechnology».

Course title: Research scientific methodology in biotechnology

Basic part of Block 1, 3 credits

At the beginning of the course a student should be able to:

– the ability to perceive and creatively use the achievements of science and technology in the professional sphere, in accordance with the needs of regional and global labor market;

– the ability to use modern methods and technologies (including information) in professional activity;

– the ability and willingness to use the basic laws of natural sciences in professional activities;

– the ability to use knowledge of modern physical picture of the world, the laws of space-time, the structure of matter to understand the world and natural phenomena;

– the ability to work with scientific and technical information, to use the Russian and international experience in professional work;

– possession of the main methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– knowledge of methods of experimental design, processing and presentation of the results.

Learning outcomes:

GS-5 Ability to generate ideas in scientific and professional activities.

GC-6 The ability to lead a scientific discussion, knowledge of the norms of the scientific style of the modern Russian language.

GC-7 Ability to free scientific and professional communication in a foreign language environment.

GC-11 Ability to professional growth, to independently learn new research methods, to change the scientific and production profile of their professional activities.

GC-12 Ability in practice to use the skills and abilities in the organization of research and design work and in team management.

GPC-6 Readiness for the protection of intellectual property and the commercialization of intellectual property rights.

SPC-1 Readiness for planning, organizing and conducting research in the field of biotechnology, the ability to correctly process the results of experiments and make informed conclusions and conclusions.

Course description: This discipline is the link between humanitarian disciplines and application areas, provides a competent perception of practical problems related to nutrition of different population groups, drawing evidence-based daily food rations, the design food; It has a certain importance in the training of specialists in the field of food biotechnology is a key element in the complex organizational and technological sciences that study human nutrition and health of the patient

Main course literature:

1. Methodology of scientific research: a textbook for masters / M. S. Moky, A. L. Nikiforov, V. S. Moky; by ed. M.S. Mokiya; State University of Management. Moscow: Yurayt, 2016. - 255 p. (2 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:811893&theme=FEFU

2. Methodology of scientific research: textbook for magistracy / M. S. Moky, A. L. Nikiforov, V. S. Moky; by ed. M.S. Mokiya; State University of Management, Russian Economic University. Moscow: Yurayt, 2015. - 255 p. (3 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:785084&theme=FEFU

3. Methodology of scientific research: textbook for bachelor and master / N. A. Gorelov, D. V. Kruglov; St. Petersburg State University of Economics.

Moscow: Yurayt, 2016. - 290 p. (3 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:811895&theme=FEFU

Form of final knowledge control: credit

Abstract

Research methods in biotechnology

ABSTRACT

Master's degree in 19.04.01 Biotechnology

Master's Program "Title" Agri-food Biotechnology

Course title: «Research methods in biotechnology»

Basic part of Block 1, 3 credits

At the beginning of the course a student should be able to:

– the ability to perceive and creatively use the achievements of science and technology in the professional sphere, in accordance with the needs of regional and global labor market;

– the ability to use modern methods and technologies (including information) in professional activity;

– the ability and willingness to use the basic laws of natural sciences in professional activities;

– the ability to use knowledge of modern physical picture of the world, the laws of space-time, the structure of matter to understand the world and natural phenomena;

– the ability to work with scientific and technical information, to use the Russian and international experience in professional work;

– possession of the main methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– knowledge of methods of experimental design, processing and presentation of the results.

Learning outcomes:

GC-11 ability to grow professionally, to learn independently new research methods, to change the scientific and production profile of their professional activities;

GC-12 the ability to practice to use the skills and abilities in the organization of research and design work and in team management;

GPC-1 ability to professional exploitation of modern biotechnology equipment and scientific instruments;

GPC -4 is ready to use methods of mathematical modeling of materials and technological processes, readiness for theoretical analysis and experimental testing of theoretical hypotheses;

SPC-3 the ability to present the results of the work done in the form of scientific and technical reports, reviews, research reports and publications using modern capabilities of information technologies and taking into account the requirements for the protection of intellectual property.

Course description: This discipline is the link between humanitarian disciplines and application areas, provides a competent perception of practical problems related to nutrition of different population groups, drawing evidence-based daily food rations, the design food; It has a certain importance in the training of specialists in the field of food biotechnology is a key element in the complex organizational and technological sciences that study human nutrition and health of the patient

Main course literature:

1. Visual biotechnology and genetic engineering / R. Schmid; per. with him. A. A. Vinogradova, A. A. Sinyushina. Moscow: BINOM. Laboratory of Knowledge, 2014. - 324 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:797469&theme=FEFU

2. Biotechnology: a textbook for agricultural universities / V. A. Chkhenkeli. - St. Petersburg: Science Avenue, 2014. - 335 p. (3 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:785504&theme=FEFU

3. Biotechnology of combined food products based on dairy and microbiological raw materials: method. directions to the lab. works for students special. 240902 "Food Biotechnology" of all forms of training / comp. N.V. Situn, E.S. Fishchenko. Biotechnology of dairy production. Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 96c. (8 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:357087&theme=FEFU

Form of final control: exam.

Abstract

Administration and management of agriculture and agro-industrial complex

Master 19.04.01 «Biotechnology».

Study of the profile: «Agri-food biotechnology».

Course title: «Administration and management of agriculture and agro-industrial complex».

Basic part of Block 1, 3 credits

Instructor: Lykh V.A.

At the beginning of the course the student must be able to:

- ability to search, store, process and analyze information from various sources and databases, to present it in the required format using information, computer and network technologies;

- ability to use modern methods and technologies (including information) in their professional activities.

The purpose of the discipline is to familiarize students with an important part of the country's economy – agro-industrial complex (AIC).

Objectives of the discipline: the formation of students ' knowledge about the main stages of formation and development of agriculture in Russia and in the West; its importance in the economy.

As a result of the study of the discipline the student must:

Know: the main stages of formation of agriculture in Russia, the structure and purpose of functioning of agriculture, the current state and trends in the development of agriculture, the relationship of agricultural industries, the problems of agriculture in Russia and in the West and their solutions.

Be able to: identify the factors and features of formation of the agroindustrial complex in Russia and the countries of the world; to evaluate the basic characteristics of the individual areas of activities included in agriculture; to analyze the solutions to the problems of providing the population with food;

theoretically predict the possible variants of development of agribusiness in Russia and in the countries of the world.

Learning outcomes:

GC-2 – willingness to show leadership qualities and organize the work of the team, to possess effective technologies for solving professional problems;

GC-3 – ability to work in project interdisciplinary teams, including as a leader;

GC-9 – willingness to act in unusual situations, to bear social and ethical responsibility for decisions ;

GC-12 –ability to use skills in the organization of research and project work and in the management of the team;

GC-13 – readiness to use legal and ethical standards in assessing the consequences of their professional activities, in the development and implementation of socially significant projects;

GPC-2 – readiness to communicate orally and in writing in the state language of the Russian Federation and a foreign language to solve the problems of professional activity;

GPC-3 – willingness to lead a team in the field of their professional activities, tolerant of social, ethnic, religious and cultural differences;

SPC-7– readiness to the organization of work of collective of performers, acceptance of Executive decisions in the conditions of a range of opinions, determination of the order of performance of works.

SPC-8 - to present the results of the work performed in the form of scientific and technical reports, reviews, research reports and publications using the modern capabilities of information technologies and taking into account the requirements for the protection of intellectual property.

SPC-9 - skills in designing pilot, pilot industrial and industrial plants for biotechnological production.

Main course literature:

1. Management in the food industry: a textbook for universities / E. B. Gafforova, T. E. Shusharina, M. V. Tsyplenkova [and others]; Russian Academy of Natural Sciences. - Moscow: Academy of Natural Sciences, 2011. - 195 p. (5 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:662163&theme=FEFU

2. Systems, methods and tools of quality management: a textbook for universities / M. M. Kane, B. V. Ivanov, V. N. Koreshkov [and others]; [ed. M.M. Cane]. St. Petersburg: Peter, 2009, 559 p. (5 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:276431&theme=FEFU

3. Industrial management: a workshop: a textbook for universities / [A. N. Salov]; Vladivostok State University of Economics and Service. Vladivostok: Publishing house of the Vladivostok University of Economics and Service, 2011. - 90 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamointer52747&theme=FEFU

Form of final control of knowledge: exam.

Abstract

Current trends in biotechnology

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" "Agri-food biotechnology"

Course title: Current trends in biotechnology

Basic part of Block 1, 3 credits

At the beginning of the course a student should be able to:

– the ability to perceive and creatively use the achievements of science and technology in the professional sphere, in accordance with the needs of regional and global labor market;

– the ability to use modern methods and technologies (including information) in professional activity;

– the ability and willingness to use the basic laws of natural sciences in professional activities;

– the ability to use knowledge of modern physical picture of the world, the laws of space-time, the structure of matter to understand the world and natural phenomena;

– the ability to work with scientific and technical information, to use the Russian and international experience in professional work;

– possession of the main methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– knowledge of methods of experimental design, processing and presentation of the results.

Learning outcomes:

GC -1 the ability to creatively adapt the achievements of foreign science, technology and education to the domestic practice, a high degree of professional mobility;

GC -4 the ability to quickly learn new subject areas, identify contradictions, problems and develop alternatives to solve them;

GC -10 the ability to improve and develop their intellectual and cultural level, to gain knowledge in the field of contemporary issues in science, engineering and technology, the humanities, social and economic sciences;

SPC -2 the ability to analyze scientific and technical information in the field of biotechnology and related disciplines in order to provide scientific, patent and marketing support for basic research and technological research;

SPC - 13 willingness to organize, plan and manage existing biotechnological processes and production;

SPC -17 willingness to conduct research and industrial development of the technology and scaling processes.

Main course literature:

1. Biotechnology meat and meat products. Lecture Course: Textbook for Universities / IA Rogov, AI Zharinov, LA Tekuteva etc. - M.: DeLiprint, 2009. - 294 p. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:664778&theme=FEFU

3. Ivanov, LA Food Biotechnology / LA Ivanova, LI War, IS Ivanova. - M.: KolosS, 2008. - 472 p. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:352320&theme=FEFU

4. Klunova, SM Biotechnology: a textbook for high schools / SM Klunova, TA Egorova EA Zhivuhina - M .: Academy, 2010. - 256 p. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:416005&theme=FEFU

5. Technology of animal feed and aquatic organisms (biotechnological aspects): the textbook for students enrolled on the specialty 240902 "Food Biotechnology" / TK Kalenik, LN Fedyanina, TV Tanashkina, LA Tekuteva. - Vladivostok: Publishing house TSUE, 2009. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:356708&theme=FEFU

6. Simulation of food formulations and their technologies. Theory and practice: a manual for schools / OM Krasulia, SV Nikolaev, AV Tokarev and

others - St. Petersburg. GIORD, 2015. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:783701&theme=FEFU

6. Antipov, LV Anatomy and Histology of farm animals: the textbook / LV Antipova, VS Slobodjanik, SM Suleimanov. - Moscow: Colossus, 2005. Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:351703&theme=FEFU

Form of final knowledge control: credit

Abstract

Bioinformatics

Master's degree in 19.04.01 Biotechnology

Master's Program «Agri-food biotechnology».

Course title: Bioinformatics

Basic part of Block B1, 3 credits

At the beginning of the course a student should be able to:

- the ability to use modern information methods and computer technologies in professional activities;

- possession of modern scientific achievements in the field of molecular biology, proteomics and genomics;

- mastering the practical skills of using computer technology to process experimental data on the structure of biological macromolecules in order to obtain biologically important information;

- ability to use knowledge and representations of biochemistry, molecular biology, genetics, methods of applied mathematics, statistics and informatics in agro biotechnological research;

- the ability to apply experimental and calculated data of physical-chemical biology, genomics and proteomics in professional activities.

Learning outcomes:

GC-8 -ability to abstract thinking, analysis, synthesis;

GPC-4-readiness to use methods of mathematical modeling of materials and technological processes, readiness for theoretical analysis and experimental testing of hypotheses;

GPC-5- the ability to use modern information technologies for the collection, processing and dissemination of scientific information in the field of biotechnology and related industries, the ability to use databases, software products and resources of the information and telecommunications network

"Internet" (the "Internet" network) for solving problems;

SPC-16 - the ability to carry out the effective operation of control, automation and automated production control, chemical-technical, biochemical and microbiological control

Course description: The subject of bioinformatics. The purpose, objectives and methods of bioinformatics. Infrastructure of bioinformatics. Database. Methods of bioinformatics data analysis. Sequence comparison. Methods for determining the spatial structure of biopolymers. Actual problems of bioinformatics. Bioinformatics and biotechnology.

Main course literature:

1. Lesk A. Introduction to bioinformatics. A. Lesk; trans. with English. - M .:BINOM. Laboratory knowledge, 2015. - 318 pp.

http://lib.dvfu.ru:8080/search/query?term_1=%D0%9B%D0%B5%D1%81%D0%BA+%D0%92%D0%B2%D0%B5%D0%B4%D0%B5%D0%BD%D0%B8%D0%B5+%D0%B2+%D0%B1%D0%B8%D0%BE%D0%B8%D0%BD%D1%84%D0%BE%D1%80%D0%BC%D0%B0%D1%82%D0%B8%D0%BA%D1%83&theme=FEFU

2. Bioorganic chemistry: study guide / D. G. Knorre, T. S. Godovikova, S. D. Myzina [and others]; Novosibirsk National Research State University, Faculty of Natural Sciences. Novosibirsk: Due to Novosibirsk University, 2011. - 480 p. (5 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:679690&theme=FEFU

Form of final knowledge control: *exam*

Abstract

Safety and biosafety of agri-food raw materials and food products

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" « Agri-Food Bitechnology»

Course title: Safety and biosafety of agri-food raw materials and food products

Variable part of Block 1, 3 credits

Instructor: Vladykina.T.V

At the beginning of the course a student should be able to:

- ability to take initiative and make responsible decisions, aware of the responsibility for the results of their professional activities;

- the ability to creatively perceive and use the achievements of science and technology in the professional sphere in accordance with the needs of the regional and global labor market;

- ability to use modern methods and technologies (including information) in professional activities.

Learning outcomes:

SPC-11 ability to ensure technological discipline, sanitary and hygienic mode of operation of the enterprise, the content of technological equipment in proper technical condition

SPC-12 with the ability to plan and carry out activities to ensure safety in the workplace, to monitor and protect the environment

SPC-16 with the ability to perform effective work of the means of control, automation and automated production management, chemical-technical, biochemical and microbiological control

SPC-18 ability to develop and scientifically substantiate optimal integrated certification schemes for biotechnological products

SPC-20 ability to ensure the biological safety of raw materials, semi-finished products, finished products

Course description: study of safety indicators of food raw materials and food products, in accordance with the regulatory documentation of the Russian Federation and the Customs Union (CU): microbiological standards; pathogenic regulations; hygiene requirements; permissible levels of radionuclides; requirements for unprocessed raw materials of animal origin; parasitological indicators of fish and crustacean safety. The study of biological hazards for food systems involves the study of microorganisms and their toxins, helminths, pests of grain stocks (insects, mites). The study of microbiological and pathogenic standards involves the study of the microflora of raw materials and products of animal and vegetable origin; pathogens, mechanisms of their microbial spoilage, epidemic significance in the occurrence of various human infectious diseases, methods and measures of prevention.

Main course literature:

1. Poznyakovsky V.M. Hygienic bases of nutrition, quality and food safety [Electronic resource]: textbook / Poznyakovsky VM - Electron. text data.— Saratov: University education, 2014.— 453 c.— Access mode: http://www.iprbookshop.ru/4175.html.

2. Safety of food raw materials and food products [Electronic resource]: a tutorial / I.A. Horns [et al.] .— Electron. text data.— Saratov: University education, 2014.— 226 c.— Access mode: http://www.iprbookshop.ru/4176.html.

3. Safety of food raw materials and food [Electronic resource]: a tutorial / A.D. Dimitriev [et al.]. - Electron. Dan. - Kazan: KNRTU, 2016. - 188 p. - Access mode: https://e.lanbook.com/book/102022.

4. Expertise of specialized foods. Quality and safety [Electronic resource]: study guide / L.A. Mayurnikova [et al.]. - Electron. Dan. - St. Petersburg: GIORD, 2016. - 448 p. - Access mode: https://e.lanbook.com/book/69878.

5. Lakiza N.V. Analysis of food products [Electronic resource]: study guide / Lakiza N.V., Neudachina L.K. — Electron. text data.— Ekaterinburg: Ural

Federal University, DIA, 2015. — 188 p.— Access mode: http://www.iprbookshop.ru/69578.html.

Form of final knowledge control: exam

Abstract

Quality and safety management systems for biological products

Bachelor's degree in 19.04.01 Biotechnology

Study profile «Agrofood biotechnology ».

Course title: Quality management system and safety of biological products

Variable part of Block 1, 3 credits

At the beginning of the course a student should be able to:

- the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC-7 - readiness to organize the work of a team of performers, make executive decisions in a spectrum of opinions, determine the order of work

SPC -10 –ability to development of the system of quality management of biotechnological production according to requirements of the Russian and international quality standards;

SPC -11 –ability to provide technological discipline, sanitary and hygienic working hours of the enterprise, the maintenance of processing equipment in appropriate technical condition;

SPC -16 - ability to carry out effective work of control devices, automation and automated management of production, chemical and technical, biochemical and microbiological control;

SPC -20 - ability to ensure biological safety of raw materials, semi-finished products, finished goods;

SPC -21 - ability to ensure a metrological condition of production and effective functioning of control devices, automation and automated management of production.

Course description: The content of the course covers the following range of issues: concepts, the purposes and tasks, policy in the field of quality; objects, subjects, principles and functions of quality management; control facilities quality – normative documents; models for ensuring quality, quality system elements; seven main instruments of quality management; ISO international standards of a series 9000: their appointment, objects, structure; general management of quality of production; stages of life cycle of production; development and deployment of quality systems at the enterprises: organizational structure, duties and powers of the personnel, resources, working procedures, documentation; economic categories of quality, costs of quality, their classification; verification of quality systems: the planning, the program of carrying out correcting actions; certification of quality systems; legal support of quality; concept and ideology of General quality management (TQM); domestic and foreign experience of product quality control.

Main course literature:

1. Systems, methods and tools of quality management: a textbook for universities / M. M. Kane, B. V. Ivanov, V. N. Koreshkov [and others]; [ed. M.M. Cane]. St. Petersburg: Peter, 2009, 559 p. (5 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:276431&theme=FEFU

2. Management in the food industry: a textbook for universities / E. B. Gafforova, T. E. Shusharina, M. V. Tsyplenkova [and others]; Russian Academy of Natural Sciences. - Moscow: Academy of Natural Sciences, 2011. - 195 p. (5 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:662163&theme=FEFU

3. Standards and product quality: educational and practical manual for universities / Yu. N. Bernovsky. Moscow: Forum,: [Infra-M], 2014. - 255 p. (2 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:752776&theme=FEFU

Form of final knowledge control: credit

Abstract

Enzymatic and microbial conversion

Master's degree in 19.04.01 "Biotechnology"

Master's Program "Agri-Food Biotechnology"

Course title: «Enzymatic and microbial conversion»

Variable part of Block 1, 3 credits

Instructor: Ph.D. Yuferova A.A.

At the beginning of the course a student should be able to:

– the ability to use modern methods and technologies (including information) in professional activities;

– hold the basic methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– possession of experimental design, processing and presentation of the results;

– the ability to participate in the development of technological projects in the group of authors;

– the ability to develop and implement normative documents on standardization, certification of food products.

Learning outcomes:

SPC-14 ability to use the model and to develop new methods of engineering calculation of process parameters and production of biotechnological equipment;

SPC-17 readiness for carry out the pilot development of the technology and zooming processes;

SPC-19 ability to analyze the performance of the process for compliance of the original scientific research.

Course description: Contents cover a range of issues related to the study of chemical, biotechnological and biological processes, biotechnological equipment, the problems of saving and rational use of resources, the latest achievements in the

field of raw materials processing plant and animal origin, familiarization with the process of enzymatic conversion and biotechnological equipment, carrying out these processes. Implementation of this program involves extensive use of students' knowledge gained in the study of previous disciplines.

Main course literature:

1. Microbiology / A. L. Ivchatov. Moscow: Publishing House of the Association of Construction Universities, 2013. - 118 p. (5 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:864427&theme=FEFU

2. Visual biotechnology and genetic engineering / R. Schmid; per. with him. A. A. Vinogradova, A. A. Sinyushina. Moscow: BINOM. Laboratory of Knowledge, 2014. - 324 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:797469&theme=FEFU

3. Workshop on Enzymology / V.V. Sova, Yu.V. Burtseva; Far Eastern State University, Institute of Chemistry and Applied Ecology, Pacific Institute of Bioorganic Chemistry of the Far East Branch of the Russian Academy of Sciences. Vladivostok: Far Eastern University Publishing House, 2010. - 31 p. (9 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:298293&theme=FEFU

Form of final knowledge control: exam.

Abstract

Agricultural biotechnology and biotechnology of raw materials of animal and vegetable origin

Master's degree in 19.04.01 «Biotechnology»

Master's Program «Agri-Food Biotechnology**»**

Course title: «Agricultural biotechnology and biotechnology animal and vegetable raw materials»

Variable part of Block 1, 3 credits

Instructor: Ph.D. Dobrynina E.V.

At the beginning of the course a student should be able to:

– the ability to use modern methods and technologies (including information) in professional activities;

– hold the basic methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– possession of experimental design, processing and presentation of the results;

– the ability to participate in the development of technological projects in the group of authors;

– the ability to develop and implement normative documents on standardization, certification of food products.

Learning outcomes:

SPC-11 ability to provide the technological discipline, hygienic conditions of the enterprise, the maintenance of process equipment in good technical condition;

SPC-14 ability to use the model and to develop new methods of engineering calculation of process parameters and production of biotechnological equipment;

SPC-17 readiness for carry out the pilot development of the technology and zooming processes;

SPC-18 ability to develop and scientific substantiation of the optimum complex schemes of certification of biotech products;

SPC-19 ability to analyze the performance of the process for compliance of the original scientific research.

Course description: Contents cover a range of issues related to the study of chemical, biotechnological and biological processes, biotechnological equipment, the problems of saving and rational use of resources, the latest achievements in the field of biological food production technologies, get acquainted with the basics of biological engineering, areas for improvement of structures and operation of biotechnological equipment. Implementation of this program involves extensive use of students' knowledge gained in the study of previous disciplines.

Main course literature:

1. Biotechnology of combined food products based on dairy and microbiological raw materials: method. directions to the lab. works for students special. 240902 "Food Biotechnology" of all forms of training / comp. N.V. Situn, E.S. Fishchenko. Dairy Biotechnology, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 96 p. (8 copies). http://lib.dvfu.ru:8080/lib/item?id=chamo:357087&theme=FEFU

2. Visual biotechnology and genetic engineering / R. Schmid; per. with him. A.A. Vinogradova, A.A. Sinyushina. Moscow: BINOM. Laboratory of Knowledge, 2014. - 324 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:797469&theme=FEFU

3. Basic principles of processing raw materials of plant, animal, microbiological origin and fish: method. directions for special students 240902 "Food Biotechnology" of all forms of training / comp. E.V. Makarova, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 80 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:356130&theme=FEFU

Form of final knowledge control: exam.

Abstract

Biotechnology of genetically modified raw materials and food

Bachelor's/Specialist's/Master's degree in *19.04.01 Biotechnology*

Study profile/ Specialization/ Master's Program "Title" "*Agri-food biotechnology"*

Course title: *Biotechnology of genetically modified raw materials and food products*

Variable part of Block 1 (Б1.В.02.03)**,** 3**credits**

Instructor: *T.V. Tanashkina*

At the beginning of the course a student should be able to:

- the ability to carry out the process in accordance with the regulations and use technical means to measure the main parameters of biotechnological processes, the properties of raw materials and products;

- the ability to carry out standard and certification testing of raw materials, finished products and technological processes;

- the ability to develop the main stages of the biotechnological process.

Learning outcomes: general professional competences (GPC)

SPC 11 – ability to provide technical discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of processing equipment in proper technical condition;

SPC 14 – ability to use typical and develop new methods of engineering calculations of technological parameters and equipment of biotechnological productions;

SPC 17 – readiness for pilot development of technology and scaling-up;

SPC 18 – ability to develop and scientific substantiate schemes for optimal integrated certification of biotechnological products;

SPC 19 – ability to analyze the indicators of the technological process for compliance with the original scientific developments.

Course description: principles and methods for creating genetically modified raw materials; biotechnological features of processing GM raw materials in food production.

Main course literature:

1. Kalenik T.K., Fedyanina L.N.. Tanashkina T.V. Tovarovedeniye i ekspertiza pishchevoy produktsii. poluchennoy iz geneticheski modifitsirovannykh istochnikov: kachestvo i bezopasnost: uchebnoye posobiye dlya vuzov [Merchandising and expertise of food products obtained from genetically modified sources: quality and safety: a textbook]. – Rostov-na-Donu: Izdatelskiy tsentr «MarT»; Feniks. 2010. – 223 p. (rus) – Access: http://lib.dvfu.ru:8080/lib/item?id=chamo:357125&theme=FEFU

2. Neverova O.A., Gorelikova G.A., Poznyakovskiy V.M. Pishchevaya biotekhnologiya produktov iz syria rastitelnogo proiskhozhdeniya: uchebnik [Food biotechnology products from raw materials of plant origin: a textbook]. – Saratov: Izd-vo «Vuzovskoye obrazovaniye». 2014. – 415 p. (rus) – Access: http://www.iprbookshop.ru/4160.html

Form of final control: *pass-fail exam.*

Abstract

Design and organization of production of agri-food biotechnology

Master's degree in 19.04.01 Biotechnology

Master's Program "Title" Agrofood Biotechnology

Course title: Design and organization of production of agri-food biotechnology

Variable part of Block 1, 3 credits

Instructor: Semenyuta A.A.

At the beginning of the course a student should be able to:

- the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC – 8 ability to conduct technical and economic analysis of production and preparation of technical and economic documentation;

SPC – 9 willingness to use the basic principles of organization of the metrological assurance of production;

SPC – 14 the ability to use standard and develop new methods of engineering calculations of technological parameters and equipment of biotechnological production;

SPC – 17 willingness to conduct pilot technology testing and process scaling;

SPC – 22 The ability to coordinate the implementation of research results in production.

Course description: The study of discipline is aimed at preparing students for the production, design and research activities related to the processes of raw material processing in the high-tech equipment and the operation of machines and

apparatus of food production needed to address the issues of professional production, analysis, transport and storage of finished products.

Main course literature:

1. Technological design of the plant for the production of protein-vitamin concentrate (BVK) in the conditions of agricultural enterprises: a teaching manual / G. E. Kokieva; Altai State Technical University. Ulan-Ude: Publishing House of the Buryat University, 2017. - 70 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:848330&theme=FEFU

2. Slavyansky A.A. Designing enterprises of the industry: a textbook for universities .- M.: Forum, 2014. - 318 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:736868&theme=FEFU

3. Organization of production: a textbook for universities in economic and technical specialties / R. A. Fatkhutdinov. Moscow: Infra-M, 2014. - 544 p. (2 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:751523&theme=FEFU

Form of final knowledge control: exam

Abstract

Development of food technology for dietary therapeutic and preventive dietetic nutrition

Bachelor's/Specialist's/Master'sdegreein *19.04.01 Biotechnology*

Studyprofile/ Specialization/ Master'sProgram "Title" *Agri-food biotechnology*

Course title: Development of food technology for dietary therapeutic and dietary preventive nutrition

Variable part of Block 1, 3 credits

Instructor: Dobrynina E.V.

At the beginning of the course a student should be able to:

- the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC-1 - willingness to plan, organize and conduct research in the field of biotechnology, the ability to correctly process the results of experiments and draw sound conclusions and conclusions;

SPC-8 - the ability to conduct a feasibility analysis of production and the preparation of feasibility documentation;

SPC-18 - ability to develop and scientifically substantiate optimal integrated certification schemes for biotechnological product;

SPC-19 - ability to analyze process indicators for compliance with the initial scientific developments.

Course description: The educational program of the course is aimed at the formation of an appropriate level of study of the use of food raw materials in food

production. The course program includes the study of issues related to the improvement of the technology of preparation and processing of food raw materials, the manufacture of food products for dietary therapeutic and dietary preventive nutrition, preservation of the natural qualities of the food product; improve the organoleptic properties of food for dietary therapeutic and dietary preventive nutrition and increase their stability during storage.

Main course literature:

1. Food Biotechnology products from raw materials rastit.proiskhozhd .: Proc. / O.A.Neverova, A.Yu.Prosekov etc. -. M .: SIC INFRA-M, 2014. - 318 p.

http://lib.dvfu.ru:8080/lib/item?id=Znanium:Znanium-363762&theme=FEFU

2. Food Biotechnology products from raw materials rastit.proiskhozhd .: Proc. / O.A.Neverova, A.Yu.Prosekov etc. -. M .: SIC INFRA-M, 2014. - 318

http://lib.dvfu.ru:8080/lib/item?id=IPRbooks:IPRbooks-4160&theme=FEFU

Form of final knowledge control: credit

Abstract

Modern production technologies for the manufacture and storage of food products

Master's degree in 19.04.01 «Biotechnology»

Master's Program «Agri-Food Biotechnology**»**

Course title: «Modern production technologies for the manufacture and storage of food products»

Variable part of Block, 4 credits

Instructor: Ph.D. Dobrynina E.V.

At the beginning of the course a student should be able to:

-the formation of a knowledge system in the field of biotechnology of food products;

- the study of the basic principles of the approach to the development of rational formulations of new types products;

- familiarization with the problems of reducing losses at all stages of production and increasing the volume of products produced from a unit of raw materials, as well as the problems of rational use of raw materials and other types of resources.

Learning outcomes:

SPC-2 the ability to analyze scientific and technical information in the field of biotechnology and related disciplines for the purpose of scientific, patent and marketing support for ongoing fundamental research and technological developments;

SPC-3 the ability to present the results of the work performed in the form of scientific and technical reports, reviews, scientific reports and publications using modern information technology capabilities and taking into account the requirements for the protection of intellectual property;

SPC-8 ability to conduct a technical and economic analysis of production and draw up technical and economic documentation;

SPC-9 readiness to use the basic principles of organization of metrological support of production;

SPC-11 ability to ensure technological discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of technological equipment in proper technical condition.

Course description: Contents cover a range of issues related to the study of chemical, biotechnological and biological processes, biotechnological equipment, the problems of saving and rational use of resources, the latest achievements in the field of biological food production technologies, get acquainted with the basics of biological engineering, areas for improvement of structures and operation of biotechnological equipment. Implementation of this program involves extensive use of students' knowledge gained in the study of previous disciplines.

Main course literature:

1. Modeling food recipes and technologies for their production. Theory and practice: a textbook for universities / O. N. Krasulya, S.V. Nikolaeva, A.V. Tokarev et al. - St. Petersburg: GIORD, 2015. Access mode: http://lib.dvfu.ru:8080/lib/item?Id=chamo:783701&theme=FEFU

2. Measuring methods for monitoring indicators of quality and safety of food: [study guide] [at 2 o'clock]: o'clock. Products of plant origin / V.V. Shevchenko, A.A. Vytovtov, L.P. Nilova [et al.]. St. Petersburg: Trinity Bridge, 2009. - 303 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:358418&theme=FEFU

3. Food ingredients in the creation of modern food / [ed. V.A. Tutelyan, A.P. Nechaev]. Moscow: DeLi Plus, 2014. - 519 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:732001&theme=FEFU

4. Dunchenko, N.I. Product Quality Management. Food industry. For masters [Electronic resource]: textbook / N.I. Dunchenko, M.P. Schetinin, V.S. Yankovskaya. - The electron. Dan. - St. Petersburg: Doe, 2019. - 244 p. https://e.lanbook.com/book/108448

5. Khrundin D.V. General technology of food production [Electronic resource]: textbook / Khrundin DV - Electron. textual data. — Kazan: Kazan

National Research Technological University, 2016.— 120 p. http://www.iprbookshop.ru/79338.html

Form of final knowledge control: exam.

Abstract

Food Law and Food Security

Bachelor's/Specialist's/Master'sdegreein 19.04.01 Biotechnology

Studyprofile/ Specialization/ Master'sProgram "Title" Agri-food biotechnology

Course title: Food Law and Food Security

Variable part of Block, 3 credits

Instructor: Senotrusova T.A

At the beginning of the course a student should be able to:

the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC – 9 - readiness to use the basic principles of organization of metrological support of production;

SPC - 11 - the ability to ensure technological discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of technological equipment in proper technical condition;

SPC – 12 - the ability to plan and carry out activities to ensure safety at work, to monitor and protect the environment;

SPC-15 readiness to ensure the stability of production indicators and product quality.

Course description: echnical regulation and regulatory framework for the food processing industry; improvement of technology and development of standards and normative and technical documentation; development of technical documentation and technical regulations with participation in the preparation of design and technological documentation, taking into account international

experience; modern versions of quality management systems based on international standards; quality management of finished products using methods of mathematical modeling and optimization of the chemical composition, nutritional and biological value of finished products; ensuring the implementation of technological processes and the release of products in accordance with sanitary and veterinary norms and rules.

Main course literature:

1. Food fortification and dietary supplements. Technology, safety and regulatory framework / ed. P. B. Ottaway; trans. from English I. S. Gorozhankina. - St. Petersburg: Profession, 2010. - 312 c. (12 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo{5757131&theme=FEFU

2. Food security (in the world and in Russia) / V. I. Nazarenko; Russian Academy of Sciences, Institute of Europe. Moscow: Monuments of historical thought, 2011. - 285 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:662344&theme=FEFU

3. Climate change and food security in Russia: historical analysis and model forecasts / N. M. Dronin. Moscow: GEOS, 2014 .-- 303 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:772363&theme=FEFU

Form of final knowledge control: credit.

Abstract

The international legal framework for ensuring the safety and quality of agricultural raw materials and food products

Bachelor's degree in 19.04.01 Biotechnology

Study profile «Agri-food biotechnology ».

Course title: The international legal framework for ensuring the safety and quality of agricultural raw materials and food products.

Variable part of Block, 3 credits

At the beginning of the course a student should be able to:

- the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

SPC - 9 - readiness to use the basic principles of the organization of metrological ensuring production;

SPC - 11-ability to provide technological discipline, sanitary and hygienic working hours of the enterprise, the maintenance of processing equipment in appropriate technical condition;

SPC - 12-ability to plan and hold events for providing safety measures on production, on monitoring and environment protection;

SPC - 15-readiness to provide stability of indicators of production and quality of products.

Course description: The content of the course covers the following range of issues: the legislation and technical regulation in safety issues of food products, standard ensuring agrofood production at all stages.

Main course literature:

1. Systems, methods and tools of quality management: a textbook for universities / M. M. Kane, B. V. Ivanov, V. N. Koreshkov [and others]; [ed. M.M.

Cane]. St. Petersburg: Peter, 2009, 559 p. (5 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:276431&theme=FEFU

2. Food security (in the world and in Russia) / V.I. Nazarenko; Russian Academy of Sciences, Institute of Europe. Moscow: Monuments of historical thought, 2011. - 285 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:662344&theme=FEFU

3. Expertise of specialized foods. Quality and safety: a textbook for universities / [L. A. Mayurnikova, V. M. Poznyakovsky, B. P. Sukhanov, and others]; under total ed. V.M. Poznyakovsky. St. Petersburg: GIORD, 2012. - 421 p. (10 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:664633&theme=FEFU

Form of final knowledge control: offset

Abstract

Biotechnological Process Control Systems

Bachelor's/Specialist's/Master'sdegreein 19.04.01 Biotechnology

Studyprofile/ Specialization/ Master'sProgram "Title" Agri-food biotechnology

Course title: Biotechnological Process Control Systems

Variable part of Block, 3 credits

Instructor: Dobrynina E.V.

At the beginning of the course a student should be able to:

the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC-9 - willingness to use the basic principles of organization of metrological support of production;

SPC-10 - ability to develop a quality management system for biotechnological products in accordance with the requirements of Russian and international quality standards;

SPC-16 - the ability to carry out the effective operation of control, automation and automated production control, chemical-technical, biochemical and microbiological control

SPC-17 - readiness for pilot testing of technology and scaling of processes;

SPC-19 - the ability to analyze the indicators of the technological process for compliance with the original scientific developments.

Course description: The educational program of the course is aimed at the formation of knowledge about biotechnological process control systems to solve typical professional problems of biotechnology.

Main course literature:

1. 1. Microbiological control of biotechnological production: a textbook for universities / N. B. Gradova, E. S. Babusenko, V. I. Panfilov [and others]. Moscow: DeLi Plus, 2016. - 139 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:838315&theme=FEFU

2. Microbiological synthesis / A. M. Bezborodov, G. I. Kvesitadze; [resp. ed. A. G. Lobanok]. St. Petersburg: Prospect of Science, 2011. - 143 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:785480&theme=FEFU

3. Biotechnology: a textbook for agricultural universities / V. A. Chkhenkeli. St. Petersburg: Prospect of Science, 2014. - 335 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:785504&theme=FEFU

4. Lubentsova E.V. Synthesis of automatic control systems for biotechnological processes using approximating and neuro-fuzzy control methods [Electronic resource]: monograph / Lubentsova EV, Volodin AA - Electron. textual data. — Stavropol: North Caucasus Federal University, 2014.— 160 c .— Access mode: http://www.iprbookshop.ru/63132.html

5. Belyaev P.S. Process Control Systems [Electronic resource]: a manual for students of the 3rd and 4th year of study in the areas of training 151000, 222900, 240100, 240700, 241000, 261700 / Belyaev PS, Bukin AA - Electron. textual data. — Tambov: Tambov State Technical University, EBS DIA, 2014.— 156 p. http://www.iprbookshop.ru/64575.html

Form of final knowledge control: exam.

Abstract

Hardware and software of biotechnological production

Bachelor's/Specialist's/Master'sdegreein 19.04.01 Biotechnology

Studyprofile/ Specialization/ Master'sProgram "Title" Agri-food biotechnology

Course title: Hardware and software of biotechnological production

Variable part of Block, 3 credits

Instructor: Dobrynina E.V.

At the beginning of the course a student should be able to:

the ability to search, store, process and analyze information from various sources and databases, to represent it in the required format using the information, computer and network technologies;

- the ability to use modern methods and technologies (including information) in their professional activities.

Learning outcomes:

SPC-9 - willingness to use the basic principles of organization of metrological support of production;

SPC-10 - ability to develop a quality management system for biotechnological products in accordance with the requirements of Russian and international quality standards;

SPC-16 - the ability to carry out the effective operation of control, automation and automated production control, chemical-technical, biochemical and microbiological control

SPC-17 - readiness for pilot testing of technology and scaling of processes;

SPC-19 - the ability to analyze the indicators of the technological process for compliance with the original scientific developments.

Course description: The educational program of the course is aimed at the formation of knowledge about biotechnological process control systems to solve typical professional problems of biotechnology.

Main course literature:

1. 1. Microbiological control of biotechnological production: a textbook for universities / N. B. Gradova, E. S. Babusenko, V. I. Panfilov [and others]. Moscow: DeLi Plus, 2016. - 139 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:838315&theme=FEFU

2. Microbiological synthesis / A. M. Bezborodov, G. I. Kvesitadze; [resp. ed. A. G. Lobanok]. St. Petersburg: Prospect of Science, 2011. - 143 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:785480&theme=FEFU

3. Biotechnology: a textbook for agricultural universities / V. A. Chkhenkeli. St. Petersburg: Prospect of Science, 2014. - 335 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:785504&theme=FEFU

4. Lubentsova E.V. Synthesis of automatic control systems for biotechnological processes using approximating and neuro-fuzzy control methods [Electronic resource]: monograph / Lubentsova EV, Volodin AA - Electron. textual data. — Stavropol: North Caucasus Federal University, 2014.— 160 c .— Access mode: http://www.iprbookshop.ru/63132.html

5. Belyaev P.S. Process Control Systems [Electronic resource]: a manual for students of the 3rd and 4th year of study in the areas of training 151000, 222900, 240100, 240700, 241000, 261700 / Belyaev PS, Bukin AA - Electron. textual data. — Tambov: Tambov State Technical University, EBS DIA, 2014.— 156 p. http://www.iprbookshop.ru/64575.html

Form of final knowledge control: exam.

Abstract

Biotechnology for the production of specialized food products

Master's degree in 19.04.01 «Biotechnology»

Master's Program «Agri-Food Biotechnology**»**

Course title: «Biotechnology for the production of specialized food products»

Variable part of Block, 3 credits

Instructor: Ph.D. Yuferova A.A.

At the beginning of the course a student should be able to:

– the ability to use modern methods and technologies (including information) in professional activities;

– hold the basic methods and techniques of experimental research in the professional field; ability to carry out standard and certification tests of raw materials, finished products and production processes;

– possession of experimental design, processing and presentation of the results;

– the ability to participate in the development of technological projects in the group of authors;

– the ability to develop and implement normative documents on standardization, certification of food products.

Learning outcomes:

SPC-11 ability to provide technological discipline, sanitary and hygienic mode of operation of the enterprise, the content of technological equipment in proper technical condition;

SPC-14 ability to use standard and develop new methods of engineering calculations of technological parameters and equipment of biotechnological production;

SPC-17 readiness to conduct pilot technology development and process scaling;

SPC-18 ability to develop and scientifically substantiate optimal integrated certification schemes for biotechnological products;

SPC-19 ability to analyze the performance of the process for compliance with the initial scientific developments.

Course description: The content of the discipline covers a range of issues of creating food for special purposes. The main characteristics of functional ingredients used in biotechnology for special purpose products, the issues of enrichment of products with biologically active additives, probiotic microflora, products of its vital activity, the possibility of expanding the range of special food products by creating combined products are considered.

Main course literature:

1. Food ingredients in the creation of modern food / [ed. V. A. Tutellan, A. P. Nechaev]. Moscow: DeLi Plus, 2014. - 519 p. (2 copies). http://lib.dvfu.ru:8080/lib/item?id=chamo:732001&theme=FEFU

2. Technology products for therapeutic and prophylactic purposes on a dairy basis: a textbook for universities / N. A. Tikhomirova. St. Petersburg: Trinity Bridge, 2010. (5 copies). - 447 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:358444&theme=FEFU

3. Biotechnology of combined food products based on dairy and microbiological raw materials: method. directions to the lab. works for students special. 240902 "Food Biotechnology" of all forms of training / comp. N.V. Situn, E.S. Fishchenko. Dairy Biotechnology, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 96 p. (8 copies). http://lib.dvfu.ru:8080/lib/item?id=chamo:357087&theme=FEFU

4. Biotechnology: a textbook for universities / S.M. Klunova, T.A. Yegorova, E.A. Zhivukhina, Moscow: Academy, 2010. - 256 p. (5 copies.) Http://lib.dvfu.ru:8080/lib/item?id=chamo:416005&theme=FEFU

Form of final knowledge control: credit.

Abstract

Biotechnology for the production of Biotechnology for the production of functional foods

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" "Agri-food biotechnology"

Course title: Biotechnological features of production of plant products

Variable part of Block 1, 3**credits**

Instructor: T.V. Tanashkina

At the beginning of the course a student should be able to:

- the ability to carry out the process in accordance with the regulations and use technical means to measure the main parameters of biotechnological processes, the properties of raw materials and products;

- the ability to carry out standard and certification testing of raw materials, finished products and technological processes;

- the ability to develop the main stages of the biotechnological process.

Learning outcomes: specific professional competences (SPC)

SPC 11 – ability to provide technical discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of processing equipment in proper technical condition

SPC 13 – readiness for the organization, planning and management of the operating biotechnological processes and production

SPC 14 – ability to use typical and develop new methods of engineering calculations of technological parameters and equipment of biotechnological productions

SPC 17 – readiness for pilot development of technology and scaling-up

SPC 18 – ability to develop and scientific substantiate schemes for optimal integrated certification of biotechnological products

SPC 19 – ability to analyze the indicators of the technological process for compliance with the original scientific developments

Course description: structure and chemical composition of plant raw materials; microorganisms in biotechnological production; biotechnological features of processing plant raw materials; biotechnological processes in individual food production/

Main course literature:

1. Identification and commodity examination of products of plant origin: a textbook for universities / L. G. Eliseva, M. A. Polozhishnikova, A. V. Ryzhakova [and others]; by ed. L. G. Eliseeva. - Moscow: Infra-M, 2015. - 523 p. (3 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:779344&theme=FEFU

2. Basic principles of processing raw materials of plant, animal, microbiological origin and fish: method. directions for special students 240902 "Food Biotechnology" of all forms of training / comp. E.V. Makarova, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 80 p. (10 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:356130&theme=FEFU

3. Measuring methods for monitoring indicators of quality and food safety: [tutorial] [at 2 o'clock]: Part 1. Products of plant origin / V.V. Shevchenko, A.A. Vytovtov, L.P. Nilova [and others]. St. Petersburg: Trinity Bridge, 2009. - 303 p. (6 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:358418&theme=FEFU

Form of final control: exam.

Abstract

Biotechnological features of the production of plant products

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" "Agri-food biotechnology"

Course title: Biotechnological features of production of plant products

Variable part of Block 1, 3**credits**

Instructor: T.V. Tanashkina

At the beginning of the course a student should be able to:

- the ability to carry out the process in accordance with the regulations and use technical means to measure the main parameters of biotechnological processes, the properties of raw materials and products;

- the ability to carry out standard and certification testing of raw materials, finished products and technological processes;

- the ability to develop the main stages of the biotechnological process.

Learning outcomes: specific professional competences (SPC)

SPC 11 – ability to provide technical discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of processing equipment in proper technical condition

SPC 13 – readiness for the organization, planning and management of the operating biotechnological processes and production

SPC 14 – ability to use typical and develop new methods of engineering calculations of technological parameters and equipment of biotechnological productions

SPC 17 – readiness for pilot development of technology and scaling-up

SPC 18 – ability to develop and scientific substantiate schemes for optimal integrated certification of biotechnological products

SPC 19 – ability to analyze the indicators of the technological process for compliance with the original scientific developments

Course description: structure and chemical composition of plant raw materials; microorganisms in biotechnological production; biotechnological features of processing plant raw materials; biotechnological processes in individual food production/

Main course literature:

1. Identification and commodity examination of products of plant origin: a textbook for universities / L. G. Eliseva, M. A. Polozhishnikova, A. V.

Ryzhakova [and others]; by ed. L. G. Eliseeva. - Moscow: Infra-M, 2015. - 523 p. (3 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:779344&theme=FEFU

2. Basic principles of processing raw materials of plant, animal, microbiological origin and fish: method. directions for special students 240902 "Food Biotechnology" of all forms of training / comp. E.V. Makarova, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 80 p. (10 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:356130&theme=FEFU

3. Measuring methods for monitoring indicators of quality and food safety: [tutorial] [at 2 o'clock]: Part 1. Products of plant origin / V.V. Shevchenko, A.A. Vytovtov, L.P. Nilova [and others]. St. Petersburg: Trinity Bridge, 2009. - 303 p. (6 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:358418&theme=FEFU

Form of final control: exam.

Abstract

Biotechnological features of the production of animal products

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" "Agri-food biotechnology"

Course title: Biotechnological features of production of animal products

Variable part of Block 1, 3**credits**

Instructor: T.V. Tanashkina

At the beginning of the course a student should be able to:

- the ability to carry out the process in accordance with the regulations and use technical means to measure the main parameters of biotechnological processes, the properties of raw materials and products;

- the ability to carry out standard and certification testing of raw materials, finished products and technological processes;

- the ability to develop the main stages of the biotechnological process.

Learning outcomes: specific professional competences (SPC)

SPC 11 – ability to provide technical discipline, sanitary and hygienic mode of operation of the enterprise, maintenance of processing equipment in proper technical condition

SPC 13 – readiness for the organization, planning and management of the operating biotechnological processes and production

SPC 14 – ability to use typical and develop new methods of engineering calculations of technological parameters and equipment of biotechnological productions

SPC 17 – readiness for pilot development of technology and scaling-up

SPC 18 – ability to develop and scientific substantiate schemes for optimal integrated certification of biotechnological products

SPC 19 – ability to analyze the indicators of the technological process for compliance with the original scientific developments

Course description: structure and chemical composition of animal raw materials; secondary resources of animal raw materials; microorganisms in biotechnological production from animal raw materials; biotechnological processes in individual food production.

Main course literature:

1. Measuring methods for monitoring indicators of quality and food safety: studies. manual for universities / V.V. Shevchenko [et al.]. Animal products. - SPb. : Trinity Bridge, 2009. - 200 p. (3 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:358419&theme=FEFU

2. Rogov, I.A. General technology of meat and meat products / I.A.Rogov, A.G. Zabashta, G.P. Kazyulin. - M .: KolossS, 2010. - 367 p. (5 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:340686&theme=FEFU

3. Technology of fish and fish products: a textbook for universities / [S. A. Artyukhova, V.V. Baranov, N.E. Brazhnaya and others]; by ed. A.M. Ershov. - Moscow: Kolos, 2010. - 1063 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:665020&theme=FEFU

4. Metrology, standardization and certification of products of animal origin: a textbook / L.P. Bessonova, L.V. Antipova. - St. Petersburg: GIORD, 2013. - 591 p. (2 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:736850&theme=FEFU

5. Basic principles of processing raw materials of plant, animal, microbiological origin and fish: method. directions for special students 240902 "Food Biotechnology" of all forms of training / comp. E.V. Makarova, Vladivostok: Publishing House of the Pacific University of Economics, 2009. - 80 p. (10 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:356130&theme=FEFU

6. Animal biochemistry: a textbook for universities / V. V. Rogozhin, [St. Petersburg]: GIORD, 2009, 552 p. (9 copies.) http://lib.dvfu.ru:8080/lib/item?id=chamo:353962&theme=FEFU

Form of final control: exam.

Abstract

Nutritionology

Bachelor's/Specialist's/Master's degree in 19.04.01Biotechnology

Study profile/ Specialization/ Master's Program "Title"

Agri-food biotechnology

Course title:*)* Nutriciology

Variable part of Block, _2_credits

At the beginning of the course a student should be able to:

- the ability to quickly master new subject areas, identify inconsistencies, problems and develop alternative solutions to them;

- the ability to lead a scientific discussion.

Learning outcomes:

GC-1 the ability to creatively adapt the achievements of foreign science, technology and education to domestic practice; high degree of professional mobility

GC-10 with the ability to improve and develop their intellectual and general cultural level, to gain knowledge in the field of modern problems of science, engineering and technology, humanities, social and economic sciences

GC-13 willingness to use legal and ethical standards in assessing the consequences of their professional activities, in the development and implementation of socially significant projects

SPC-2 with the ability to analyze scientific and technical information in the field of biotechnology and related disciplines in order to provide scientific, patent and marketing support for basic research and technological research

SPC-15 readiness to ensure the stability of production indicators and product quality

SPC-18 ability to develop and scientifically substantiate optimal integrated certification schemes for biotechnological products

– **Course description:** study of the laws of the influence of food and the

process of consumption on human health, determining the path of easy digestion of food, processing, utilization and elimination from the body, as well as the motives of human choice of food and the mechanisms of the influence of this choice on his health.

- the acquisition of theoretical knowledge on the composition of the components contained in food raw materials of plant and animal origin (macro - micronutrients, physiological functional ingredients;

- obtaining knowledge of the biological and medical consequences of the lack and excess of food components;

- mastering the research methods of the actual nutrition of various groups of the population;

- the formation of skills to scientifically justify the development of new food products;

Main course literature:

1. Vitamins and vitamin-like substances: a tutorial / Yu. A. Tyrsin, A. A. Krolevets, A. S. Chizhik. Moscow: DeLi Plus, 2013. - 202 p. (2 copies) http://lib.dvfu.ru:8080/lib/item?id=chamo:732093&theme=FEFU

2. Nutriciology: textbook / L. Z. Tel, E. D. Dalenov, A. A. Abduldaeva [and others]. Moscow: Litterra, 2016. - 543 p. (1 copy) http://lib.dvfu.ru:8080/lib/item?id=chamo:818987&theme=FEFU

Form of final knowledge control: credit

Abstract

The effectiveness of biotechnological industries

Bachelor's/Specialist's/Master's degree in 19.04.01 Biotechnology

Study profile/ Specialization/ Master's Program "Title" «Agri-Food Biotechnology»

Course title: The effictiveness of biotechnological industries

Variable part of Block, _2_credits

At the beginning of the course a student should be able to:

- the ability to quickly master new subject areas, identify inconsistencies, problems and develop alternative solutions to them;

- the ability to lead a scientific discussion.

Course description: Scientific and technological bases of designing foods with desired properties for various purposes is intended to guide the preparation of 19.04.01 Biotechnology, functionality «Agri-Food Biotechnology».

The total complexity of the development of the discipline is 2 credits. The curriculum provides students' independent work. Discipline is implemented on 1 course 1 semester.

Learning outcomes:

SPC-8 ability to conduct a feasibility study of production and the preparation of technical and economic documentation;

SPC-13 readiness for organization, planning and management of existing biotechnological processes and production.

Main course literature:

1. Pishchevaya biotekhnologiya produktov iz syria rastitelnogo proiskhozhdeniya: Ucheb. / O.A. Neverova. A.Yu. Prosekov i dr. - M.: NITs INFRA-M. 2014. - 318 p.: 60x90 1/16 ISBN 978-5-16-005309-7. (500 ekz). http://znanium.com/go.php?id=363762

2. Biotekhnologiya kombinirovannykh pishchevykh produktov na osnove molochnogo i mikrobiologicheskogo syria : metod. ukazaniya k labor. rabotam dlya studentov spets. 240902 «Pishchevaya biotekhnologiya» vsekh form

obucheniya / sost. N.V. Situn. E.S. Fishchenko . Biotekhnologiya molochnogo proizvodstva. Vladivostok : Izd-vo Tikhookeanskogo ekonomicheskogo universiteta . 2009. – 96 p. (8 ekz.). http://lib.dvfu.ru:8080/lib/item?id=chamo:357087&theme=FEFU

3. Biotekhnologiya kombinirovannykh pishchevykh produktov i ikh analogov na osnove syria zhivotnogo proiskhozhdeniya : metod. ukazaniya k vypolneniyu laboratornykh rabot dlya studentov spets. 240902 "Pishchevaya biotekhnologiya" / sost. L.M. Povoyko. L.A. Tekutyeva. T.A. Shepel. Vladivostok : Izd-vo Tikhookeanskogo ekonomicheskogo universiteta . 2008. – 40 p.. (8 ekz.). http://lib.dvfu.ru:8080/lib/item?id=chamo:352729&theme=FEFU

4. Biotekhnologiya : uchebnoye posobiye / Yu. O. Sazykin. S. N. Orekhov. I. I. Chakaleva ; pod red. A. V. Katlinskogo. Moskva : Akademiya . 2006. – 255 p. http://lib.dvfu.ru:8080/lib/item?id=chamo:257572&theme=FEFU

5. Biotekhnologiya : uchebnik dlya vuzov / S. M. Klunova. T. A. Egorova. E. A. Zhivukhina. Moskva : Akademiya . 2010. – 256 p. (5 ekz.) http://lib.dvfu.ru:8080/lib/item?id=chamo:416005&theme=FEFU

Form of final knowledge control: credit