NATIONAL UNIVERSITY OF LIFE

AND ENVIRONMENTAL SCIENCES OF UKRAINE

MASTER CURRICULA AND TRAINING PROGRAMS

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General editor
S. Nikolaienko, Doctor of Pedagogical Sciences, Professor

Compiled by S. Kvasha, O. Zazymko, L. Klikh, O. Kolesnikova

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HISTORICAL BRIEF

The National University of Life and Environmental Sciences of Ukraine (NULES of Ukraine) - it is the university of the IV accreditation level with the status of self-governing (autonomous) university.

Since 2014, NULES of Ukraine is headed by Rector Stanislav Nikolaenko, corresponding member of the National academy of pedagogical sciences of Ukraine, doctor of pedagogy, professor.

Its origin dates back from the agricultural department and the veterinary faculty of Kiev Polytechnic Institute, Warsaw forestry school (Poland).

In January 1898, a special Committee was formed in order to organise the educational institution. D. Mendeleev took an active part in opening this institution. He was a member of the Commission on Statute elaboration. The Commission, organized under the Ministry of Finance, developed regulations on organization of Kiev Polytechnic Institute.

According to the regulations published 8 June 1898 and signed by Emperor Nicholas II with the endorsed resolution "Be it so enacted...", "Emperor Alexander II Kiev Polytechnic Institute (KPI) is a higher educational institution that aims to provide students with technical education, it has four departments: chemical, mechanical, engineering and agricultural".

On August 31, 1898, KPI was solemnly opened in Kiev, and on September 1, the first students began their studies.

The agricultural Department of the Kiev Polytechnic Institute was transformed in 1918 into agricultural (agronomy) faculty, and in 1922 into Kiev agricultural Institute, which in 1923 became an independent institution of higher education.

The first dean of the agricultural department was M.P. Chyrvynskyi, Master of Agriculture, State Councilor, Honorary Professor and Head of zoo breeding technologies department. His achievements contributed to the national science treasury. The honorary fellow and lecturer of the agricultural department was K.A. Timiriaziev, professor emeritus of the Imperial Moscow University.

The first 32 scientists-agronomists graduated in 1903. D.I. Mendeleyev, a famous scientist and chemist, an honorary fellow of the popular Kiev society of naturalists was the Head of the State Examination Board. He appreciated the high level of graduates' knowledge.

The first educational buildings in Golosiievo were designed in the style of Ukrainian Baroque by the architect D.M. Diachenko in 1926-1929.

In 1926, Kyiv Agricultural Institute was the leading institution of agricultural science and agronomic education in the central part of Ukraine. The People's Commissariat of Education, as official documents certify, planned to transform KAI into the higher agricultural school of USSR – Ukrainian Agricultural Academy. Subjective and objective reasons prevented the realization of this project.

In the first half of the 1930s a number of independent institutions operated on the bases of KAI. However, in the mid 1930s the institution regained its name and structure.

During World War II KAI evacuated to Alma-Ata and functioned as part of Kazakh Agricultural Institute.

In 1948 on the occasion of its 50th anniversary, the institute was rewarded with the Order of the Red Banner for outstanding achievements in teaching and research work.

Kyiv Forestry Institute began its history from the Warsaw forestry school (organized in 1816), which affiliated with Institute of Agriculture in Marimont (Poland, 1840), and the latter was reorganized into the Institute of Agriculture and Forestry. In 1862, it transferred to Novo-Alexandriya (now – Pulawy, Poland). At the beginning of World War I (1914), a

number of faculties of Novo-Alexandriya Institute of Agriculture and Forestry incorporated into Kharkiv Institute of Agriculture and Forestry (since 1921). In 1930, Forestry Faculty of Kharkiv Agricultural Institute moved to Kyiv and affiliated with Forestry engineering faculty of Kyiv Agricultural Institute to become the Ukrainian Forestry Technical Institute, and the same year it reorganized into Kyiv Forestry Institute.

In 1,954 Kyiv Agricultural Institute and Kyiv Forestry Institute merged into the institution "Ukrainian Agricultural Academy of the Order of the Red Banner" (UAA).

In the 1950s UAA was not only the major staff-training center for agriculture in Ukraine, but also the center of its scientific support. From 1956 to 1962, the Ukrainian Agricultural Academy became an educational department of the Ukrainian Academy of Sciences (UAS). This period became one of the most fruitful in the history of the institution, since there was a real possibility of integration of education and research activities, which made the institution famous in the former USSR. This was the prototype of large education and research universities functioning in highly developed countries of the world.

By the willful decision of the Government, the Ukrainian Academy of Agricultural Sciences liquidated due to consistent upholding of the strategy of agricultural development by the Presidium of the Ukrainian AAS, which did not coincide with the official opinion. The research institutes reassigned to the All-Union Academy of Agricultural Sciences named after Lenin and Ministry of Agriculture of USSR.

In 1957 Kyiv Veterinary Institute was joined to UAS, the Institute began its work as a veterinary faculty of Kiev Polytechnic Institute (1920), and since 1921 it functioned as an independent Kyiv veterinary and zoo technological Institute. Kyiv veterinary institute has functioned since 1930.

The 1960-80s were the period of developing international relations. During this time, over two thousand foreigners from more than 100 countries of Asia, Europe, Africa, Indochina and Latin America graduated from the academy.

The university developed its research activities, founded world famous schools led by famous scientists. The teaching staff significantly improved forms and methods of training specialists for agriculture and carried out research on current economic problems in the agricultural sector of Ukraine.

In 1982, the Ukrainian Agricultural Academy established Vinnytsia affiliate branch, which in 1991 became an independent institute (now – Vinnytsia State Agrarian University).

From 1962 to 1992, the educational institution was functioning as an autonomous Ukrainian Agricultural Academy, subordinated to the Ministry of Agriculture of the USSR, and later – the USSR.

Acquiring the experience of highly developed countries in the field of higher education, active collaboration with leading agricultural educational institutions, participation in the reform of higher education in Ukraine in the framework of the Bologna process have led to the qualitative changes in the structure and functioning of the institution, resulting in the change of its status and title.

In August 1992, the Ukrainian Agricultural Academy transformed into the Ukrainian State Agrarian University and got the status of National University according to the resolution of the Verkhovna Rada of Ukraine No. 158 from July 29, 1994. Since that time, it existed as the National Agrarian University and according to the above resolution of the Verkhovna Rada of Ukraine and the resolution of the Cabinet of Ministers of Ukraine No. 387 from June 1, 1995 was subordinated to Cabinet of Ministers of Ukraine.

The structure of the university included a lot of education and research institutions and production subdivisions as entities that later were reorganized into separated subdivisions.

Since 1936 the University has incorporated Boyarka Forest Research Station, since 1957 – training and research farm "Vorzel", since 1966 – Agronomic Research Station (Kyiv region), since 1972 – Velykosnitynka training and research farm named after O.V. Muzychenko.

In 1996, according to the resolution of the Cabinet of Ministers of Ukraine from April 23, 1996 № 448, Nizhyn Agricultural College (Chernihiv region) joined National Agraricultural University.

According to the Resolution of the Cabinet of Ministers of Ukraine from 29 May 1997 № 526, Berezhany Agricultural College (Ternopil region), Zalishchyky (Ternopil region) and Boyarka (Kiev region) agricultural colleges, Nemishaivo agricultural college and Irpin Economic College (Kiev region) joined the NAU.

Eventually, according to the results of accreditation, Irpin, Nemishayevo, Zalishchyky and Boyarka Technical Schools received the status of colleges.

According to the Resolutions of the Cabinet of Ministers of Ukraine from 6 May 2001 No 434 and from May 16, 2001 No 508, Berezhany and Nizhyn agrotechnical institutes were organized. According to the order of Cabinet of Ministers of Ukraine from August 8, 2001, № 327 of the Ministry of Agrarian Policy of Ukraine the Institute of post-diploma education of managers and specialists of AIC was transferred to the National Agrarian University. Since 2003, the Ukrainian laboratory of quality and safety of AIC products was organized in the National Agrarian University.

In 2004 the Ukrainian Research Institute of Agricultural Radiology joined the National Agrarian University.

In 2005 Bobrovytsia College of Economics and Management named after O. Mainova (the present name of the college) joined the National Agrarian University. In 2007 Mukacheve Agricultural College joined the University.

Since 2016, "Rivne College" has been functioning as the separated subdivision of NULES of Ukraine.

In 2015, the university organised interdepartmental laboratories on the basis of Tarashcha agrotechnical college, Malyn and Lubny Forestry Colleges, SS of NULES of Ukraine - Mukacheve Agrarian College, Bobrovytsia College of Economics and Management University named after O. Mainova, and Berezhany Agrotechnical Institute.

In the field of international cooperation the university signed agreements on collaboration with a lot of educational and research institutions worldwide.

To expand the educational, research and innovation activities of the National Agrarian University and to satisfy the needs of agricultural, environmental and other industries, as well as to adapt these activities to the requirements of international organizations of research universities, National Agrarian University was renamed into the National University of Life and Environmental Sciences of Ukraine (NULES of Ukraine) by the Resolution of the Cabinet of Ministers of Ukraine № 945 from October 30, 2008, and in 2010 it received the status of self-governing (autonomous) research national university.

Reforming of the university resulted in clear outline of its prospects - consolidation of training, research, innovation, information, advisory, educational and production activities. Thus, the achievements of the University testify that NULES of Ukraine is a prime example of the institution of the 21st century.

MASTER TRAINING PROGRAMS AT NULES OF UKRAINE

The National University of Life and Environmental Sciences of Ukraine has been providing master training programs since 1996.

The curricula and programs of Master's Degree training are compiled in accordance with requirements of Law of Ukraine "About higher education". Their adaptation and conformity meet the requirements of U.S. and European systems of higher agricultural education.

The National University of Life and Environmental Sciences of Ukraine provides training for educational level "Master" in 34 specialties covering 53 educational programs (table 1)

Table 1. Specialties and educational programs in Master training at NULES

Structural subdivision (ERI, faculty)	Specialty	Educational programs
ERI of Energetics, Automatics and Energy Saving	Automation and Computer Integrated Technologies	Automated control of technological processes
	Power Engineering, Electrical Engineering and Electrical Mechanics	Electrification and automation of agriculture
		Electrotechnical systems of power consumption
		Energetics of agricultural production
ERI of Forestry and Garden-Park Management	Forestry	Forestry
		Hunting industry
	Woodworking and Furniture Technologies	Woodworking and Furniture Technologies
	Park and Gardening Management	Park and Gardening Management
ERI of After Diploma Education	Management	Extension service *
		Management of innovative activity *
	Public Management and Administration	Public Administration **
Agrobiology	Agronomy	Agronomy
		Agrochemistry and Soil Science
		Selection and genetics of agricultural crops
	Horticulture and Viticulture	Horticulture and Viticulture
Humanitarian Pedagogical	Management	Management of educational institution *
	Education and Educational Science	Pedagogy of higher school *
	Social Work	Social Work *
	Philology (german languages and literature) (including translation)	English and other foreign language
		German and other foreign language
Economic	Economy	Economics of enterprise
		Applied Economics *
	Accounting and Taxation	Accounting and audit
	Entrepreneurship, Trade and Exchange Activities	Stock exchange activities *
	Finance, Banking and Insurance	Finance and credit
Mechanics - Technology	Agricultural Engineering	Agricultural Engineering
	Motor Transport	Motor Transport
	Transport Technologies (road transport)	Transport Technologies in road transport
Agrarian Management	Management	Administrative management *
		Management of foreign economic activity *
		Management of organization and administration *
		Management of investment activity and international projects *
	Marketing	Marketing
Veterinary Medicine	Veterinary Medicine	Veterinary Medicine
	Veterinary hygiene, sanitary and expertise	Veterinary hygiene, sanitary and expertise
Plant Protection, Biotechnology and Ecology	Biotechnology and Bioengineering	Environmental biotechnology and bioenergetics
	Ecology	Ecological control and audit
		Ecology and environmental protection
	Plant Protection and Plant Quarantine	Plant Protection
		Quarantine of Plants
Land Management	Geodesy and Land Management	Geodesy and Land Management
Information Technology	Economy	Economic cybernetics
	Computer Science	Information managing systems and technologies
		Computer ecological and economic monitoring
Construction and Design	Construction and Civil Engineering	Construction and Civil Engineering
	Industrial Mechanical Engineering	Machinery and equipment of agricultural production
		Equipment of forest complex
Livestock Science and Water Bioresources	Water Bioresources and Aquaculture	Water Bioresources and Aquaculture
	Technology of Production and Processing	Technology of Production and Processing of

Structural subdivision (ERI, faculty)	Specialty	Educational programs
	of Livestock Products	Livestock Products
Alimentary Technologies and Managing of Quality of Productes of ASE	Metrology and Information and Measurement Technique	Quality, Standardization and Certification *
	Food Technologies	Technologies of storage, preserving and reprocessing of meat
		Technologies of storage and reprocessing of aquatic bioresources
Law	Law	Law

Note: * persons who have basic higher education in any specialty are admitted;
** persons who have full higher education in any specialty are admitted.

The peculiarities of Master training at NULES of Ukraine are characterized by close relationship of the program contents with the sphere of future employment of graduates.

Master training at NULES of Ukraine is carried out according to:

- programs:
  – educational and professional;
  – educational and research;
- educational programs with cross entry opportunities (with additional entrance examination):
  – "Administrative Management";
  – "Extension Service";
  – "Management of Innovative Activity";
  – "Management of Foreign Economic Activity";
  – "Management of Organization and Administration";
  – "Management of Investment Activity and International Projects";
  – "Management of Educational Institution";
  – "Stock exchange activities";
  – "Applied economics";
  – "Pedagogy of Higher School";
  – "Social Work";
  – "Quality, Standardization and Certification";
- specialties "Public Management and Administration" in educational program "Public Administration".

Individuals who have studied and intend to continue training in the chosen specialty tor deeper educational program are enrolled on educational and professional program (1,5 years of study (90 ECTS)). These programs are implemented to ensure the science-intensive production sector with highly qualified specialists who possess the innovative knowledge and are able to apply it into modern high technologies.

The training of Masters on the educational and research program (2 years of study (120 ECTS)) is peovided only by the departments of the University, which are entitled to train postgraduate students, have sufficient funding and considerable progress in research activities. Applicants are required to have a good command of at least one foreign language. The educational and research program includes an obligatory research (scientific) component, no less than 30 per cent).

Master training on this program includes conducting further research activity according to the chosen specialty to obtain PhD during postgraduate study or at a research institution.

Especially popular at the university are educational programs with cross entry opportunities (with additional entrance examination): "Administrative Management", "Extension Service", "Management of Innovative Activity", "Management of Foreign Economic Activity", "Management of Organization and Administration", "Management of

Investment Activity and International Projects", "Management of Educational Institution", "Stock exchange activities", "Applied economics", "Pedagogy of Higher School", "Social Work", "Quality, Standardization and Certification".

Educational program "Administrative Management" is focused on training highly-professional managers able to manage agrarian business applying appropriate knowledge and skills, modern computer technologies, innovative knowledge and foreign languages. The feature of this program is that learning content is determined by basic education (economic or non-economic) and future employment area. For those with economic basic education, the curriculum includes technological disciplines in the cycle of elective disciplines, for others – economic disciplines.

Educational program "Extension service" has been developed to meet the needs of establishing an effective advisory system and information and consultancy service for agricultural producers and the population. Knowledge and practical experience obtained through training will help graduates create their consulting services (firms) to extend knowledge, information, innovation, using new information technologies with interactive, consulting systems for competitive agricultural production.

Educational program "Management of Innovative Activity" focuses on training highly qualified managers with special knowledge in basic education, able to make strategic and tactical managerial innovative solutions, identify the most promising scientific developments and implement them in production on the administrative level of the central state and regional regulatory agencies, counseling centers, innovative financial and credit institutions, agricultural enterprises in accordance with the requirements of international standards.

Educational program "Management of Foreign Economic Activity" aims to provide students with in-depth knowledge necessary to make effective decisions in the management of foreign economic activity of agro-food enterprises in the context of globalization and European integration of the national economy of Ukraine. Professional teaching of academic disciplines (some courses are taught in a foreign language) as part of the educational program will enable graduates to gain a competitive advantage in employment in the leading international agribusinesses, agricultural enterprises and organizations.

Educational program "Management of Organization and Administration" focuses on training managers of enterprises with different forms of ownership and labour organizations and managers of subdivision in agribusiness with managerial skills both in production and social sphere. The program aims to provide students with efficient knowledge about development of ideas in management, to reveal the essence of modern management provisions, to form the students' ability to effectively apply theoretical knowledge in practice.

Educational program "Management of Investment Activity and International Projects". Training of specialists in developing investment policies and project management of companies, finding international programs, grants and sources of investment meets the need in agro production project-managers, coordinators and project leaders, investment managers and analysts, heads of investment departments and investment advisors. Students are offered opportunities for project drafting and obtaining double degrees at leading educational institutions in Poland.

Educational program "Management of educational institution". Training of managers of enterprises, institutions and organizations (in the sphere of education and industrial training) is caused by the demand in specialists able to carry out work on planning and optimization of the organizational structure of an institution; management of

its educational and economic activities; monitoring the implementation of the plan; development of the staff policy of the institution and student contingent.

Educational program "Stock exchange activities" focuses on training specialists able to effectively apply the tools of stock market in order to minimize both production and financial risks in almost all spheres of economic activity, to develop and implement the forecasts for domestic and world markets on the whole and within the specific groups of commodities or financial instruments. In addition to their specific specialization, graduates will be able to trade in the commodity and stock markets.

Educational program "**Applied Economics**" provides students with the knowledge in order to successfully solve complex problems in the sphere of increasing competitiveness of agribusiness; application of advanced methods of economic-mathematical modeling to study the dynamics of development in the agrarian sector. The students have an opportunity to master up-to-date software - modeling program package «Wolfgram Mathematica».

Educational program "Pedagogy of higher school". Training of a university teacher is caused by the demand in specialists able to organize the educational process, methodological and research activities in colleges and vocational schools, promote social development of young people in higher education institutions.

Educational program "Social Work". Training of specialists in social work meets the need of our country in the implementation of social and educational assistance, support, protection and rehabilitation of all categories of the population, organization of the social services centers for social protection and assistance, employment and recruitment centers, systems of educational institutions, centers for children's education and upbringing, cultural centers and art schools, social and educational services and clubs, children's and community organizations, guardianship services, juvenile affairs services.

Educational program "Quality, standardization and certification" focuses on training specialists able to adapt Ukrainian system of assessment of quality, safety, certification and standardization of AIC products according to international standards and their practical implementation.

At NULES of Ukraine the **educational program "Public Administration"** in the specialtie "Public Management and Administration", is popular. It focuses on training specialists for public authorities and local governments, able to effectively develop and implement their knowledge in the field of state regulation on the basis of current legislation and information technology.

Content Structure of Master educational programs at NULES of Ukraine

Educational (educational-professional or educational-research) program is a system of educational components at the appropriate level of higher education within the specialty that defines the requirements for the educational level of individuals who can begin training on this program, the list of disciplines and logical sequence of studying them, the number of ECTS credits required for this program, as well as the expected learning outcomes (competences), which an applicant for an appropriate degree of higher education should obtain.

The content structure of Master programs at the NULES of Ukraine includes three discipline blocks.

The list, extent and attestation forms of standard disciplines within the framework of a definite specialty (block 1) are determined by the branch standards of higher education of Ukraine and the administrative action of the academic board of the university. The study of these disciplines provides the basis of specialty and master degree.

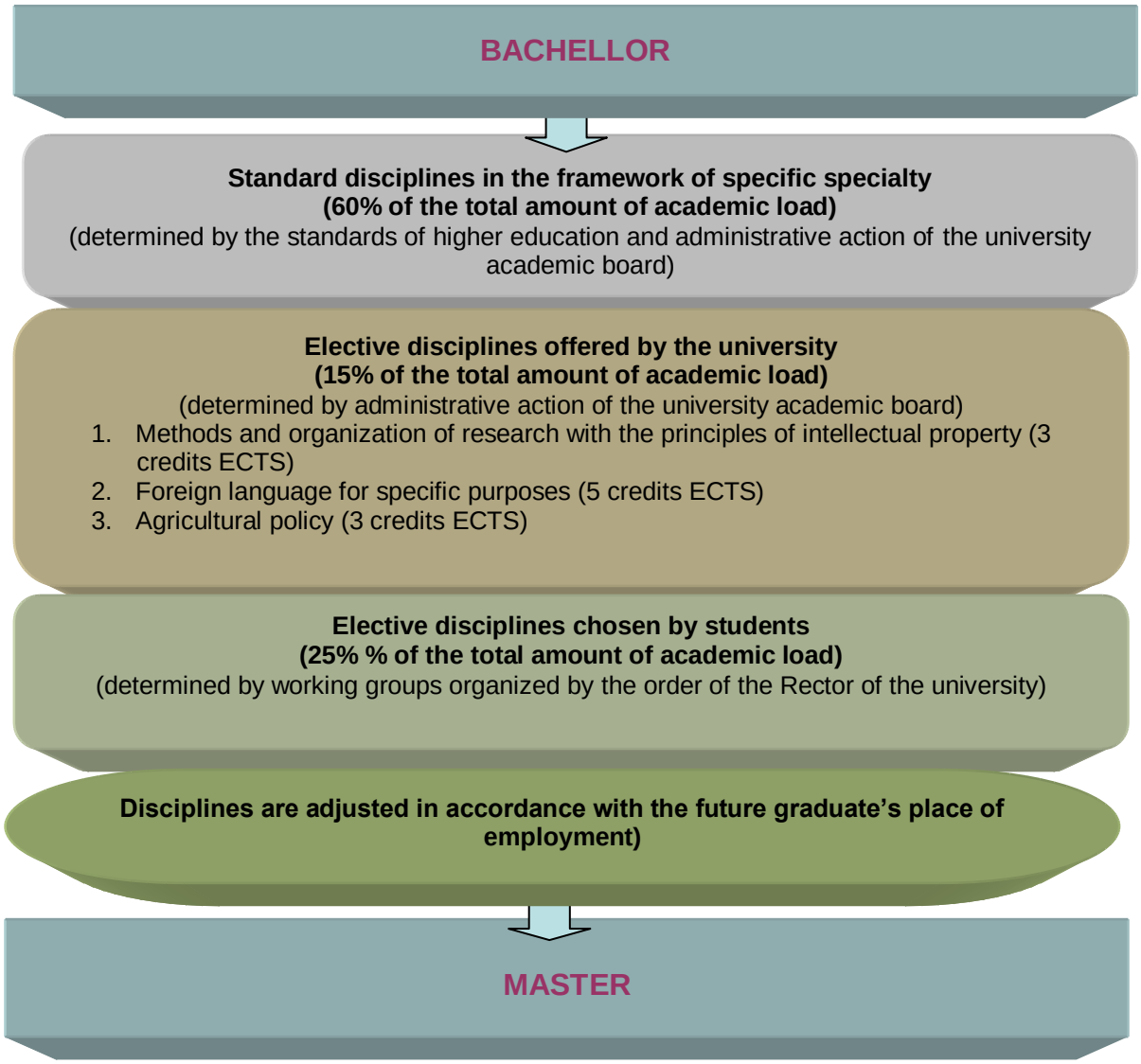

Fig. 1. Content Structure of Master educational programs at NULES of Ukraine

The elective part of disciplines determines the basis of educational programs within the relevant specialty. The list, extent and attestation forms of elective disciplines offered by the university (block 2) are determined by the academic board of the university. These disciplines are studied by students during their first year according to educational programs of training. They contribute to masters' future research activities and postgraduate studies, help to master a foreign language, methodology and organization of scientific research and be professionally aware in agricultural issues.

The list of standard disciplines and elective courses offered by the University are the same for all students who study according to the same curriculum, regardless of their chosen major.

The list, forms of study and attestation of elective courses chosen by students (block 3) are defined by working groups organized by the rector's order, are recommended by the academic boards of the faculties (ERI), approved by educational-methodological council and by the academic board of the University. They are included in the curriculum

depending on the student's choice and studied mainly during the second year of study. These disciplines enable the students to write master's thesis and adjust graduates to their future place of employment.

Professional training of students, including the master's rdegree esearch begin in the first semester. A significant part of the training is allotted for independent study.

The main forms of implementation of educational process at NULES of Ukraine

The educational process at NULES of Ukraine is realized through various forms including in-class activities, practical training, independent study and control (Fig. 2).

The in-class activities are conducted in the form of lectures, practical classes, seminars, laboratory activities and individual lessons, including the use of distance learning methods.

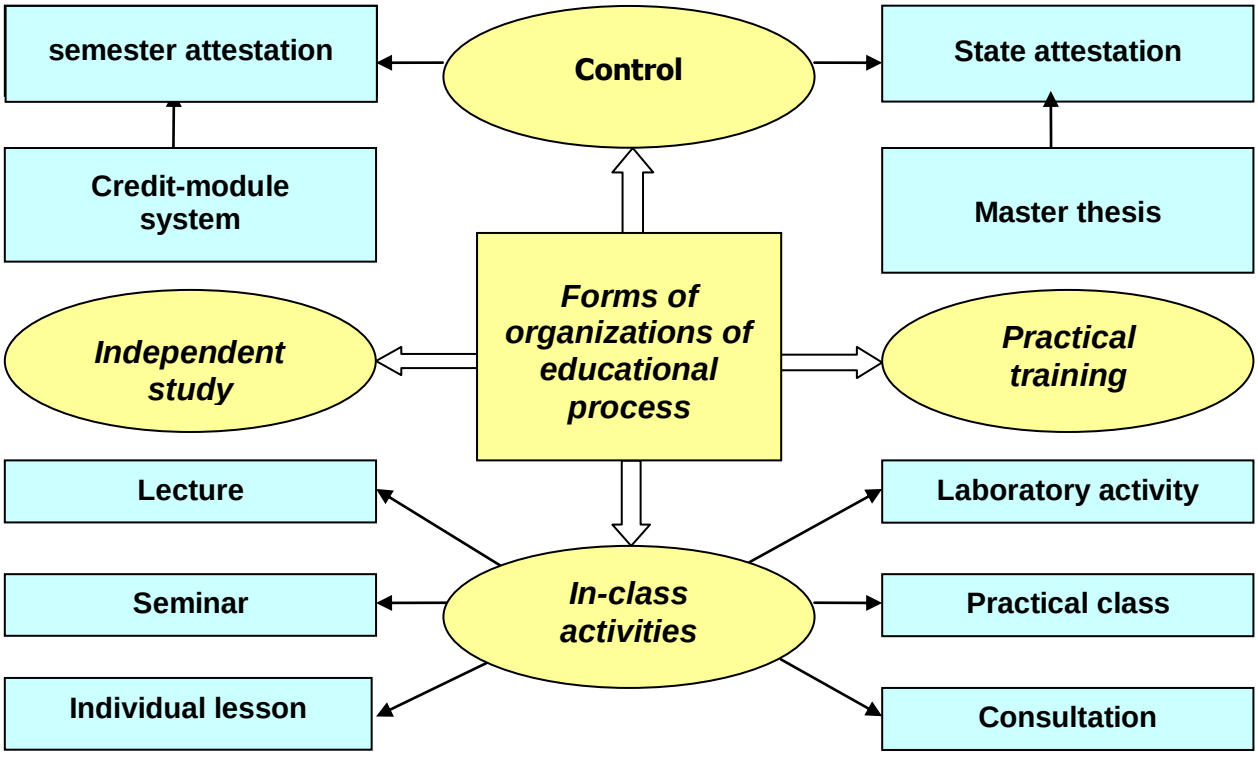

Fig. 2. The main form of implementation of educational process at NULES of Ukraine

Independent study is the main way to master knowledge and skills apart from regular classes. At NULES of Ukraine it is provided by the system of teaching tools, including textbooks, teaching and methodological aids, course books, abstracts of lectures, practical classes, e-courses of disciplines on educational information portal on Moodle distance learning platform. This work is conducted according to schedules. It guarantees the student's individual access to the necessary didactic materials. At the beginning of the current semester the students are informed about the schedule.

The teaching staff of appropriate departments is always available for consultation when students use complex equipment and information access systems while studying independently.

Special attention is paid to students' practical training system aimed at generalization of the theoretical and practical knowledge and acquisition of professional skills. It is conducted in the form of laboratory and practical classes, training and production practices that can be conducted at university's centers of practical training:

– 2 research stations – "Agronomic Research Station" SD of the NULES of Ukraine and "Boyarka Forestry Research Station" SD of the NULES of Ukraine (Kyiv region);

– 5 training and research farms (TRF) – Velykosnitynka Training and Research Farm named after Muzychenko, SS of the NULES of Ukraine "Vorzel", SS of NULESU "Nemishaievo Agro-Technical College"*(Kyiv region), SS of NULESU "Zalischyky Agricultural College named after Khraplyvyi", SS of NULESU "Nizhyn Agro-Technical Institute" (Chernihiv Region);

– Special facilities for practical training of regional higher educational institutions of NULES of Ukraine I-II accreditation levels;

– Botanical garden of NULES of Ukraine.

The university farms are located in different soil and climatic zones of Ukraine - woodlands, forest-steppe, steppe. The peculiarity of practical training bases of the university is that they have relevant departments and branches as well as over 30 educational, industrial, scientific and research laboratories where students have laboratory and practical classes, training and production practices etc.

Forms of control of students' progress are credits which are done in the form of tests and exams in written form according to the examination cards which include various questions and tests of different types. After conducting the written examination and according to the results of answers to the exam questions, the student is interviewed by two lecturers, who conducted the final attestation. They determine the student's final grade.

Students take regular attestation during the course at department meetings, where they reports on the implementation of the individual plan on the whole and master's thesis in particular (Fig. 3).

Defence of Master's thesis is the final stage of student training and the form of graduates' state attestation. Attestation of applicants for higher education, that is, conformity of the level and amount of applicant's knowledge, skills and other competences to the requirements of higher education, is carried out by the board (EB) which makes the decision on the award of the relevant level higher education and qualification to a graduate.

Training of graduate students at the University is carried out by full-time and part-time (distance) forms. The main form of training masters at NULES of Ukraine – is full-time, for individuals who have already chosen the place of work – part-time form.

Part-time form, as a rule, has a longer duration compared to full-time (not more than by 25 %) and requires students to do a great deal of tasks independently, using appropriate teaching materials and means of distance education.

At NULES of Ukraine, educational and information portal moodle.nubip.edu.ua functions on the basis of the platform Moodle in order to provide information and methodological support of disciplines. It hosts e-learning courses in the respective disciplines and services of on-line communications (Skype, Google Apps, social networks). All this makes it possible to use distance learning technologies in the academic process, which raises the learning process to the international standards.

The process of part-time (distance) education is organized during a calendar year examination sessions. During these sessions as well as in the intersessional period, all forms of the educational activities are carried out: in-class activities, independent study, practical training and control.

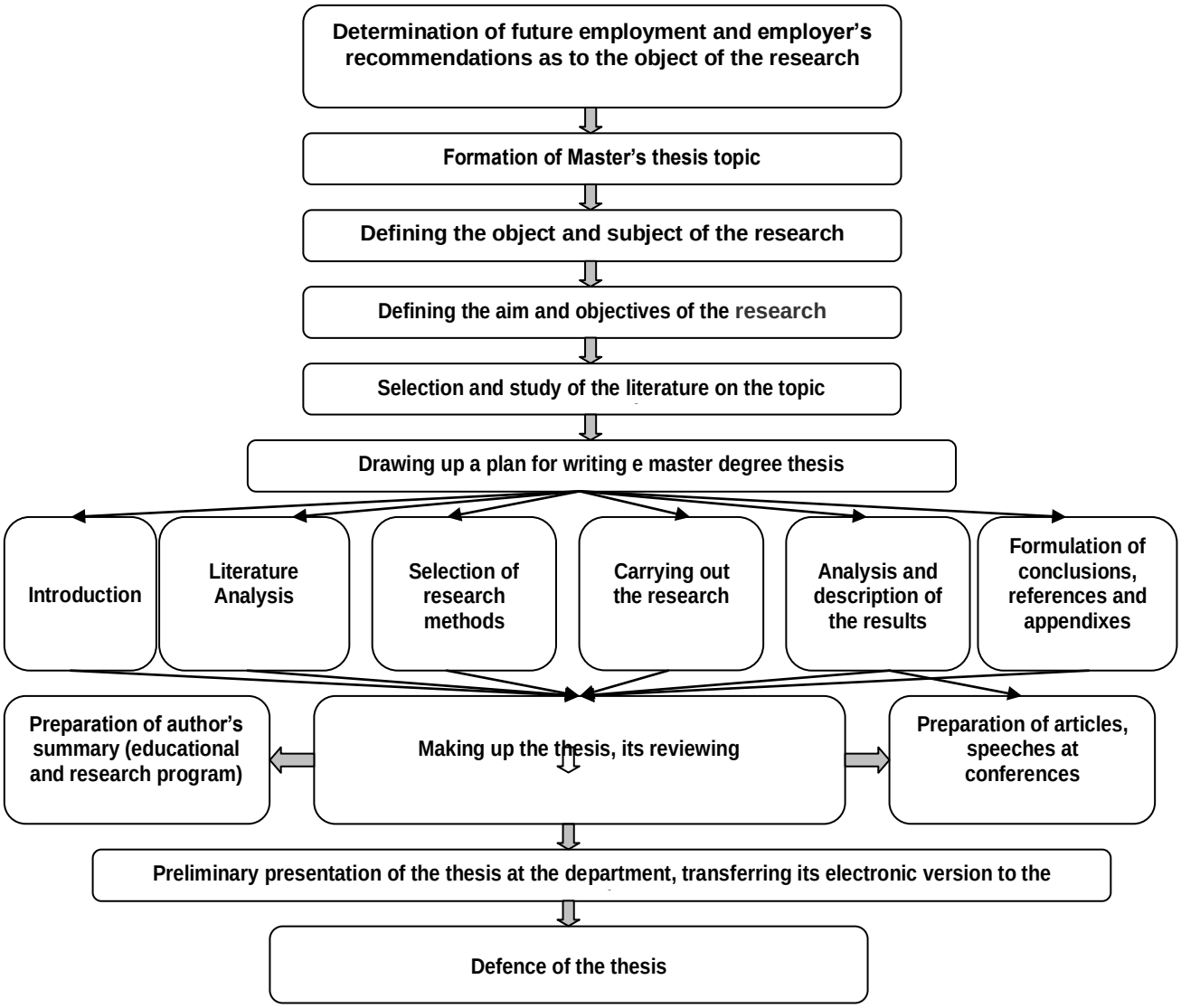

Fig. 3. Stages of writing Master thesis

SCIENTIFIC LIBRARY

Scientific Library is a modern, scientific, cultural, educational, information center that meets the users' needs of getting the latest information,.

The main task of the scientific library of University is to develop library collections to meet the needs of users in various specializations. Diversified Library collection numbers more than one million copies of national and foreign books, including rare books (since 1779), abstracts of theses (since 1950), theses (since 1946), The Library annually subscribes to more than 100 titles of journals and more than 50 different newspapers.

Information and bibliographic desk (electronic, alphabetical, systematic catalogs and card indexes) facilitates wide and overall use of the library collection. The main technological processes have been automated in scientific library. Since 2012 the scientific library has begun to give books to users in automated mode. Workplaces of library employees are equipped with specialized scanners and printers, with make it possible to attach each book to a specific user on the basis of bar-coding.

To familiarize freshmen with the library according to the program "Information culture" the classes how to use library information search facilities (both traditional and electronic catalog) are organized by the library staff. The scientific library organizes information mass events devoted to current university issues.

The information about the scientific library, including its resources can be found on the library site: http://library.nubip.edu.ua.

Since 2006 the Scientific Library has become a depository library of FAO (FAO - Food and Agricultural Organization) in Ukraine. The Depository fund contains 1100 documents in English, including analytical materials, statistical compilations, reports compiled in the electronic catalog of the scientific library. Some materials come with CD-ROMs. Literature of FAO is stored in the central library.

One of the priority tasks of the library is to provide access to students, postgraduate students and the staff of the University to international electronic resources and data bases such as EBSCO, containing more than 30 000 full-text journals, books, brochures, newspapers, reference books and analytical reviews, AGORA (Access to Global Online Research in Agriculture) is a full-text collection of more than 3000 journals from 106 countries in the field of food, agriculture and environmental sciences, Bio-One – full-text collection containing over 100 thousand articles in the field of biology, ecology and environmental sciences, and other databases.

At the disposal of users there is also an e-library that contains the full texts of academic and scientific publications of scientists of the University, namely more than 800 educational textbooks, about 400 monographs, more than 2,400 educational materials (guidelines for laboratory, practical and seminar work, lectures course notes etc.) and over 220 dissertation abstracts. The e-Library of NUBiP of Ukraine is available through the local university network.

The square of the library is 2844 м^2. Scientific library users are serviced in 8 lending libraries and 8 reading rooms for 580 seats. The structure of the scientific library consists of 5 branches with the funds of more than 180 thousand documents of educational, scientific, reference books and periodicals. These branches of the library provide subscriptions and reading rooms equipped with modern computer techniques. In addition, there are two subscription services to all categories of readers of scientific literature and fiction. Users have free access to the Internet both in the central library and its branches.

If there is no literature a reader needs in the library, it is possible to order it on interlibrary subscription (ILS) and by email (library@nubip.edu.ua). Such an extensive

library system makes it possible to serve over 40 000 users per year by all structural divisions. More than one million copies of books a year are given to users.

The research library is equipped with latest computer technology and equipment: 50 PCs, 13 printers, 2 scanners, a powerful database server. The premises of the Central library and its branches have modern interior and comfortable environment for users and staff of the University.

The structure of the scientific library consists of 5 departments and 5 branches.

The department of book acquisition, scientific processing of documents and catalogue organization. The main task of the department is full, theoretically substantiated acquisition of library book collection to support training and educational process and research activity of the University.

The department of book acquisition, scientific processing of documents and catalogues organization provides:

- ordering the purchase of necessary literature for university departments in automated manner;
- control the just-in-time delivery of ordered literature to the scientific library;
- transferring received literature to the library affiliates and departments for proper storage;
- subscription of Ukrainian and Russian periodicals;
- individual and total accounting of documents transferred to the library in traditional and electronic forms (applying bar code technology);
- daily databases filling of electronic library catalog with bibliographic descriptions of new literature acquisitions;
- organization and updating of systematic, alphabetic and electronic catalogs;
- scientific researches collections exchange with 26 higher educational agrarian institutions of Ukraine.

***Information and bibliography department*.** The main task of the department is to quickly and fully meet the information needs of scientific library users. The department provides such services:

- Library dissertations collection (over 5,000 units);
- Master Thesis collection (500 items);
- research papers of 26 higher educational agrarian institutions of Ukraine;
- Ukrainian and Russian periodicals.

Information and Bibliography Department:

- compiles indexes and lists of literature according to the topics of research papers and to support the academic process at the University;
- encrypts scholars and students' research papers according to the tables of the Universal Decimal Classification (UDC);
- daily filling of electronic library catalog with analytic descriptions of articles from periodicals, collections of research papers, and bibliographies prepared by the department staff.

Information and bibliographic department organizes and conducts:

- "Department days", "Master days", "Information days" for information service of users;
- theme book exhibitions devoted to key issues, as well as jubilee exhibitions of outstanding University scientists;
- "Information culture" classes for first year students, postgraduates and masters to make them familiar with resources (both external and internal), access to which is provided by the library;

The department of information technologies and computers support. The main task of the department is to support functioning of the automated library and information system "IRBIS-64" and maintain electronic information resources of the library. The department provides such services:

– Library electronic catalogue (contains more than 120,000 of bibliographic descriptions of books, periodicals, authors' abstracts, dissertations and other documents available in the library);

– an electronic library which contains the full texts of educational and scientific publications of university scientists;

– collection of electronic library resources (including portal - AGORA, international databases EBSCO, BioOne, etc.);

– Free Internet access and Wi-Fi.

The department of information technologies and computers support provides:

– support Website of scientific library (http://library.nubip.edu.ua);

– Filling the university e-library, library users database to provide service in automatic mode;

– digitization of collection of rare and valuable books to place them in the database of electronic catalog;

– computer maintenance service.

Department of academic literature. The total books collection of the department is 56709 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 140 seats, free Internet and Wi-Fi access.

The department has academic and scientific literature in:

- Agronomy;
- Plant Protection;
- Plant Biotechnology;
- Ecology;
- Fish farming;
- Feeding and breeding;
- Genetics of plants and animals;
- Technology of production and processing of livestock products;
- Quality management of agricultural products;
- Pedagogy;
- Psychology;
- Culture studies.

The department of scientific literature and fiction. The main task of the department is to provide users with scientific literature and fiction. Book collection of the department is more than 450,000 items, including:

- 400000 copies of scientific literature;
- 58000 copies of fiction;
- 9500 copies of foreign literature;

Users are provided with:

– Ordering of an unavailable book in the library collection according to interlibrary subscription (ILS) from the largest library of the country - the National Library of Ukraine named after V.I. Vernadskyi;

– The collection of rare, valuable documents contain more than 3500 units. The real treasures of the fund are rare and unique books such as: "The News of Petrovsk

Arable Farming and Forest Academy" (1779), "Russian Chronicle by Nikon list" (p. 3, 6, 7, 1786-1791), "Archive of Veterinary Sciences ", "Forest Journal "(1873), etc.;

– Depository library of FAO (FAO - Food and Agricultural Organization), which stores more than 900 documents in English and Russian including analytical materials, collected statistic data, reports.

Branch of scientific library in educational building № 11. The total book collection of the branch is 53129 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 83 seats, free Internet and Wi-Fi access.

The department offers academic and scientific literature in:

- Power engineering;
- Heat engineering;
- Electrification of Agriculture;
- Information science;
- Construction;
- Transport;
- Logistics;
- Mechanization of agriculture;
- Metallurgy & Metalworking;
- Theory of machines and mechanisms;
- Agricultural machinery repairing.

The permanent exhibition of artworks (paintings) of one of the scholars of the University – V. G. Tsapok, professor, doctor of medical sciences, represented in the library, attracts both students and guests of the University.

Branch of scientific in educational building № 1.. The total book collection of the library is 24963 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 40 seats, free Internet and Wi-Fi access.

The department has academic and scientific literature in:

- Forestry;
- Wood processing technology;
- Park-gardening;
- Landscape and design;
- Floriculture;
- Hunting science;
- Green tourism.

The permanent exhibition of the best graduation works of students (landscape tapestries, paintings, flowers compositions), which are placed on the walls of the library reading room, decorates the interior.

Branch of scientific in educational building № 10. The total book collection of the affiliate is 57875 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 80 seats, free Internet and Wi-Fi access.

The department has academic and scientific literature in:

- Economy of enterprises;
- Accounting and auditing;
- Finance;

- Management of organizations and administration;
- Management of foreign economic activity;
- Marketing;
- Economic cybernetics;
- Agricultural economy and organization of agribusiness;
- Banking, taxation & insurance;
- International trade;
- Intellectual property.

Branch of scientific in educational building № 6.

The total book collection of the library is 14633 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 47 seats, free Internet and Wi-Fi access.

The department has academic and scientific literature in:

- Land monitoring;
- Monetary estimation of land;
- Land cadastre;
- Land design;
- Geodesic work in land management;
- Distant land probing;
- Automated land information systems;
- Aerospace survey systems;
- Criminalistics and criminology;
- Civil and tax law;
- Family and inheritance law;
- Administrative law and procedure;
- Notary service board in Ukraine.

Branch of scientific in educational building № 12. The total book collection of the library is 48735 items (books, periodicals, instructions for laboratory and practical works).

Users are provided with academic literature, reading room for 100 seats, free Internet and Wi-Fi access.

The department has academic and scientific literature in:

- Anatomy, histology, cytology of animals;
- Physiology and pathological physiology of animals;
- Veterinary sanitation and hygiene of animals;
- Veterinary microbiology, virology and Immunology;
- Internal non-contagious animal diseases and clinical diagnostics;
- Epizootology, parasitology of animals;
- Surgery, ophthalmology and orthopedics of animals;
- Veterinary obstetrics and gynecology;
- Feeding, animal breeding;
- Veterinary-sanitary examination;
- Foodstuff safety;
- Standardization, certification, metrology.

INFORMATION AND TELECOMMUNICATION SUPPORT OF THE ACADEMIC PROCESS

The main objective of the university – to train highly qualified specialists for the agricultural sector with up-to-date computer knowledge and skills. In order to make efficient use of ICT in the educational process at NULES of Ukraine, a corporate information-educational environment (IEE) has been sut up. It includes the following components: well-developed computer infrastructure, software platforms, information and educational resources and a system of IEE management. The university educational cluster functions on cloud-based technologies, and is integrated with MS O365 and Google, where the university has corporate accounts and unified state electronic database on education (USEDE). Hybrid cloud-oriented educational environment of the university has internal resources - educational information portal (platform Moodle), institutional repository (ePrints), video portal, video-conferencing system, conference support system, etc., as well as external resources - Google and Microsoft O365 services to organize teamwork, academic portals Microsoft and Cisco etc. (Figure 4).

The University infrastructure provides students with an access to information and educational resources. On average, there is one computer per 3.4 students at the University. By the end of 2015 the university information system had 3000computers. They are supported by servers with the licensed software, including licensed Microft Enrollment for Education Solutions. All educational buildings and student residence buildings are connected to the Local Area Network (LAN) with a bandwidth of 1 Gbps in each direction, and there is also a local Wi-Fi network with free access to the Internet.

A web system LDAP Account Manager is used to administer a unified base of users. The Centre of distance learning technologies provided the Ukrainian localization for this system and integrated it into the unified state education base (USEB).

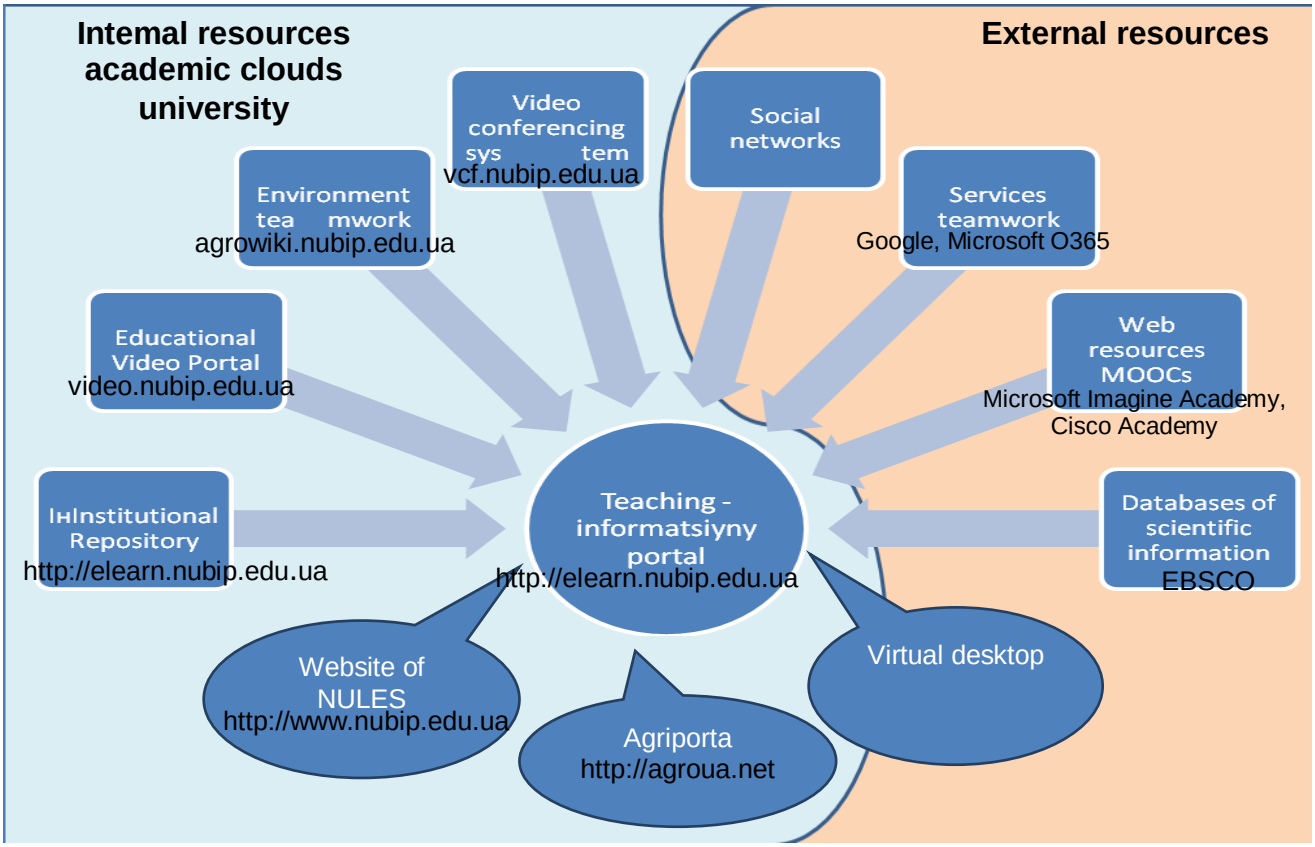

Fig. 4. Hybrid cloud-oriented educational environment at NULES of Ukraine

To support teaching activities in information-educational environment the university makes use of the following software platforms:

– Learning and Information Portal (elearn.nubip.edu.ua), which contains e-learning courses (ELC) for students at 13 faculties and 3 educational and research institutes. Each academic discipline is supported by e-course with theoretical material and resources for laboratory and practical work, independent work, formative, interim and final control. University experts have developed a standard structure of ELC, its certification, as well as training system for teaching personnel to develop such e-courses;

– electronic dean's office management system;

– an electronic archive of scientific and educational materials (elibrary.nubip.edu.ua), which includes electronic copies of papers of the university lecturers, proceedings of the conferences held at the University, abstracts of theses defended at NULESU, Masters' scientific papers and theses, books and teaching guidelines to support the learning process, a description of open e-learning courses, patents;

– Wikiportal (agrowiki.nubip.edu.ua), where scholars, educators and students place thematic articles on the problems of research, standards (Codex Alimentarius, ISO, JMA, BS), portfolios;

– Video Portal (video.nubip.edu.ua), which houses educational videos, video lectures and other video resources produced at the University and used in training, educational and cultural activities;

– Library repository on DSpace platform ;

– Web-platform for Internet-conferences at NULES of Ukraine on Openconference basis. Internet-conference address is econference.nubip.edu.ua;

– on-line system UNPLAG to verify students' thesis and course papers, scientific and educational literature written by university teaching staff for plagiarism detection in text.

In the field of information and computer training, the University maintains cooperation with Ukrainian and foreign IT companies — IBM, Microsoft, Intel Cisco, 1C, CyberBionicSystematics etc. There are educational laboratories: "1C competence centre", "Microsoft Imagine Academy", "Cisco Academy". To provide students and faculty access to International full-text publications the university subscribed to Scientometrics EBSCO database.

The university closely cooperates with regional educational institutions using the technologies provided by information and educational environment of NULESU. In particular, the university teachers give video lectures to students at the separated subdivisions: "Mukacheve Agricultural College", "Bobrovytsia College of Economics and Management named after O.Mainova", "Zalishchyky Agricultural College named after Ye. Khraplyvy", "Berezhany Agrotechnical Institute", "Irpin Economic College", "Nizhyn Agrothecnical Institute". In 2015, the international conferences held at NULESU were provided with video reports of some foreign participants from their countries (Poland, Great Britain, the Netherlands etc).

THE LIST OF MEMORANDA OF MUTUAL RECOGNITION OF THE EDUCATIONAL SYSTEM, MEMORANDA OF DOUBLE DIPLOMAS, INTERNATIONAL MOBILITY

National University of Life and Environmental Sciences of Ukraine has been engaged in international activities since 1950.

During this period more than 3000 foreign students from 91 countries have graduated with master degrees in various fields. More than 500 of them continued their education as postgraduates and doctoral students and have obtained scientific degrees of doctors and candidates of sciences.

At present, NULESU maintains contacts and cooperates with 149 organisations from 41 countries in the framework of partnership agreements.

Fruitful cooperation with world leading universities contributed to the reforming of the NULESU education system adapting it to the requirements of world universities. Two U.S. universities (Iowa – 1996, 2011 and Louisiana – 1998, 2009), the University of Ghent (Belgium, 2002) and Humboldt University (Germany, 2002) recognized educational system of NULES of Ukraine as the one that complies with their requirements.

Within the period from 2005 to 2016, NULESU signed Memoranda of double diploma with universities-partners:

- "International bio-business" in Tokyo agricultural University (Japan);
- Master of Business Administration in Agriculture (MBA) at the University of applied sciences Weihenstephan – Triesdorf (Germany);
- Master of Food and Agribusiness (MFA) at the University of applied Sciences Anhalt (Germany);
- Energy and automation of biological systems" at Warsaw University of life Sciences (Poland) ;
- "Ecology", "Social Pedagogy" - Pomeranian university in Slupsk;
- "Economics and management" - Slovakia agrarian university, Nitra;
- "Economics and management" - at Warsaw University of life Sciences (Poland);
- "Quality and safety of products", "Management" and "Computer technologies" - Academy of business (Dombrova Gurnica, Poland).

These universities and NULES of Ukraine maintain agreements on mutual exchange of scientific and pedagogical staff and students.

International mobility in NULES of Ukraine is one of the leading areas of international activity, which offers its students the exceptional opportunities to obtain quality education, do research or internship, and get experience abroad in the framework of international cooperation. Developing the mobility through the implementation of the mechanism of student exchange and participation in the dual diploma programs, individual grants, the University participates in the processes of internationalization and globalization, develops the training of professionals, highly qualified specialists; supports the social, economic, cultural, political relations and ties with other countries.

Today, motivated students of our University can get the experience in conditions of different system of higher education. Cooperation is based on agreements between NULES of Ukraine and foreign higher educational institutions in different countries according to agreed and approved individual educational plans of students and programs of academic disciplines, and in the framework of intergovernmental agreements on cooperation in the field of education.

Every year in NULES of Ukraine:

- about 200 students do training and internship at overseas universities;
- about 1000 students have practical training at the leading agricultural enterprises in different countries;

– over 200 lecturers do internship in foreign institutions train, establish cooperation and represent the university in international events.

Over the last 5 years (from 2010 to 2016) 5292 teachers, scientists, postgraduates and students of NULES of Ukraine took part in various international events (including training, internships, practical training), including:

– participation in the meetings of the Executive Committee of the ICA;
– participation in the activities of the Visegrad University Association;
– participation in MAGATE Agency activities and meetings of experts on nuclear safety in Fukushima-Chernobyl;
– participation in the activities of the Ukrainian-American Commission on investment and trade;
– participation in joint research projects HORIZON-2020, ERASMUS+, GESAPU, MIMIPPA, QANTUS, SOCODEVI, FP-7, etc.;
– participation in international scientific conferences, seminars, symposia, etc.

Thus, international mobility provides students of NULES of Ukraine with a number of advantages, among which are the following:

– the opportunity to test oneself in a different system of higher education;
– acquisition of additional knowledge in related fields;
– use of modern technical equipment in the laboratories and research centers to solve problems;
– improving the level of knowledge of a foreign language;
– acquisition of professional work experience during the internship in a foreign company or during the internship in a research laboratory (center), which as a rule is provided in the curriculum;
– learning about foreign culture, history, customs of the country;
– the diploma of a foreign University and diploma of NULES of Ukraine according to the double degree programs.

TUTORIAL, SPORTS and MILITARY-PATRIOTIC ACTIVITIES

Together with the humanitarian departments, department of culture studies, physical education, student self-government bodies, educational and research center (ERC) of educational and social development organizes and coordinates the educational activities at the University.

The traditional events University festival "Day of knowledge", international student day, contest "The Beauty of Nubip of Ukraine", the international art festival "Golosiivska vesna", "Donor day" take place annually. The TRC has organized new events: military-sports competitions in fire training "Sniper Nubip of Ukraine", IQ tests, Olympiads among students in new sports, such as paintball, pushups, volleyball on the ground and many others.

The TRC of educational and social development together with the department of pedagogy organizes scientific-methodological seminars for mentors of academic groups of the first courses that help to apply pedagogical methods and techniques aimed at students' team-building.

According to the order of Ministry of Ukraine for Family, Youth and Sports, Ministry of Education and Science of Ukraine, Ministry of Defense of Ukraine, Ministry of Culture and Tourism of Ukraine № 3754/981/538/49 from 27.10.2009 "On the Concept of national and patriotic education of youth", the department of military training organised both in-classes and out-of-class military and patriotic education of students and school children during the morning inspection.

The department of military training traditionally organizes meetings of generations (with Veterans of Department) hours of memory, educational classes (during army trainings), discussions on the topics "Remembrance day", "The heroic deeds are immortal", "The heroes fought for our country." In particular, during the Year of honoring of the combatants in other lands, in January 2014 the staff of the department arranged an Hour of Courage. Students and staff together with the NGO of soldiers - Afghans laid flowers at the monument to soldiers - Afghans.

The TRC initiated sports competitions "UNI-sportsman" among the staff and students of NULES of Ukraine in 15 kinds of sports. In 2015 the University teams in tug-of-war, powerlifting, arm wrestling were organized.

A permanent commission on monitoring compliance with the internal Rules in the dormitories of NULES of Ukraine considers violations of the internal rules in the dormitories.

Physical education and sports activities at NULES of Ukraine are carried out by staff of the Department of physical education together with the student organization, the Trade Union Committee of employees of NULES of Ukraine led by TRC of educational and social development, by involving students, scientific and pedagogical staff and University employees to go in for physical culture, mass sport and competitive sport.

The University hold annual competitions "Spartakiada" among the students of the faculties in 12 sports, among the residents of dormitories in 12 sports, "Health" among the scientific and pedagogical staff and employees of structural subdivisions in 6 sports.

The University teams and individual athletes participate in competitions at various levels: district, city, national, international, and regularly become prizewinners. In 2012, in order to promote physical health of young people, the University built an outdoor playground for mini-football with artificial turf. In 2015-2016, the academic building № 9 which houses the Department of physical education, outdoor voleyball court, stadium of the University were renovated up to modern standards.

Dormitory has an equally important impact on the upbringing of students. It is the basis for the formation of personality of qualified professionals, owners of their land, fully developed and harmonious people.

It has become a tradition to hold an annual contest for the best Dorm to identify the best mechanisms of the organization of conditions for living, learning and recreation of students.

From year to year, the quality of living conditions in university dormitories is improving. Living rooms are well-equipped, there are comfortable conditions for independent learning: reading rooms with free access to the Internet, educational and cultural activities are organized. All dormitories have launderettes. To improve the student recreation there are gyms in the dormitories. There are sports rooms in the dormitories and renovated sports grounds at the adjacent territories of dormitories №1, 2, 6, 8, 10, 11. There is a well/equipped playground near the dormitory №12. Student organizations of faculties, ERI, and boards of student dormitories have meetings rooms.

STUDENT SELF-GOVERNING

There is a student organization at National University of Life and Environmental Sciences of Ukraine (SO) which is actively working and developing Student organization (CO). Its activities focus on the organization and consolidation of the students, protection of rights and legitimate interests of students, developing leadership skills, creative abilities by organizing their leisure through the activities of the clubs.
Clubs and cultural centers of SO:

- Club of Experts of NULES;
- Club "City Mafia";
- Science club;
- Media-centre;
- Center of social work;
- Sports club;
- Tourist club «Bars».

SO collaborates with many organizations and agencies. Students are members of Student Council under the auspices of the head of Holosiivskyi district of Kyiv city administration, the Student Council of Kiev, the Joint Council of the Ministry of agrarian policy and food of Ukraine. In 2017 student organization of NUBiP of Ukraine signed an agreement on cooperation with the regional children council of Kiev region. Cooperation with the student councils of other universities makes it possible to find new perspectives, to carry out joint activities and to implement projects.

ADMISSION TO MASTER DEGREE COURSE AT NULES OF UKRAINE

Admission to Master training is conducted according to governmental order as well as contract with physical persons or entities. Applicants for Master Programs must have basic or full higher education in respective direction (specialty), according to requirements, approved by the rules of admission to Master Degree Programs at the NULES of Ukraine.

To apply for educational programs "Master" on the basis of full higher education, applicant should pay tuition fee (except applicants to the specialty "Public management and administration" at the basic institution of NULES of Ukraine). To apply for EQL Master in specialty 211 "Veterinary Medicine" (applicants are required to have EQL "Junior specialist" in specialty 5.11010101 "Veterinary Medicine".

According to the special rules confirmed by the regulation of the Cabinet of Ministers № 789 “On the approval of the procedure of admission to educational professional program of Masters training in specialty "Public Administration" of the branch of knowledge "Public Service" and employment of graduates" from 29.07.2009, admission to the specialty "Public management and administration" is realized at the basic institution of NULES of Ukraine. Persons that have full higher education, work in public authority and self-government bodies, have at least one year work experience in public authority and self-government bodies and are younger than 45 years old at the moment of documents submission can apply for the above program according to governmental order.

An applicant applying for Master Program shall submit the following documents to the Admission Committee: application to Rector of the University; original of diploma about education obtained (EQL) and an annex to diploma (originals and approved copies); 4 colour photos (size 3x4sm); copy of identification number document, copy of passport (1, 2 pages and the place of registration). Passport and other documents giving the right for entrance are shown personally.

The individual's competitive grade is calculated as a sum of grades of the entrance examinations results and the average grade in the appendix to diploma. It is assessed according to the scale from 100 to 200 points taking into account weighty coefficients. Entrance examinations for programs of EQL "Master" are conducted in the form of tests in the complex of fundamental and professionally oriented disciplines of the normative(standard) cycle and foreign language according to the Bachelor program (for applicants in specialties "Public management and administration" – tests in the principles of state and law and the principles of economics and an interview on the issues of public management; for entry on specialty 081 "Law" - in the form of a single professional entrance examination using organizational processes of external independent evaluation that includes the following components: test on law; test on general academic law competence; foreign language test (English, German, French or Spanish)).

Applicants for master's degree on the basis of bachelor's degree in another specialty, take an additional entrance test.

Table 2. Specialties for persons with bachelor's degree applying for the educational degree "Master" with related specialty

Related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Philology	6.020303	035.04	Philology (german languages and literature) (including translation) (English and other foreign language))
			Philology (german languages and literature) (including translation) (German and other foreign language))
Economic theory	6.030501	051	Economy (Economics of enterprise) Economy (Economic cybernetics) Economy (Applied economics)
Economic cybernetics	6.030502		
International economics	6.030503		
Economics of enterprise	6.030504		
Human resources management and labour economics	6.030505		
Applied statistics	6.030506		
Finance and credit	6.030508	071	Accounting and Taxation (Accounting and audit)
Accounting and audit	6.030509		
Finance and credit	6.030508	072	Finance, Banking and Insurance (Finance and credit)
Human resources management and labour economics	6.030505	073	Management (Management of organization and administration) Management (Management of foreign economic activity) Management (Administrative management) Management (Management of investment activity and international projects) Management ((Management of innovative activity) Management (Management of educational institution) Management (Extension service)
Management	6.030601		
Marketing	6.030507	075	Marketing
Economics of enterprise	6.030504	076	Entrepreneurship, trade and exchange

Related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Human resources management and labour economics	6.030505		activities (Stock exchange activities)
Marketing	6.030507		
Merchandising and commercial entrepreneurship	6.030510		
Geodesy and land management	6.080101		
Consumer services	6.140102		
Law science	6.030401	081	Law
Ecology, environmental protection and sustainable development	6.040106	101	Ecology (Ecological control and audit)
			Ecology (Ecology and environmental protection)
Information science	6.040302	122	Computer science (Information managing systems and technologies) Computer science (Computer ecological and economic monitoring)
Computer sciences	6.050101		
Systems engineering	6.050201		
Mechanical engineering	6.050503	133	Industrial mechanical engineering (Machinery and equipment of agricultural production)
			Industrial mechanical engineering (Equipment of forest complex)
Electrical engineering and electrical technologies	6.050701	141	Power engineering, electrical engineering and electrical mechanics (Electrotechnical systems of power consumption) Power engineering, electrical engineering and electrical mechanics (Electrification and automation of agriculture) Power engineering, electrical engineering and electrical mechanics (Energetics of agricultural production)
Electrical mechanics	6.050702		
Energetics and electrotechnical systems in agroindustrial complex	6.100101		
Systems engineering	6.050201	151	Automation and computer integrated technologies (Automation and computer integrated technologies)
Automation and computer integrated technologies	6.050202		
Networks and systems of postal services	6.050904		
Instrument engineering	6.051003		
Metrology and information and measurement technique	6.051001	152	Metrology and information and measurement technique (Quality, standardization and certification)
Metrology, Standardization and Certification	6.051002		
Instrument engineering	6.051003		
Optoelectronics	6.051004		
Biotechnology	6.051401	162	Biotechnology and bioengineering (Environmental biotechnology and bioenergetics)

Related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Food technologies and engineering	6.051701	181	Food technologies (Technologies of storage, preserving and reprocessing of meat)
Technological expertise and safety of food products	6.051702		Food technologies (Technologies of storage and reprocessing of aquatic bioresources)
Construction	6.060101	192	Construction and civil engineering
Hydrotechnics (water resources)	6.060103		
Geodesy, cartography and land management	6.080101	193	Geodesy and land management
Agronomy	6.090101	201	Agronomy (Agronomy)
			Agronomy (Agrochemistry and soil science)
			Agronomy (Selection and genetics of agricultural crops)
Agronomy	6.090101	203	Horticulture and viticulture
Plant protection	6.090105	202	Plant protection and plant quarantine (Plant protection)
			Plant protection and plant quarantine (Quarantine of plants)
Technology of production and processing of livestock products	6.090102	204	Technology of production and processing of livestock products
Wood processing technologies	6.051801	187	Woodworking and furniture technologies
Forestry, park and gardening management	6.090103	205	Forestry (Forestry)
			Forestry (Hunting industry)
Lumbering	6.090104	205	Forestry (Forestry)
Forestry, park and gardening management	6.090103	206	Park and gardening management
Water bioresources and aquaculture	6.090201	207	Water bioresources and aquaculture (Water bioresources and aquaculture)
Processes, machinery and equipment of agroindustrial production	6.100102	208	Agricultural engineering
Veterinary medicine	6.110101	211	Veterinary medicine
Social pedagogy	6.010106	231	Social work
Social work	6.130102		
Transport technologies (types of transport)	6.070101	275.03	Transport technologies in road transport

Table 3. Specialties for persons with bachelor's degree applying for the educational degree "Master" in the other (non-related) specialty

Non-related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Other specialties (majors)		011	Education and Educational Science (Pedagogy of higher school)
Social Care	6.130101	035.04	Philology (german languages and literature) (including translation) (English and other foreign language)) Philology (german languages and literature) (including translation) (German and other foreign language))
Preschool education	6.010101		
Primary education	6.010102		
Technological education	6.010103		
Professional education (by major)	6.010104		
Remedial education (by nosologies)	6.010105		
Social Pedagogy	6.010106		
Physical education	6.010201		
Sport	6.010202		
Human health	6.010203		
Culture studies	6.020101		
Book science, library science and bibliography	6.020102		
Museology and protection of historical and cultural monuments	6.020103		
Folk arts	6.020104		
Documentation and Information	6.020105		
Management of socio-cultural activities	6.020106		
Theater arts	6.020201		
Choreography	6.020202		
Film and TV art	6.020203		
Musical art	6.020204		
Arts	6.020205		
Restoration of works of art	6.020206		
Design	6.020207		
Arts and crafts	6.020208		
Variety and circus art	6.020209		
Art of photography	6.020210		
Philosophy	6.020301		
History	6.020302		
Theology (Theology indicating denomination)	6.020304		
Sociology	6.030101		
Psychology	6.030102		
Practical Psychology	6.030103		
Politology	6.030104		
International relations	6.030201		
International law	6.030202		
International economic relations	6.030203		
International information	6.030204		
Country studies	6.030205		
International business	6.030206		
Journalism	6.030301		

Non-related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Advertising and public relations (by types of activity)	6.030302		
Publishing and Editing	6.030303		
Law science	6.030401		
Law enforcement activity	6.030402		
Consumer services	6.140102		
Tourism	6.140103		
Electrical engineering and electrical technologies	6.050701		
Agronomy	6.090101		
Technology of production and processing of livestock products	6.090102		
Forestry, park and gardening management	6.090103		
Plant protection	6.090105		
Water bioresources and aquaculture	6.090201		
Processes, machinery and equipment of agroindustrial production	6.100102		
Veterinary medicine	6.110101		
Management	6.030601		
Marketing	6.030507		
Economics of enterprise	6.030504		
Finance and credit	6.030508		
Accounting and audit	6.030509		
Marketing	6.030507	051	Economy (Economics of enterprise) Economy (Economic cybernetics)
Finance and credit	6.030508		
Accounting and audit	6.030509		
Merchandising and commercial entrepreneurship	6.030510		
Management	6.030601		
Other specialties (majors)		051	Economy (Applied economics)
Economic theory	6.030501	071	Accounting and taxation (Accounting and audit)
Economic cybernetics	6.030502		
International economics	6.030503		
Economics of enterprise	6.030504		
Human resources management and labour economics	6.030505		
Applied statistics	6.030506		
Marketing	6.030507		
Merchandising and commercial entrepreneurship	6.030510		
Economic theory	6.030501	072	Finance, banking and insurance (Finance and credit)
Economic cybernetics	6.030502		
International economics	6.030503		
Economics of enterprise	6.030504		
Human resources management and labour economics	6.030505		
Applied statistics	6.030506		
Marketing	6.030507		
Accounting and audit	6.030509		

Non-related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Merchandising and commercial entrepreneurship	6.030510		
Management	6.030601		
Other specialties (majors)		073	Management (Management of organization and administration) Management (Management of foreign economic activity) Management (Administrative management) Management (Management of investment activity and international projects) Management (Management of innovative activity) Management (Management of educational institution) Management (Extension service)
Economic theory	6.030501	075	Marketing
Economic cybernetics	6.030502		
International economics	6.030503		
Economics of enterprise	6.030504		
Human resources management and labour economics	6.030505		
Applied statistics	6.030506		
Finance and credit	6.030508		
Accounting and audit	6.030509		
Merchandising and commercial entrepreneurship	6.030510		
Other specialties (majors)		076	Entrepreneurship, trade and exchange activities (Stock exchange activities)
Political science	6.030104	081	Law
International law	6.030202		
Law enforcement activity	6.030402		
Philology	6.020303		
Social work	6.130102		
Geodesy, cartography and land management	6.080101		
Accounting and audit	6.030508		
Management	6.030601		
Chemistry	6.040101	101	Ecology
Biology	6.040102		
Geography	6.040104		
Biotechnology	6.051401		
Food technologies and engineering	6.051701		
Agronomy	6.090101		
Forestry, park and gardening management	6.090103		
Plant protection	6.090105		
Water bioresources and aquaculture	6.090201		
Information and communication	6.170101	122	Computer science (Information

Non-related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
systems safety Systems analysis	6.040303		managing systems and technologies)
Computer engineering	6.050102		
Program engineering	6.050103		
Automation and computer integrated technologies	6.050202		
Micro- and nano-systems technology	6.050801		
Telecommunications	6.050903		
Ecology, environmental protection and sustainable development	6.040106	122	Computer science (Computer ecological and economic monitoring)
Information and communication systems safety	6.170101		
Systems analysis	6.040303		
Computer engineering	6.050102		
Program engineering	6.050103		
Automation and computer integrated technologies	6.050202		
Micro- and nano-systems technology	6.050801		
Telecommunications	6.050903		
Engineering materials science	6.050403	133	Industrial mechanical engineering (Machinery and equipment of agricultural production), (Equipment of forest complex)
Applied mechanics	6.050501		
Engineering mechanics	6.050502		
Processes, machinery and equipment of agroindustrial production	6.100102		
Transport technologies	6.070101		
Construction	6.060101		
Electronic devices and systems	6.050802	141	Power engineering, electrical engineering and electrical mechanics (Electrotechnical systems of power consumption), (Electrification and automation of agriculture), (Energetics of agricultural production)
Radio engineering	6.050901		
Radioelectronic machines	6.050902		
Telecommunications	6.050903		
Metrology and information-measuring technologies	6.051001		
Processes, machinery and equipment of agroindustrial production	6.100102		
Information science	6.040302	151	Automation and computer integrated technologies (Automation and computer integrated technologies)
Systems analysis	6.040303		
Computer sciences	6.050101		
Computer engineering	6.050102		
Program engineering	6.050103		
Electronic devices and systems	6.050802		
Radio engineering	6.050901		
Radioelectronic machines	6.050902		
Telecommunications	6.050903		
Metrology and information-measuring technologies	6.051001		
Other specialties (majors)		152	Metrology and information and measurement technique (Quality, standardization and certification)
Ecology, environmental protection and sustainable development	6.040106	162	Biotechnology and bioengineering

Non-related Specialties (majors) of educational degree "Bachelor"		Specialties (educational programs) of educational degree "Master"	
title	**code**	**code**	**title**
Chemistry	6.040101		
Food technologies and engineering	6.051701		
Chemical technology	6.051301		
Chemical Engineering	6.051302		
Mechanical engineering	6.050503	192	Construction and civil engineering
Architecture	6.060102		
Transport technologies	6.070101		
Geodesy, cartography and Land management	6.080101		
Geology	6.040103	193	Geodesy and land management
Geography	6.040104		
Construction	6.060101		
Plant protection	6.090105	201	Agronomy
Forestry, park and gardening management	6.090103		
Agronomy	6.090101	202	Plant protection and plant quarantine
Ecology, environmental protection and sustainable development	6.040106		
Forestry, park and gardening management	6.090103		
Plant protection	6.090105	203	Horticulture and viticulture
Forestry, park and gardening management	6.090103		
Processes, machinery and equipment of agroindustrial production	6.100102	187	Woodworking and furniture technologies
Ecology, environmental protection and sustainable development	6.040106	205	Forestry (Forestry)
Agronomy	6.090101		
Plant protection	6.090105		
Technology of production and processing of livestock products	6.090102	205	Forestry (Hunting industry)
Veterinary medicine	6.110101		
Ecology, environmental protection and sustainable development	6.040106	206	Park and gardening management
Construction	6.060101		
Architecture	6.060102		
Agronomy	6.090101		
Plant protection	6.090105		
Energetics and electrotechnical systems in agroindustrial complex	6.100101	208	Agricultural engineering
Mechanical engineering	6.050503		
Transport technologies	6.070101		
Other specialties (majors)		231	Social work
Mechanical engineering	6.050503	275.03	Transport technologies in road transport
Motor transport	6.070106		
Processes, machinery and equipment of agroindustrial production	6.100102		

AGROBIOLOGY FACULTY

Dean – Viktor Zabaluyev, Doctor of Agricultural Sciences, Professor
tel.: (044) 527-82-13
E-mail: viaza@ukr.net
Location: Building № 4, room 41[a]

Faculty organizes and coordinates educational process of master training in educations programs within specialties:

Specialty 201 "Agronomy"

Educational program "Agronomy"
Graduating departments:
Plant Growing
Tel.: (044) 527-86-26
E-mail: dep.plant@gmail.com
Head of department – Doctor of Agricultural Sciences, Professor, S. M. Kalenska

Agriculture and Herbology
Tel.: (044) 527-82-14
E-mail: zemlerob1@ukr.net
Head of department – Doctor of Agricultural Sciences, Professor, S. P. Tanchyk

Technologies of Storage, Processing and Standardization of Plant Production named after Professor B. V. Lesyk
Tel.: (044) 527-86-66
E-mail: 1968storage@gmail.com
Head of department – Candidate of Agricultural Sciences, Professor G. I. Podpriatov

Forage production, Melioration and meteorology
Tel.: (044) 527-85-15
E-mail: kafedra-kormovirobnitstvo@ukr.net
Head of department – Doctor of Agricultural Sciences, Professor G. I. Demydas.

Educational program "Agrochemistry and Soil Science"
Graduating departments:
Agricultural Chemistry and Agricultural Production Quality named after O. I. Dushechkin
Tel.: (044) 527-88-17
E-mail: quality_chair@mail.ru
Head of department – Doctor of Agricultural Sciences, Professor A. V. Bykin

Soil Science and Soil Protection named after Professor V. I. Shykula
Tel.: (044) 527-81-02
E-mail: grunt_nubip@ukr.net
Head of department – Doctor of Agricultural Sciences, Professor A. D. Balaev.

Educational program "Selection and genetics of agricultural crops"
Graduating department:
Genetics, breeding and seed them. prof. M.O.Zelenskoho
Tel.: (044) 527-86-26
E-mail: breedingdepartment@gmail.com
Head of department – Candidate of Agricultural Sciences, Associate professor V.L.Zhemoyda

Specialty 203 "Horticulture and Viticulture"

Educational program "Horticulture and Viticulture"
Graduating departments:
Soil under Cover
Tel.: (044) 527-80-67
E-mail: greenhouse32@ukr.net
Head of department – Doctor of Ecological Sciences, Professor O. V. Prylipko

Gardening named after Professor V. L. Symyrenko
Tel.: (044) 527-85-59
E-mail: hortdep@gmail.com
Head of department – Doctor of Agricultural Sciences, Professor T.Y.Kondratenko

Vegetable Growing
Tel.: (044) 527-81-69
E-mail: ovochi.z@i.ua
Head of department – Candidate of Agricultural Sciences, Associate professor I.O. Fedosiy

Training of masters of sciences in educational program "AGRONOMY" in specialty 201 "AGRONOMY" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	98
– Part-time	60
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Agronomist-researcher

The concept of training

The base of masters educational programs forming in specialty is according exist and perspective of branch and plants growing, supplying variation in system masers educational program for fast adaptation to actually national and international labor needs, integration educational, scientific-researches and innovation activities as example as leadings worlds universities.

Masters' educational program in specialty focus on effective personnel students' educational, which can use adaptive technology agriculture plants growing and supply it's economical, agrarian, energetic and ecology effectiveness. After graduation from university, master can create and realize some actions for improving effectiveness of biological sorts' potential using; forming of harvests productivity and quality depends from soil and climate conditions and elements of plants growing technologies, decision modern industrial and scientific targets in growing technologies. Decision of modern industrial and scientific problems linked with growing technologies, harvest processing and storage plants production.

Master's program "The modern farming systems"

The objects of study and research during the educational process should be agro landscapes, agrophytocenoses, soil, material and technical means of implementation of agricultural technologies. The subjects of study are the methods of land use, the structure of agroecosystems, farming systems, soil regimes, individual components of the farming systems (crop rotation, soil tillage, fertilizers, protection of soil from erosion), plant growth and development, technology of cultivation of cultural plants, quality of crop production; economic, energy and environmental efficiency of cultivation, processing and storage of plant products. Learning technologies of field forage crops in the current market conditions.

Areas of employment of graduates

Agricultural enterprises of different ownership, regional and district administration, advanced farms, companies, holdings and corporations, scientific-research establishments of NAAS of Ukraine.

Master's program "Adaptive crop"

Production of cereal crops provides studying of field crops forms diversity, peculiarities in its biology and physiology, extension of cereal crops species set that are suitable for cultivation in certain soil-climatic zones, technologies of field crops cultivation,

standards on obtained products quality, regularities of yield quality and quantity formation, development and improvement of technological elements to obtain high, sustain, economically valuable and environmentally friendly yields with high quality in zonal and varietal aspects, economy, marketing and management of crop production.

Implementation of these tasks is possible with the introduction of adaptive systems of agriculture, which contributes to masters knowledge and skills of the scientific bases of farming systems adapted to the relevant environmental conditions. The main constituents of adaptive farming systems is the scientific basis of rational crop rotation, tillage systems, resource saving and erosion control measures. Disclosure adaptive cost-effective, environmentally safe technologies of unconventional forage crops.

Areas of employment of graduates

Agricultural enterprises of different ownership, regional and district administration, advanced farms, companies, holdings and corporations, scientific-research establishments of NAAS of Ukraine.

Master's program "Production and logistics plant products"

Master Program in forming future professionals need ensuring maximum agricultural crops factors for growth and development for the harvest of a certain quality. This provides by disciplines of master program that give knowledge influence of growing of each factor on the quality of grain, potato, vegetables; influence terms of harversting and other logistics processes (handling, storage, primary processing) in the commodity, food and biological value of each type of crop products - intended for use in both fresh and processed form. The program provides theoretical basis to equip students with the basic components of agriculture, namely crop rotation systems, mechanical cultivation, fertilization systems, integrated crop protection from pests (weeds, pests and diseases) systems, erosion control measures and agri-environmental measures on contamination of soil, environment and agricultural products. Cultivation of forage crops for seed adaptive cost-effective, environmentally friendly technologies.

Areas of employment of graduates

Agricultural enterprises of different ownership, regional and district administration, advanced farms, companies, holdings and corporations, scientific-research establishments of NAAS of Ukraine.

Master's program "Energy-saving technologies in crop and forage production"

The program provides theoretical basis to equip students with the basic components of agriculture, namely crop rotation systems, mechanical cultivation, fertilization systems, integrated crop protection from pests (weeds, pests and diseases) systems, erosion control measures and agri-environmental measures on contamination of soil, environment and agricultural products. The problems of modern energy saving technologies to create high-performance mixtures of natural forage lands and the formation of high yields, fodder crops on arable land with the least cost. Identifies competitive model capable of growing technology. Mastering saving technologies give students the opportunity to get environmentally safe products from plant material. Along with improving the quality of products reduced energy consumption in its production. Solve environmental problems and emissions to the environment.

Areas of employment of graduates

Agricultural enterprises of different ownership, regional and district administration, advanced farms, companies, holdings and corporations, scientific-research establishments of NAAS of Ukraine.

Practical training

Students have the main course a practical educational in scientific-researches farms of NULES of Ukraine: SD of NULES of Ukraine “Agronomy research station”, “Velikosnitinske scientific-research farm named aster O. Musichenka” and leading agricultures firms different forms, educational-scientific laboratories of NULES departments and some scientific-research organization of NAAS and NAS of Ukraine.

Proposed Topics for Master Theses

1. Features of formation of species composition and patterns of germination of weeds in crops agrocenoses.
2. Change in soil fertility and efficiency of growing crops under different farming systems.
3. Analysis and improvement items intensive farming systems at the farm.
4. Optimization measures to protect crops from weeds.
5. Features of agricultural cultivation crops for farms of different ownership forms and soil and climatic conditions.
6. The adaptive potential of the agricultural crops in the northern steppes of Ukraine.
7. Technological and biochemical properties of grain different purpose depending on the ways, regimes of post harvest handling and storage.
8. Chemical and technological evaluation suitability raw materials of fruit and vegetables (technical crops) for storage and processing.
9. Biochemical and commercial value of fresh and canned fruits and vegetables, depending on the factors of post harvest handling, storage and processing.
10. Evaluation of performance pislyaukisnoho growing forage crops depending on their species composition in certain languages economy.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Agronomy" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Applied ecology and biology of plants	1	90	3
2	Soil management regimes for innovative technologies	1	120	4
3	Agrochemical service in plant growing	1	90	3
4	Adaptive systems of agriculture	1	120	4
5	Modern agricultural technologies create highly ekolohizovani grasslands and their rational use	1	90	3
6	Post-harvest handling and storage of plant products	1	90	3
7	Varietal certification	1	90	3
8	Qualitative assessment of soil and land	2	90	3
9	Innovative technologies in Plant Growing	2	120	4
10	Diagnostic of the crop nutrition	2	90	3
11	Biological risk factors in agriculture and their control	2	90	3
12	Processing of plant production	2	90	3
13	Energy-saving technology of growing and harvesting high-protein high-grade feed	2	90	3
14	Varietal resources and its formation	2	90	3
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "The modern farming systems"				
1	The modern farming systems	3	120	4
2	Integrated pest control in modern farming systems	3	120	4
3	Features of growing crops technologies in the current farming systems	3	120	4
4	Quality and logistics crop production in modern farming systems	3	120	4
5	Intensive cultivation technology of forage crops for seed	3	120	4
Total (Disciplines offered by students)			**600**	**20**
2.2.2. Master's program "Adaptive crop"				
1	Adaptive technologies in Plant Growing	3	120	4
2	Seed knowledge of field crops	3	120	4
3	Energetic plant resources	3	90	3
4	Certification and commodity of crop-growing products	3	90	3
5	Crop rotations and tillage in modern farming	3	90	3
6	Modern technologies of unconventional forage crops	3	90	3
Total (Disciplines offered by students)			**600**	**20**
2.2.3. Master's program "Production and logistics plant products"				
1	The modern farming systems	3	120	4
2	Technology seeds and planting material of crops production	3	120	4
3	Technology and chemical control of crop production	3	120	4
4	Material and technical base of crop production logistics	3	120	4
5	Innovative technologies in fodder production	3	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total (Disciplines offered by students)			**600**	**20**
2.2.4. Master's program "Energy-saving technologies in crop and forage production"				
1	Crop rotation and tillage in modern farming	3	120	4
2	Prognosing and programming of yields field crops	3	120	4
3	Intensive cultivation technology of forage crops for seed	3	120	4
4	Natural grasslands in increasing the production of complete feed	3	120	4
5	Energy-saving technologies in the branch of storage and processing	3	120	4
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1-2	300	10
2	Preparation and defense of master's work	1-3	120	4
Total			**420**	**14**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Applied ecology and biology of plants. The purpose of discipline "Applied ecology and biology of plants" - to form in students of Masters program system of knowledge in ecology and biology of major crops, because ecology became the basis of social development, and a knowledge of biology gives possibility to take account of all the demands of culture in the technological process. Sphere of ecology development includes natural resources, including resources of biosphere origin on which based branch of Plant Growing. In addition, students are introduced with account of biometric indicators and assessment of seeds. In conducting laboratory studies focused on deepening theoretical knowledge from ecology and biology of crops with extensive use of educational and additional scientific literature. Securing of knowledge is provided by problem solving of curriculum. In basis of laboratory exercises are solution of individual tasks under the supervision of a teacher. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Ecology of crops; 2. Biology of crops. 3. Biometrics.

Soil management regimes for innovative technologies. The main place in the rational and efficient use of natural resources is land use, conservation and Soil Fertility Improvement. Studies understanding of the processes taking place in soils is an important condition for the realization of these objectives. Especially important is the ability to manage processes and soil regimes and on this basis to improve soil fertility.

Agrochemical service in plant growing. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into the methods and means of the agrochemical supplying and agrochemical service of the plant growing, the planning and the organization of the agrochemical service, etc. The studding of the course masters receive practical skills in control and realization and application of the chemicals application in agricultural industry, the management and marketing in agrochemical service, organization of the collaboration between commodity producer and organizations in agrochemical service of the different form of the private and determination of the effect of the agrochemical service of the agricultural organization.

Adaptive systems of agriculture. The purpose of the course is the formation of students knowledge and skills with scientific foundations of systems of agriculture that are environmentally safe and economically feasible measures of farming cultivation and protection of crops, the rational design of crop rotations, tillage systems and erosion control measures, peculiarities of conducting adaptive, industrial, conservation, environmental, biological (organic) systems of agriculture and farming in contaminated areas.

Modern agricultural technologies create highly ekolohizovani grasslands and their rational use. Program subject disclosure provides for potential fodder plants and development of elements of intensive, appropriate in terms of energy and resource saving technologies of cultivation of fodder plants and produce quality feed them.

Post harvest handling and storage of plant products. Discipline teaches features (physical and physiological) of the main groups of products which were grown in crops production, vegetables and horticulture. It teaches basic principles of stabilization (preservation) of any products. Future specialist learns selection regime of short or long-term storage depend on the knowledge obtained features harvest certain crops and basic principles of stabilization. Discipline teaches techniques which bring the harvest of major crops to a stable state. Discipline teaches the way of administration in a certain regime of storage and creating conditions compliance regime under which the storage losses as the quality and quantity will be minimal.

Varietal Certification. Provides disclosure schemes varietal seed certification requirements of the International Organization for Economic Cooperation and Development (OECD), which provide a set of procedures, methods and techniques to ensure high-quality and sowing qualities of seeds of all categories in the process of reproduction, the authenticity of varieties and varietal purity . Application of identification of plant varieties provides authentication of the variety, degree of homogeneity. Knowledge of discipline consolidate practical skills application of methods of identification of plant varieties (morphological description, electrophoresis, DNA - markers, PCR - analysis, etc.) in the varietal certification (field inspection and POSTcontrol) and further morphological, biochemical, genetic certification classes, which is the basis of international commercial seed treatment as import-export. The knowledge acquired in their practice breeder may apply, expert, researcher and manufacturer of seeds.

Qualitative assessment of soil and land. The modern environmental condition of land resources in the Ukraine and priorities for their reproduction. An evaluation of quality of soils and their fertilization strategy with regard to scientific approaches. Served monitoring soil quality and new uses of monitoring results of soil. We give quality methods of land evaluation, quality of soil. The discipline introduces the national standardization system in Ukraine soils. The purpose of discipline is the development of the basic principles of soil and land certification based on their specialized use.

Innovative technologies in Plant Growing. The purpose of discipline is forming specific experts which understand that every modern intensive agricultural technology is integral, clearly defined and scientifically-based system with a set of essential, interrelated elements that perform a specific function, and all together - function of the system, essence of which is to develop the planned volume and quality of crop production**.** Special attention is paid to the formation a system of knowledge about patterns of formation effective agrocenosis of crops, their structure and relationships, compensatory ability of plants; photosynthetic activity of plants and plant communities; ways to increase productivity - features of assimilation system development, absorption and using FAR, vegetative mass formation and accumulation of dry matter, other phytometric, physiological and biological indicators of productive process of plants); understanding of bioenergetic processes that occur in plants and agrocenoses.

Particular attention is paid to the presentation of essence, content and features of innovative technologies agricultural enterprises, considered issues of their systematization and classification, analyzes the current state of their implementation in the Ukrainian agricultural sector. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Agrocenology. 2. Technological innovation is a basis of develop ment and competitiveness of Plant

Diagnostic of the crop nutrition. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into making of the technological examination of the fields, complex agrochemical diagnostic, diagnostic of the crop nutrition in modern systems of the farming, elaboration of the professional documents.

Biological risk factors in agriculture and their control. The course is aimed at highlighting the theoretical concepts of biological risk factors in crop agrobiocenosis and modern approaches to crop protection. It has been made to shape the students a systematic understanding of the place, role and importance of biological risk factors and practical approaches to controlling them in agrobiocenosis in modern farming systems. Describes the relationship between system components agrobiocenosis, laws and rules of their formation and development level and their impact on the yield of crops. The modern approach and level of effectiveness of controls in different farming systems. Topics of laboratory and practical course provides practical skills of students' knowledge of the use patterns of growth and development of biological risk factors and of their impact on crop productivity in developing economically and environmentally acceptable integrated systems protect agricultural crops in different production technologies and farming systems.

Processing of plant production. The course teaches methods of processing the basic raw material for human food – grain to the flour, cereals and others. Mill farm is the main means for getting of flour, which supplies raw materials bakeries that located in rural areas. The course teaches the technology of grain preparation and production of different grades flour. The course teaches technologies preparation of grain to groats purpose - peas, barley, millet, buckwheat on the rural lines that providing high yields and quality. The course teaches methods of obtaining starch from potato tubers, technologies for production of canned products from vegetables. It gives knowledge about efficient technologies preserving of perishable vegetables (tomatoes, cucumbers, peppers) and fruit products than ensuring the efficiency of their production (growing).

Energy-saving technology of growing and harvesting high-protein high-grade feed. Identifies ways of intensifying forage production with the introduction of alternative energy and resource saving technologies of fodder plants and production of high-quality, secure cheap feed them without harming the environment.

Varietal resources and its formation. The tasks and role of varietal resources in the sustainable development of crop and national food security. Their creation and preservation. The international law and international centers of genetic plant resources. The system varietal genetic resources in Ukraine. Adapting domestic seed production to international scheme and procedures. The relationship between originators, producers and consumers varietal resources. The review of the bank's varietal resources, the use of classifiers and directories available varietal range. Methods for identifying plant varieties. Registers plant varieties and producers of seed and planting material.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The course is aimed at obtaining the necessary in-depth knowledge of scientific studies on agronomy, method of application methods agronomic research and perform observations of phenomena, principles of planning research in different parts of the field of agriculture - in crop production, vegetable growing, gardening. It is also important features of mastering technique and organization of research in terms of soil erosion, reclamation of agriculture. Of particular importance this subject matter in the case of acquisition of skills skilled use statistical methods interpreting experimental data using modern computer programs and knowledge and understanding of the regulatory framework for copyright protection of intellectual property.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country. Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "The modern farming systems"

The modern farming systems. The course is aimed at a comprehensive and deep study of all parts of modern farming systems (system of crop rotation, tillage, fertilization, control of weeds, pests and diseases, combating water and wind erosion, land reclamation activities, etc.), which are closely interrelated, consider and implement soil and climatic conditions, level of economic development of economy, its material and technical base, and other conditions. Ukraine has developed a modern system of agriculture for each region and even to specific households based on their specificity based on the principles of resource conservation and ensuring environmentally friendly and safe products. The theoretical basis of modern systems of agriculture are the agriculture laws, the doctrine of the soil fertility and rational use of land.

Integrated pest control in modern farming systems. Lectures on discipline aimed at highlighting the theoretical foundations and methodologies of monitoring of the presence of harmful organisms in agrophytocenoses and of their prediction in a production environment. Topics of laboratory and practical course provides students acquiring practical skills of these types of works on production crops, as well as analysis and evaluation of the results of monitoring and forecast the spread of harmful organisms in different farming systems.

Features of growing crops technologies in the current farming systems. In basis of modern farming systems is developing new and optimize existing elements of zonal technologies for growing crops, based on the maximum implementation of the biological potential of modern varieties and hybrids and bioclimatic potential of production area, adapted to the specific growing conditions and improvement of traditional resource-conserving, intensive technologies on base of using chemicals and biologization. The theoretical basis for modern farming systems is to deepen basis of formation high-performance communities of crops due crop management of productivity process through innovative farming practices that will reduce the gap between potential and real productivity of plants. Innovation is based on the principles of ecologization technologies of growing crops, their differentiation according to the specific soil and climatic conditions in the adaptive systems of agriculture, adapting technologies to different level of intensification agricultural production, to production and resource potential of producer. In these technologies achieved maximum realization of genetic potential of varieties and hybrids considering soil and climatic conditions.

Quality and logistics crop production in modern farming systems. The course teaches methods of monitoring and evaluation of quality of plant products, innovative research schemes of logistics handling, providing high quality processes (cleaning, drying) - minimum injuries, high vitality of food grain and seed destination. It teaches scientifically logistic schemes of handling the harvest of potatoes, vegetables, pomes fruits, which provide them high commodity value at realization. The course teaches scientifically technologies of handling, storing all kinds of industrial raw materials, which will provide a maximum output of finished products - sugar, starch, oil and others. The course teaches research ways and regimes of storage and processing, which taking into account the growing conditions, harvesting, post harvest handling and transportation of grain mass, consignment of juicy products and other plant material.

Intensive cultivation technology of forage crops for seed. The program provides for the disclosure of discipline adaptive cost-effective, environmentally sound technologies for growing forage crops seeds.

2.2.2. Master's program "Adaptive crop"

Adaptive technologies in Plant Growing. The discipline "Adaptive technology in Plant Growing" involves formation of complex knowledge about specific reactions of species, varieties and hybrids of plants on action biotic, abiotic and anthropogenic environmental factors and development of adaptive cultivation technology to obtain stable yields of quality products based on compliance needs of plants, energy saving and environmental security. Aimed at solving theoretical and practical problems of increasing productivity cultivated species, quality and environmental cleanliness of products, a comprehensive study of forming stable agrocenosis field crops through the possession of knowledge theoretical principles resistance to environmental factors. Course discipline includes the following sections: *Bases of adaptive use* natural, biological and man-made resources. Global plants resources and their role in improving adaptability of species. Biodiversity. Biodiversification. Introduction and mechanisms of plant adaptation to environmental factors. *Ecological and genetic basis of adaptive Plant Growing.* Environmental and biological characteristics of plant growth and development. Ontogenesis and morphogenesis. Monitoring of implementation the biological potential. Botanical characteristics (type, family, genus): structure of plant, growth and development, and makrostages mikrostages. Requirements for the soil, climate and weather conditions. Integrated requirements. *Mechanisms of yield formation and yield quality.* Stability and flexibility of varieties. Winter hardiness, drought resistance, salt resistance of plants and

ways to optimize them. The link between adaptation and resistance of plants. *Managing of field crops yield formation. Technological and adaptive systems of intensification crop production.* Balanced system of crop production on different levels of anthropogenic impact. Ecological, food and energy security. Implementation of genetic potential plants with using growing technologies a different level of anthropogenic impact. *Design of adaptive agrocenosis.* Model of plant and agrocenosis in according to planned productivity. Choose of variety - adaptation and stability. Suitability for region of growing, potential yield, product quality, resistance to pests, resistance to stress factors, resistance to sprouting. Stability and flexibility of varieties. Winter hardiness, drought resistance, salt resistance of plants and how to optimize them. The link between adaptation and resistance of plants. Requirements to nutrients. System of mineral and organic fertilizers application. Anti-stress drugs. Classification of growth regulators. Using of growth regulators in cereals crops, the systematic action of drugs. Diseases, pests, weeds and principles of crops protection. Losses from clogging. Aftereffects of pesticides.

Seed knowledge of field crops. The course is aimed at mastering by future professionals theoretical and practical skills for improving sowing qualities and yielding properties of seeds of field crops by optimizing of elements modern cultivation technologies, including using of plant growth regulators, micronutrients and biologics in combination with effective measures of chemical protection of plants and seeds. Study ways of accelerated breeding and seed improvement through chemical, biological and physical factors. Great attention is paid to the causes of injury seeds of field crops, different quality of seeds and its importance in seed producing practice; thermal stability during thermal disinfection of seeds; methods of pre-seed preparing. Study vitality and longevity of seeds during storage, depending from methods of harvesting, processing and postharvest conditions of storage also. Considers problems of integration national seed certification system to international standards; Supervision and monitoring a compliance entities of legislative requirements to manufacture, use, storage, sale and breeding of seeds and planting material of plant varieties during their commercial reproduction and circulation. Students are introduced with worldwide schemes of varietal seed certification, intended for international trade under "OECD seed schemes", which is now integrated in Ukraine, contemporary national and international legislative and regulatory framework of seeds and planting material. We study the basis of formation and operation of the seed market in the world and in Ukraine, current status, trends and directions of development, especially domestic and foreign pricing for seed crops. Much attention is paid to mastering by techniques of analysis seeds sowing qualities and planting material in accordance with applicable standards UNSS, SUC, ISO and new harmonized with the international requirements (ISTA, CEN, OECD, ISO) regulations.

Energetic plant resources. The course aims at developing by future professionals technological training in promising areas of production and processing of valuable plant material in Ukraine. The discipline program provides familiarization with the genofond (generic, species, varieties diversity) yield potential, productivity of energy and raw crops, biological, ecological, biochemical features of plants, main exit and sideline products, important substances and energy per unit area. Students learn the peculiarities of growing technology, harvesting, storage and processing the most promising areas of complex using plants. It is based on knowledge of resource potential of plants, especially their growth, development, following of production processes. Plants relating to environmental factors, modern technology of growing high yields of the best quality at the least financial, economic and energy costs. Much attention is paid to bioecologization of growing technologies, which involves reducing the pesticide load on agrophytocenoses, increasing of soil fertility by using potential of cultivated crops and green manures.

Certification and commodity of crop-growing products. The course includes the study of the following issues: introduction to world development certification, basic terms and definitions in the field of certification types and system certification, the main provisions of the state certification system, the procedure of certification of products, certification of crop production. The subject teaches the order of conclusion and performance of contracts for grain, vegetables, potato, technical materials, requirements of commodity levels of main grains for different purpose. Teaches techniques by which determine the identity of commodity products to a particular class of grain, class of vegetables and fruit. Consider techniques to determine standardization of sugar beet, raw flax numbering. Teaches the rules of settlement realized grain, raw oilseed, potato tubers of different purpose, vegetables, pome fruit, stone fruit and berries. Teaches basic regulations concerning implementation of commodity grain, vegetable and industrial raw materials.

Crop rotations and tillage in modern farming. Lectures on discipline covers the theoretical foundations of rotation; crop rotations in different natural and economic conditions and their practical application in Ukraine; intermediate crops in crop rotation and justify their possible use; implementation and development of crop rotation; application features short rotational crop rotations and practical recommendations transformation capabilities in multiple-rotation short rotation; practical application of crop rotation on crop rotation just in time. Highlights scientific basis of resource saving technologies of mechanical tillage and their practical application in different soil and climatic zones of Ukraine; the theoretical foundations of cultivation; basic theoretical principles of scientific and practical value farming systems: their historical development; solutions to expanded reproduction of soil fertility; sustainable land use, protection against erosion and obtaining high stable yields of crops in different soil and climatic zones of Ukraine.

Modern technologies of unconventional forage crops. The program provides for the disclosure of discipline adaptive cost-effective, environmentally friendly technologies of unconventional forage crops.

2.2.3. Master's program "Production and logistics plant products"

The modern farming systems. The course is aimed at a comprehensive and deep study of all parts of modern farming systems (system of crop rotation, tillage, fertilization, control of weeds, pests and diseases, combating water and wind erosion, land reclamation activities, etc.), which are closely interrelated, consider and implement soil and climatic conditions, level of economic development of economy, its material and technical base, and other conditions. Ukraine has developed a modern system of agriculture for each region and even to specific households based on their specificity based on the principles of resource conservation and ensuring environmentally friendly and safe products. The theoretical basis of modern systems of agriculture are the agriculture laws, the doctrine of the soil fertility and rational use of land.

Technology seeds and planting material of crops production. The course covers theoretical and practical issues of modern growing technologies, harvesting, handling and storage of high-quality seeds and planting material of crops. Seed production of crops in sufficient quantity and with high yielding properties is only possible under optimal growing conditions. In this regard, the best precursors for this culture should be given under the seed crops; all work from soil preparation and planting to harvesting should be carried out promptly and efficiently; providing nutrients and plant protection from diseases, pests and weeds are mandatory. Disclose main differences between commodity and technology seeds of major field crops. Disclose complex of special

measures aimed at accelerated reproduction of high-quality seeds, preserving its purity and forming of high sowing qualities and yield properties. The course reveals the essence of varietal farming, important measures which are the right choice of predecessors and doses of mineral fertilizers. It is also a means of maintaining a variety at a high level of productivity, so seed producing with high yielding properties. Much attention is given to the modificated changes, accumulated in seeds, which caused by the conditions of its cultivation and significantly contribute to the next generation, it productivity. Favourable growing conditions can be detected as a short-term after-effect of positive modifications, which reflected directly on the seeds of current harvest: best his physical, biochemical and seed qualities.

Technology and chemical control of crop production. In the course Masters study the biochemical significance yield of major crops and tasks of techno-chemical control on the stages of primary processing, industrial processing and storage of basic types different crops (flour, cereals and oilseeds), fruit and vegetable, potato, industrial raw materials (flax-fibred, hops, tobacco, sugar beet and grapes). The course used knowledge of physiology, microbiology, plant pathology, fruit growing, vegetable growing, standardization, plant growing, and technology of storage and processing of crop production. Discipline teaches modern methods of control of crop production based on a comprehensive knowledge of the properties of products, taking into account their change depending on factors that may act on it during transport, post harvest handling, storage and processing.

Material and technical base of crop production logistics. Special discipline that studies the equipment and buildings used for storage and processing of plant products, technological characteristics granaries, vegetable warehouses, freezers, refrigerators and buildings for storage of finished canned products, equipment for processing of plant products (cereals, pulses, oil, technical) and raw fruits and vegetables.

Innovative technologies in fodder production. Discipline expected to study technologies of field forage crops in the current market conditions.

2.2.4. Master's program "Energy-saving technologies in crop and forage production"

Crop rotation and tillage in modern farming. Lectures on discipline covers the theoretical foundations of rotation; crop rotations in different natural and economic conditions and their practical application in Ukraine; intermediate crops in crop rotation and justify their possible use; application and development of crop rotation; features use of short rotational crop rotations and practical recommendations transformation capabilities in multiple-rotation short rotation; practical application of crop rotation crop rotation just in time. Highlights scientific basis of resource saving technologies of mechanical tillage and their practical application in different soil and climatic zones of Ukraine; the theoretical foundations of cultivation; basic theoretical concepts of scientific and practical importance of agriculture: their historical development; solutions to the issues of expanded reproduction of soil fertility; sustainable land use, protection against erosion and obtaining high stable yields of crops in different soil and climatic zones of Ukraine.

Prognosing and programming of yields field crops. The course aims to familiarize with new developments of agricultural and biological sciences, disclosure of various biological phenomena, methods of control and accounting on crops of field crops, which is allowing correcting process of yield formation and product quality. The purpose of discipline is mastering by complex agronomic evaluation methods of specific soil and climatic conditions and obtain practical skills farming system development and organizational measures to ensure the harvest of a given size and quality. During the

course students get acquainted with scientific methods of yield formation management, which provide forecasting, planning and organization of production. This is allowing to transfer production process a certain type of crop products on scientific, strictly controlled, high-quality base and thus realize one of the most promising areas of science and technology - programming yields. The discipline involves development of program, that is to say optimal proportion of controlled factors take into consideration low-adjustable and unregulated weather conditions, which are in manufacturing process ensure planned productivity, with most economical use of available resources. Forecasting as part of yields programming, provides development of forecast, that is to say probable picture of the theoretically possible yield, which provided by resources of climatic factors, soil fertility, fertilizing, crop protection tools etc.

Intensive cultivation technology of forage crops for seed. It is assumed disclosure modern adaptive cost-effective and environmentally friendly technologies of high seed yields of forage crops in the current market conditions.

Natural grasslands in increasing the production of complete feed. Develop new and improved technology for full, balanced feed on natural fodder lands by modern intensive technologies.

Energy-saving technologies in the branch of storage and processing. Discipline is the final in the technology of crop production. This discipline teaches saving technologies obtained of ecologically safe products from plant material. Along with improving the quality of products reduced energy consumption in its production. Discipline teaches energy efficient technologies storage and processing of plant products. Solve problems of ecology and emissions to the environment.

Training of masters of sciences in educational program "AGROCHEMISTRY AND SOIL SCIENCE" in specialty 201 "AGRONOMY" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	42
– Part-time	35
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of Teaching	Ukrainian, English
Qualification	Agronomist-researcher

The concept of training

The modern agricultural industry needs high qualified specialists in agrochemistry and soil science. The program of the magister mastering is directed to formation of the knowledge and skills in methodological and agrotechnical fields of the agrochemical service of the agricultural organizations, elements of the precision agriculture and egergy save crop production systems, analytical and practical using of the modern methods of the soil fertility control, crops nutritive conditions and formation of the quality of the crop products, th elaboration of the conceptual and practical basics of the crop fertilization systems and agrochemical documents, development of technologies and measures to improve soil quality, soil quality monitoring, prevention of soil degradation, optimizing of biodiversity in soil, implementing of soil conservation technology.

Master's program "Agrochemical service and quality management of soil"

The program is directed to formation of the knowledge and skills in agrochemical service of the agricultural industry in field of the plant growing. The program creates the methodological and agrochemical fields in ecological-agrochemical monitoring of the soils and elaboration of the models of the processes of the soil fertility recreation. The program creates practical skills in technological examination of the fields, complex agrochemical diagnostic, diagnostic of the crop nutrition, analysis of the fertilizers and soil meliorates and modern technologies of it application. The place of the program realization is scientific research laboratories and studding production laboratories in the department of the agrochemistry and quality of crop products named by Olexandr Dushechkin.

Establishment and analysis based on field and laboratory studies of physical, water-physical, physical-chemical, biological and agrochemical soil properties, developing measures for their conservation and restoration of fertility. Defining of ecological and genetic status and potential productivity of soils in relation to particular cultures or groups, as well as other specialized use of soil. Establishing the nature and extent of degradation processes. Measures of rational management and improvement of soil fertility. Studying of disturbed and polluted soils reclamation methods, increasing of potential soil fertility after their pollution, destruction, degradation, and through them landscapes and the biosphere

as a whole. Metrological aspects of modern instrumental methods of analysis and characteristics of modern instrumental methods of analysis.

Areas of employment of graduates

The industrial sector field crop agriculture, agribusiness, public health agencies soil fertility and crop agrochemical service. Graduates can be employed in the system of regional branches of the Agency of Land Resources Research Institute "Ukrzemproekt" in the system design and exploration centers "Oblderzhrodyuchist" in any agricultural enterprise in positions agronomist, agronomist-ohrohimika in System Security Service of soils as an engineer, soil scientists; In the banking sector in positions of experts to assess the soil; system of quarantine and customs services of Ukraine for positions related to the assessment of soil quality and ecological condition of the environment; in commercial and public establishments that manufacture and sell chemicals (fertilizers, pesticides), make ahrohimservis agribusinesses, conduct a comprehensive agrochemical diagnosis and diagnosis of plant nutrition as a manager (professionals, specialists) with sales and scientific support, specialists in agricultural chemistry, managers, promoters, agrochemists analysts, logisticians to ensure fertilizer plant nutrition consultants; in environmental inspections, system service protection soil inspection in rational use and protection of land in positions to control the environmental state of the environment assessment of soil quality.

Practical training

Students receive practical training in research farms of NULES of Ukraine: separated subdivisions “Agronomic Research Station” and “Velykosnytinske Education and Research Farm named after O. Muzychenko”, at research institutions of Academy of Agricultural Sciences and Academy of Sciences of Ukraine, National Centre of soil fertility conservation, the State Committee for Land Resources, educational and scientific laboratories of NULES of Ukraine.

Proposed Topics for Master Theses

1. Agrochemical performance management of crops.
2. Integrated agrochemical diagnosis
3. Development of the use of chemical fertilizers and meliorants in agribusiness.
4. Agrochemical providing resource-saving technologies of cultivation of crops.
5. Change the properties of soil for implementing resource saving technologies and precision farming.
6. Agroecological efficiency technologies No-till.
7. The mechanisms of formation of microaggregates agrocenosis and performance under different tillage systems and crop fertilization.
8. Impact of lithological factor in soil formation tehnozemiv on reclaimed lands.
9. Play in typical black soil fertility in terms of field and vegetable crop rotations.
10. Change the water-physical and physical-chemical properties of typical chernozem minimizing tillage and biologization agriculture.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program “Agrochemistry and Soil Science” (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Applied ecology and biology of plants	1	90	3
2	Soil management regimes for innovative technologies	1	120	4
3	Agrochemical service in plant growing	1	90	3
4	Adaptive systems of agriculture	1	120	4
5	Modern agricultural technologies create highly ekolohizovani grasslands and their rational use	1	90	3
6	Post-harvest handling and storage of plant products	1	90	3
7	Varietal certification	1	90	3
8	Qualitative assessment of soil and land	2	90	3
9	Innovative technologies in Plant Growing	2	120	4
10	Diagnostic of the crop nutrition	2	90	3
11	Biological risk factors in agriculture and their control	2	90	3
12	Processing of plant production	2	90	3
13	Energy-saving technology of growing and harvesting high-protein high-grade feed	2	90	3
14	Varietal resources and its formation	2	90	3
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
***2.2.1. Master's program* "Agrochemical service and quality management of soil»**				
1	The technologies of the soil chemical melioration	3	120	4
2	The system of the modern special agrochemicals application	3	120	4
3	Land Reclamation	3	90	3
4	Soil appraisal	3	90	3
5	Monitoring soil quality	3	90	3
6	The regulation of the crop nutrition for greenhouse and for fertiigation	3	90	3
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1-2	300	10
2	Preparation and defense of master's work	1-3	120	4
Total			**420**	**14**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Applied ecology and biology of plants. The purpose of discipline "Applied ecology and biology of plants" - to form in students of Masters program system of knowledge in ecology and biology of major crops, because ecology became the basis of social development, and a knowledge of biology gives possibility to take account of all the demands of culture in the technological process. Sphere of ecology development includes natural resources, including resources of biosphere origin on which based branch of Plant Growing. In addition, students are introduced with account of biometric indicators and assessment of seeds. In conducting laboratory studies focused on deepening theoretical knowledge from ecology and biology of crops with extensive use of educational and additional scientific literature. Securing of knowledge is provided by problem solving of curriculum. In basis of laboratory exercises are solution of individual tasks under the supervision of a teacher. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Ecology of crops; 2. Biology of crops. 3. Biometrics.

Soil management regimes for innovative technologies. The main place in the rational and efficient use of natural resources is land use, conservation and Soil Fertility Improvement. Studies understanding of the processes taking place in soils is an important condition for the realization of these objectives. Especially important is the ability to manage processes and soil regimes and on this basis to improve soil fertility.

Agrochemical service in plant growing. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into the methods and means of the agrochemical supplying and agrochemical service of the plant growing, the planning and the organization of the agrochemical service, etc. The studding of the course masters receive practical skills in control and realization and application of the chemicals application in agricultural industry, the management and marketing in agrochemical service, organization of the collaboration between commodity producer and organizations in agrochemical service of the different form of the private and determination of the effect of the agrochemical service of the agricultural organization.

Adaptive systems of agriculture. The purpose of the course is the formation of students knowledge and skills with scientific foundations of systems of agriculture that are environmentally safe and economically feasible measures of farming cultivation and protection of crops, the rational design of crop rotations, tillage systems and erosion control measures, peculiarities of conducting adaptive, industrial, conservation, environmental, biological (organic) systems of agriculture and farming in contaminated areas.

Modern agricultural technologies create highly ekolohizovani grasslands and their rational use. Program subject disclosure provides for potential fodder plants and development of elements of intensive, appropriate in terms of energy and resource saving technologies of cultivation of fodder plants and produce quality feed them.

Post harvest handling and storage of plant products. Discipline teaches features (physical and physiological) of the main groups of products which were grown in crops production, vegetables and horticulture. It teaches basic principles of stabilization (preservation) of any products. Future specialist learns selection regime of short or long-term storage depend on the knowledge obtained features harvest certain crops and basic principles of stabilization. Discipline teaches techniques which bring the harvest of major crops to a stable state. Discipline teaches the way of administration in a certain regime of

storage and creating conditions compliance regime under which the storage losses as the quality and quantity will be minimal.

Varietal Certification. Provides disclosure schemes varietal seed certification requirements of the International Organization for Economic Cooperation and Development (OECD), which provide a set of procedures, methods and techniques to ensure high-quality and sowing qualities of seeds of all categories in the process of reproduction, the authenticity of varieties and varietal purity . Application of identification of plant varieties provides authentication of the variety, degree of homogeneity. Knowledge of discipline consolidate practical skills application of methods of identification of plant varieties (morphological description, electrophoresis, DNA - markers, PCR - analysis, etc.) in the varietal certification (field inspection and POSTcontrol) and further morphological, biochemical, genetic certification classes, which is the basis of international commercial seed treatment as import-export. The knowledge acquired in their practice breeder may apply, expert, researcher and manufacturer of seeds.

Qualitative assessment of soil and land. The modern environmental condition of land resources in the Ukraine and priorities for their reproduction. An evaluation of quality of soils and their fertilization strategy with regard to scientific approaches. Served monitoring soil quality and new uses of monitoring results of soil. We give quality methods of land evaluation, quality of soil. The discipline introduces the national standardization system in Ukraine soils. The purpose of discipline is the development of the basic principles of soil and land certification based on their specialized use.

Innovative technologies in Plant Growing. The purpose of discipline is forming specific experts which understand that every modern intensive agricultural technology is integral, clearly defined and scientifically-based system with a set of essential, interrelated elements that perform a specific function, and all together - function of the system, essence of which is to develop the planned volume and quality of crop production**.** Special attention is paid to the formation a system of knowledge about patterns of formation effective agrocenosis of crops, their structure and relationships, compensatory ability of plants; photosynthetic activity of plants and plant communities; ways to increase productivity - features of assimilation system development, absorption and using FAR, vegetative mass formation and accumulation of dry matter, other phytometric, physiological and biological indicators of productive process of plants); understanding of bioenergetic processes that occur in plants and agrocenoses. Particular attention is paid to the presentation of essence, content and features of innovative technologies agricultural enterprises, considered issues of their systematization and classification, analyzes the current state of their implementation in the Ukrainian agricultural sector. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Agrocenology. 2. Technological innovation is a basis of develop ment and competitiveness of Plant

Diagnostic of the crop nutrition. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into making of the technological examination of the fields, complex agrochemical diagnostic, diagnostic of the crop nutrition in modern systems of the farming, elaboration of the professional documents.

Biological risk factors in agriculture and their control. The course is aimed at highlighting the theoretical concepts of biological risk factors in crop agrobiocenosis and modern approaches to crop protection. It has been made to shape the students a systematic understanding of the place, role and importance of biological risk factors and practical approaches to controlling them in agrobiocenosis in modern farming systems. Describes the relationship between system components agrobiocenosis, laws and rules of their formation and development level and their impact on the yield of crops. The modern approach and level of

effectiveness of controls in different farming systems. Topics of laboratory and practical course provides practical skills of students' knowledge of the use patterns of growth and development of biological risk factors and of their impact on crop productivity in developing economically and environmentally acceptable integrated systems protect agricultural crops in different production technologies and farming systems.

Processing of plant production. The course teaches methods of processing the basic raw material for human food – grain to the flour, cereals and others. Mill farm is the main means for getting of flour, which supplies raw materials bakeries that located in rural areas. The course teaches the technology of grain preparation and production of different grades flour. The course teaches technologies preparation of grain to groats purpose - peas, barley, millet, buckwheat on the rural lines that providing high yields and quality. The course teaches methods of obtaining starch from potato tubers, technologies for production of canned products from vegetables. It gives knowledge about efficient technologies preserving of perishable vegetables (tomatoes, cucumbers, peppers) and fruit products than ensuring the efficiency of their production (growing).

Energy-saving technology of growing and harvesting high-protein high-grade feed. Identifies ways of intensifying forage production with the introduction of alternative energy and resource saving technologies of fodder plants and production of high-quality, secure cheap feed them without harming the environment.

Varietal resources and its formation. The tasks and role of varietal resources in the sustainable development of crop and national food security. Their creation and preservation. The international law and international centers of genetic plant resources. The system varietal genetic resources in Ukraine. Adapting domestic seed production to international scheme and procedures. The relationship between originators, producers and consumers varietal resources. The review of the bank's varietal resources, the use of classifiers and directories available varietal range. Methods for identifying plant varieties. Registers plant varieties and producers of seed and planting material.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The course is aimed at obtaining the necessary in-depth knowledge of scientific studies on agronomy, method of application methods agronomic research and perform observations of phenomena, principles of planning research in different parts of the field of agriculture - in crop production, vegetable growing, gardening. It is also important features of mastering technique and organization of research in terms of soil erosion, reclamation of agriculture. Of particular importance this subject matter in the case of acquisition of skills skilled use statistical methods interpreting experimental data using modern computer programs and knowledge and understanding of the regulatory framework for copyright protection of intellectual property.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in

agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country. Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "Agrochemical service and quality management of soil»

The technologies of the soil chemical melioration. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in agrochemistry and soil science into theoretical knowledge and practical skills into the determination of the soil need in chemical melioration, the properties of the modern meliorates according to the active standards, elaboration of the modern technologies of the soil chemical melioration and it making, estimation of the quality of the soil chemical melioration.

The system of the modern special agrochemicals application. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in agrochemistry and soil science into theoretical knowledge into range and properties of the special agrochemicals and practical skills into their application, leveling of the environmental stresses and realization of the genetic crop potential.

Land Reclamation. Studies recovery measures disturbed and degraded lands in nutrient status, particularly for use in agriculture, for forest plantations, creation of recreational areas, construction and stocking artificial reservoirs, creating landscapes that harmonized with the natural environment. The purpose of discipline is to study options and evaluating overburden, classification of disturbed lands, development of measures restore their fertility.

Soil appraisal. Soil appraisal is a quantitative assessment of their potential productivity. It is the foundation for quality and economic valuation of land and land cadastre, without which the effective use of land in Ukraine is impossible. The purpose of discipline is to train highly qualified soil scientists, masters in the field of soil and land. Soil appraisal is the final discipline in the cycle agronomic sciences.

Monitoring soil quality. Monitoring of soil - a system of observation, measurement and control of the use of soil and land management to organize their productivity. For the diagnosis of soil must possess and be able to interpret these complex informative indices: changes in the structure of soil, land transformation, assessment rates of change of the basic properties of soils, evaluation of display intensity erosion, reclamation performance status, assessment of effective soil fertility. The aim of this course is teaching soil quality monitoring methods to control and prevent negative processes of soil.

The regulation of the crop nutrition for greenhouse and for fertiigation. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in agrochemistry and soil science into theoretical knowledge and practical skills into basics to regulation of the crop nutrition in green houses and for fertigation, factors of the formation of the crop productivity in green houses and their interaction according to crop biological specifications and technical properties of the agricultural organization, creation of the models for nutrition regimes for crops in green houses and management them according to crop biological specifications during crop vegetation.

Training of masters of sciences in educational program "SELECTION AND GENETICS OF AGRICULTURAL CROPS" in specialty 201 "AGRONOMY" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	20
– Part-time	10
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Agronomist-researcher

The concept of training

Preparation of masters in the field focused on the formation of students knowledge and practical skills in scientific principles of genetics and breeding of field crops, organization and conduct of state of scientific and technical examination of varieties and hybrids of Ukraine, theoretical bases and organization of seed work, development technologies of preserving resources of seed for further growth and stabilization of production of crop products in Ukraine.

A specialist trained to work in research institutions of Ukraine, station of variety testing and research centers, companies different ownership forms of cultivation, preparation and implementation seeds and planting material, as well as educational institutions.

Master's program "State scientific and technical expertise of plant varieties and their legal protection"

The main goal of specialization is the acquisition of Master students the necessary theoretical knowledge and practical skills for organizing and conducting the state scientific and technical examination of varieties and hybrids of agricultural crops. The variety of like studying intellectual property, which is excellent, uniform and stable and suitable for dissemination in Ukraine that can be used to meet the needs of society and not for distribution prohibited grounds of threat to life and health people harm flora and fauna, the preservation of the environment. A studying the patentability of plant varieties criteria (novelty, distinction, uniformity, stability) by identifying - morphological description during complex field and laboratory studies necessary to prepare an expert opinion on the application for a plant variety, under which the decision on state registration of the variety and / or rights to it. The study of complex evaluation of plant varieties for biological and morphological characteristics of economically valuable in the complex field and laboratory investigations, which resulted in the decision on state registration of a variety of further entering into the State Register of plant varieties suitable for dissemination in Ukraine.

The disclosure schemes varietal seed certification requirements of the International Organization for Economic Cooperation and Development (OECD), which provide a set of procedures, methods and techniques to ensure high-quality and sowing qualities of seeds

of all categories in the process of reproduction, the authenticity of varieties and varietal purity .

Areas of employment of graduates

Ukrainian institute variety examination, agricultural enterprises of different ownership, State centers protection soil fertility and quality crop production; State center of certification and examination agricultural produce; agronomical regional and district administration, leading agro-industrial companies, holding companies and corporations, research institutes of Ukraine.

Practical training

Students undergo practical training in education and research farm NULES of Ukraine: SS of NULES of Ukraine “Velykosnytinske Education and Research Farm named after O. Muzychenka”, SS of NULES of Ukraine “Agronomic Research Station” as well as advanced agricultural enterprises of different ownership, research institutes of Ukraine.

Proposed Topics for Master Theses

1. Using genetic techniques to create and evaluate initial material in breeding.
2. Assessment of the source material in the breeding process.
3. Characteristics varieties and hybrids of field crops by qualifying examination.
4. Alternative uses of the gene pool of cultivated plants.
5. Study of homozyhotatsiyi the frequency of homologous recombination in Arabidopsis thaliana.
6. Morfobiologichesky signs of breeding lines of Phaseolus vulgaris L. and especially their inheritance.
7. Evaluation samples of soy in the previous sortoispytanija nursery.
8. Performance and stability harvest genus Phaseolus sortoobraztsov.
9. Effect of abiotic factors and micronutrients on seed productivity of new intensive crop varieties.
10. The combination samozapylenyh ability of maize lines**.**

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Selection and genetics of agricultural crops" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Applied ecology and biology of plants	1	90	3
2	Soil management regimes for innovative technologies	1	120	4
3	Agrochemical service in plant growing	1	90	3
4	Adaptive systems of agriculture	1	120	4
5	Modern agricultural technologies create highly ekolohizovani grasslands and their rational use	1	90	3
6	Post-harvest handling and storage of plant products	1	90	3
7	Varietal certification	1	90	3
8	Qualitative assessment of soil and land	2	90	3
9	Innovative technologies in Plant Growing	2	120	4
10	Diagnostic of the crop nutrition	2	90	3
11	Biological risk factors in agriculture and their control	2	90	3
12	Processing of plant production	2	90	3
13	Energy-saving technology of growing and harvesting high-protein high-grade feed	2	90	3
14	Varietal resources and its formation	2	90	3
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "State scientific and technical expertise of plant varieties and their legal protection”				
1	Breeding and Seed-growing heterosis hybrids	3	150	5
2	Special genetic field crops	3	150	5
3	Genetics immunity against diseases and pests	3	120	4
4	State qualifying examination	3	180	6
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1-2	300	10
2	Preparation and defense of master's work	1-3	120	4
Total			**420**	**14**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Applied ecology and biology of plants. The purpose of discipline "Applied ecology and biology of plants" - to form in students of Masters program system of knowledge in ecology and biology of major crops, because ecology became the basis of social development, and a knowledge of biology gives possibility to take account of all the demands of culture in the technological process. Sphere of ecology development includes natural resources, including resources of biosphere origin on which based branch of Plant

Growing. In addition, students are introduced with account of biometric indicators and assessment of seeds. In conducting laboratory studies focused on deepening theoretical knowledge from ecology and biology of crops with extensive use of educational and additional scientific literature. Securing of knowledge is provided by problem solving of curriculum. In basis of laboratory exercises are solution of individual tasks under the supervision of a teacher. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Ecology of crops; 2. Biology of crops. 3. Biometrics.

Soil management regimes for innovative technologies. The main place in the rational and efficient use of natural resources is land use, conservation and Soil Fertility Improvement. Studies understanding of the processes taking place in soils is an important condition for the realization of these objectives. Especially important is the ability to manage processes and soil regimes and on this basis to improve soil fertility.

Agrochemical service in plant growing. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into the methods and means of the agrochemical supplying and agrochemical service of the plant growing, the planning and the organization of the agrochemical service, etc. The studding of the course masters receive practical skills in control and realization and application of the chemicals application in agricultural industry, the management and marketing in agrochemical service, organization of the collaboration between commodity producer and organizations in agrochemical service of the different form of the private and determination of the effect of the agrochemical service of the agricultural organization.

Adaptive systems of agriculture. The purpose of the course is the formation of students knowledge and skills with scientific foundations of systems of agriculture that are environmentally safe and economically feasible measures of farming cultivation and protection of crops, the rational design of crop rotations, tillage systems and erosion control measures, peculiarities of conducting adaptive, industrial, conservation, environmental, biological (organic) systems of agriculture and farming in contaminated areas.

Modern agricultural technologies create highly ekolohizovani grasslands and their rational use. Program subject disclosure provides for potential fodder plants and development of elements of intensive, appropriate in terms of energy and resource saving technologies of cultivation of fodder plants and produce quality feed them.

Post harvest handling and storage of plant products. Discipline teaches features (physical and physiological) of the main groups of products which were grown in crops production, vegetables and horticulture. It teaches basic principles of stabilization (preservation) of any products. Future specialist learns selection regime of short or long-term storage depend on the knowledge obtained features harvest certain crops and basic principles of stabilization. Discipline teaches techniques which bring the harvest of major crops to a stable state. Discipline teaches the way of administration in a certain regime of storage and creating conditions compliance regime under which the storage losses as the quality and quantity will be minimal.

Varietal Certification. Provides disclosure schemes varietal seed certification requirements of the International Organization for Economic Cooperation and Development (OECD), which provide a set of procedures, methods and techniques to ensure high-quality and sowing qualities of seeds of all categories in the process of reproduction, the authenticity of varieties and varietal purity . Application of identification of plant varieties provides authentication of the variety, degree of homogeneity. Knowledge of discipline consolidate practical skills application of methods of identification of plant

varieties (morphological description, electrophoresis, DNA - markers, PCR - analysis, etc.) in the varietal certification (field inspection and POSTcontrol) and further morphological, biochemical, genetic certification classes, which is the basis of international commercial seed treatment as import-export. The knowledge acquired in their practice breeder may apply, expert, researcher and manufacturer of seeds.

Qualitative assessment of soil and land. The modern environmental condition of land resources in the Ukraine and priorities for their reproduction. An evaluation of quality of soils and their fertilization strategy with regard to scientific approaches. Served monitoring soil quality and new uses of monitoring results of soil. We give quality methods of land evaluation, quality of soil. The discipline introduces the national standardization system in Ukraine soils. The purpose of discipline is the development of the basic principles of soil and land certification based on their specialized use.

Innovative technologies in Plant Growing. The purpose of discipline is forming specific experts which understand that every modern intensive agricultural technology is integral, clearly defined and scientifically-based system with a set of essential, interrelated elements that perform a specific function, and all together - function of the system, essence of which is to develop the planned volume and quality of crop production**.** Special attention is paid to the formation a system of knowledge about patterns of formation effective agrocenosis of crops, their structure and relationships, compensatory ability of plants; photosynthetic activity of plants and plant communities; ways to increase productivity - features of assimilation system development, absorption and using FAR, vegetative mass formation and accumulation of dry matter, other phytometric, physiological and biological indicators of productive process of plants); understanding of bioenergetic processes that occur in plants and agrocenoses. Particular attention is paid to the presentation of essence, content and features of innovative technologies agricultural enterprises, considered issues of their systematization and classification, analyzes the current state of their implementation in the Ukrainian agricultural sector. To determine the level of learning and the discipline rankings used sets of tests, control issues and individual tasks in accordance with the modules: 1. Agrocenology. 2. Technological innovation is a basis of develop ment and competitiveness of Plant

Diagnostic of the crop nutrition. The goal of the studding of the theoretical materials and laboratory classes are mastering for master of the agronomy in theoretical knowledge and practical skills into making of the technological examination of the fields, complex agrochemical diagnostic, diagnostic of the crop nutrition in modern systems of the farming, elaboration of the professional documents.

Biological risk factors in agriculture and their control. The course is aimed at highlighting the theoretical concepts of biological risk factors in crop agrobiocenosis and modern approaches to crop protection. It has been made to shape the students a systematic understanding of the place, role and importance of biological risk factors and practical approaches to controlling them in agrobiocenosis in modern farming systems. Describes the relationship between system components agrobiocenosis, laws and rules of their formation and development level and their impact on the yield of crops. The modern approach and level of effectiveness of controls in different farming systems. Topics of laboratory and practical course provides practical skills of students' knowledge of the use patterns of growth and development of biological risk factors and of their impact on crop productivity in developing economically and environmentally acceptable integrated systems protect agricultural crops in different production technologies and farming systems.

Processing of plant production. The course teaches methods of processing the basic raw material for human food – grain to the flour, cereals and others. Mill farm is the main means for getting of flour, which supplies raw materials bakeries that located in rural areas. The course teaches the technology of grain preparation and production of different

grades flour. The course teaches technologies preparation of grain to groats purpose - peas, barley, millet, buckwheat on the rural lines that providing high yields and quality. The course teaches methods of obtaining starch from potato tubers, technologies for production of canned products from vegetables. It gives knowledge about efficient technologies preserving of perishable vegetables (tomatoes, cucumbers, peppers) and fruit products than ensuring the efficiency of their production (growing).

Energy-saving technology of growing and harvesting high-protein high-grade feed. Identifies ways of intensifying forage production with the introduction of alternative energy and resource saving technologies of fodder plants and production of high-quality, secure cheap feed them without harming the environment.

Varietal resources and its formation. The tasks and role of varietal resources in the sustainable development of crop and national food security. Their creation and preservation. The international law and international centers of genetic plant resources. The system varietal genetic resources in Ukraine. Adapting domestic seed production to international scheme and procedures. The relationship between originators, producers and consumers varietal resources. The review of the bank's varietal resources, the use of classifiers and directories available varietal range. Methods for identifying plant varieties. Registers plant varieties and producers of seed and planting material.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The course is aimed at obtaining the necessary in-depth knowledge of scientific studies on agronomy, method of application methods agronomic research and perform observations of phenomena, principles of planning research in different parts of the field of agriculture - in crop production, vegetable growing, gardening. It is also important features of mastering technique and organization of research in terms of soil erosion, reclamation of agriculture. Of particular importance this subject matter in the case of acquisition of skills skilled use statistical methods interpreting experimental data using modern computer programs and knowledge and understanding of the regulatory framework for copyright protection of intellectual property.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country. Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "State scientific and technical expertise of plant varieties and their legal protection"

Breeding and Seed-growing heterosis hybrids. Discipline provides knowledge features of breeding and seed-growing of hybrids F1 corn, sunflower, sugar beets, sorghums and synthetic varieties of winter-annual rye, buckwheat, clover, alfalfa. General bases of heterosis. Modern conceptions of heterosis and conformity to law of his display. Types of hybrids and technology of its creation. Types of initial material and methods creation of inbreed lines. The effect of Heterosis identifying and predicting by hybrids. Estimation of general and specific combination ability of inbreed lines. Application cross-test for the evaluation of plant-breeding material on GCA. Selection combinations of hybrids different genetic structure, and also synthetic varieties. Methodology and technique of plant-breeding process hybrids of F1. Methods of industrial production of hybrid seed of the field cultures on fertile and sterile basis. System of seed-growing. Seed-growing of inbreed lines. Growing of hybrid seed. Methodology of realization the field examination, field and collar inspections. Conduct of documentation. The procedure of organization seed control by subjects of seed production in Ukraine.

Special genetic field crops. Total problems of the genetics of plants. Genetics determination and inheritance mechanisms of qualitative and quantitative traits. The specific nature of genetic systems to propagation of plants. Importance of grain, grain legume, cereal, feed, vegetable , horticultural crops. Genetical centers of origin, classification and karyology of the agricultural crops. The genetics of morphological, physiological and biochemical traits. The specific nature of propagation's systems of plants, occurrence of polyploidy row among species of genus. The genetics mechanisms of plants resistance control against the agents of disease and invaders. Principal directions of selection by grain, grain legume, cereal, feed, vegetable, horticultural crops.

Genetics immunity against diseases and pests. State study of the problem of immunity. Theories immunity. Immunity and stability. Passive and active immunity. The interaction of plants with pests. Types stability: vertical, horizontal. Tolerance. Genetic bases of stability of agricultural crops to pathogens. Theory Flora "gene to gene." Interaction resistance genes: adaptive interaction, epistasis, complementarity, interaction with genes modifiers. Genetics pathogenicity pathogens. The immunity of plants to pests. Relations between the plants with insects - antofiliya and fitofahiya. Mechanisms of immunity of plants to pests: antyksenoz, antibiosis, tolerance. Genetics of resistance to pests. Initial material for resistance against pathogens and pests. Sources and donors resistance against diseases. Bank of resistance genes against pathogens. Hybrid analysis: diagram crosses, analysis hybrids F1 and F2, statistical data processing hybrid analysis. Methods creating original material resistant to pathogens and pests. Assessment of breeding material for resistance to diseases and pests.

State qualifying examination involves the study of complex evaluation of plant varieties for biological and morphological characteristics of economically valuable in the complex field and laboratory investigations, which resulted in the decision on state registration of a variety of further entering into the State Register of plant varieties suitable for dissemination in Ukraine. Discipline will form principles of scientifically proven market monitoring plant varieties. Theoretical and practical course to learn the discipline will enable varietal diagnosis quantitative and qualitative characteristics of varieties - candidate of its resistance to stressful environmental factors determine the plasticity, adaptive varieties in the transformation of their economic and biological, consumer and intellectual values.

Training of masters of sciences in educational program "HORTICULTURE AND VITICULTURE" in specialty 203 "HORTICULTURE AND VITICULTURE" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	45
– Part-time	30
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Horticulture and viticulture researcher

The concept of training

Training of master's degree students in specialty is oriented at modern and perspective directions of development in fruit and vegetable growing and viticulture Training master degree students on specialty foresees the deep specialized training in the sphere of fruit-growing, vegetable-growing of the opened and protected soil. Such specialists, after acquiring special abilities and knowledge of innovative character in this sphere are able to satisfy modern requirements of the society in assortment and production of necessary amount of high-quality fruit and vegetable products for internal consumption and to the export, capable to organize and to ensure use of the most progressive modern technologies, both in scientific researches and production.

A graduate in this specialty theoretically and practically trained, has knowledge's and skills of modern technologies in the field of horticulture and viticulture.

Master's program "Horticulture"

There is foreseen in this master's degree program that students are to be fulfilled the scientific and practical works on different problems of a horticultural branch. The theme of master's degree works may be chosen within such cycle of tasks: modern technologies of the new garden installation, looking after plantation during the vegetation period, ways of growing the planting material, selection of cultivars with useful properties, investigations of cultivar resistance to unfavorable changes of environmental conditions and harmful organisms, prognosis and programming of yield for fruit cultures, methods of computer processing the results of investigations. The gist of program is providing to the students such knowlegies as analyze of technologies for the growing of the vegetable crops, mushrooms ana flowers in different types of greenhouses and their adaptation for the production's terms. Like the acceptable technological deciding that will receive the optimal results as a source's minimization.

Areas of employment of graduates

Agricultural enterprises of different ownership, farms, greenhouse complexes, structures engaged in landscape gardening, delivery of equipment, seeds, planting material, crop protection products and materials for orchards, vineyards, greenhouses and research institutions.

Practical training

Students undergo practical training in educational farms NUBiP Ukraine: NULES: SD of NULES “Agronomy Research Station”, “Velika Snitinka Training and Research farmstead named after O.V. Muzychenko” as well as advanced agricultural enterprises of different ownership forms, collection nurseries research field NUBiP Ukraine" Produce Garden "research institutions Academy of Agricultural Sciences and National Academy of Sciences of Ukraine, state pomology-ampelografical inspections.

Proposed Topics for Master Theses

1. The selection of varieties for laying intensive orchards and vineyards by studying their compliance with the requirements of modern gardening.
2. Analysis of market prospects and growing niche horticultural crops.
3. Improving rapid technological elements of growing seedlings of fruit, berry, nut and grape crops.
4. Rationale and study the stability of varieties to adverse environmental factors.
5. Research reasonable selection of varieties (heterosis or hybrid) different types of vegetables in order to highlight the most suitable for growing conditions in certain areas.
6. Research effective elements of technology of cultivation of vegetables, including effect of sowing (planting seedlings, bulbs, tubers, etc.), methods of preparation of seeds and planting material, methods of sowing (planting), density and forming plants, methods of irrigation, the application of plant growth regulators, biological products, etc. to obtain high yields and environmentally-friendly products .
7. Learning new types of vegetables in order to introduce them into production for different areas of use.
8. Improving the technology of growing vegetables in greenhouses.
9. The use of new technologies in greenhouse horticulture.
10. Improve elements of technology of cultivation of edible mushrooms.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Horticulture and Viticulture" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Advanced technologies in horticulture and viticulture	1	330	11
2	Mushrooms cultivation	1	180	6
3	Agribusiness and marketing in gardening, horticulture and viticulture	1	90	3
4	Quality and logistics for storage, processing of fruit and vegetables	2	90	3
5	Progressiveness technologies of vegetable-growing in field terms and protected cultivated	2	360	12
6	Post harvest handling of fruits, vegetables and grapes	2	150	5
7	Floriculture in open and closed ground	2	150	5
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Horticulture"				
1	Uncommon fruit and berry plants	3	90	3
2	Progressive technologies in nursery	3	120	4
3	Organic vegetable-growing in field terms and protected cultivated	3	180	6
4	Cultivar vegetables	3	120	4
5	Few broaden cultures of the protected cultivated	3	90	3
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1-2	300	10
2	Preparation and defense of master's work	1-3	120	4
Total			**420**	**14**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Advanced technologies in horticulture and viticulture. The course studies the agronomic elements of modern intensive technologies cultivation of horticultural products, namely design stands (variety-rootstock combinations, charts planting, crown forms); systems of soil maintenance, irrigation, plant protection, harvesting, storage and marketing of fruit based on analysis of the achievements of advanced domestic and foreign horticultural farms. As a result of the discipline study the student should be able to design, develop and implement advanced technologies of fruit, berries and grapes growing.

Mushrooms cultivation. Mycological and biological characteristics cultivated mushrooms. The new investigations results in fungi therapy. History and modern tendentions in mushroom cultivation in all over the world. Organization mushrooms

production facilities. Innovation principles of mushrooms complex organization. Aspects of mycelium growing technology. Cultivation of Agaricus bisporus. The main fazes of compost creation, cowered mixture preparation, technological aspects different mushrooms cultivation. Intensive and extensive growing technologies of Pleurotus ostreatus in the world. Cultivations of uncommon mushrooms. Pests and illness in mushrooms cultivation. Ukrainian and European standarts of turn off productions**.**

Agribusiness and Marketing in gardening, horticulture and viticulture. Discipline is dedicated to business and marketing strategy on the fruit and vegetable growing market and consists of three modules. The first module examines the theoretical and practical aspects of commercial activities on the fruit and vegetable market. The methodological and practical issues of marketing software business activities of the subjects on the fruit and vegetable market are studying. The commercial activities in the fruit and vegetable sector envisage a chain of transactions such as the rationale usage for resources for the production of each product, the choice of distribution channels, consumers and the establishment of economic links between them, monitoring the implementation of treaty obligations, organizing the sale of fruit and vegetable production and its stimulation. The second module considers the features of the vegetable production's consumption in Ukraine and in the world, the perspectives and trends on the consumer market. The third module considers the commercial strategy for businesses to improve production efficiency and competitiveness on the market.

On the laboratory lessons the masters are acquainting with the development of a business plan as a specific planning document, which represents the organizational and financial income for the production of certain goods and services. The production of the main and new kinds of fruits and vegetables by SWOT-analysis as the basis for creating marketing strategies are analyzing.

Quality and Logistics for storage, processing of fruit and vegetables. Discipline is the final in the technology production of vegetables and fruits. Organization of efficiency logistics harvest of vegetables is not possible without knowledge of the physical and physiological properties of each type of vegetable. If we have knowledge about vegetables as objects of transportation, handling and storage we can provides selection of the best regimes for these processes, the choice of regimes of short-term or long-term storage. Discipline teaches choosing the optimal of terms harvesting vegetables, fruits and berries to provide marketable yield values obtained and depending on its profitability. The course teaches the basic technology of processing of vegetables and fruits, which make it possible with minimal loss and maximum profit function and vegetable sector enterprises producing fruits. The course teaches basic technological features of each type of vegetable, fruit, their suitability for a particular type of processing, canned products get some food and biological value. The course provides knowledge of standardized technologies for finished goods biochemical methods, by heat sterilization. Discipline teaches conducting optimum preparation of raw materials (sorting, cleaning, inspection, cleaning), and the implementation of the basic technological operations (choice of recipes, mode) of the main raw material, spices and others for finished products to the final operation, packaging, heat treatment. It teaches the rules of the technological control on the all operations from processing and storage of finished canned products.

Progressiveness technologies of vegetable-growing in field terms and Protected Cultivated. The new foreign technology's elements of vegetable-growing, that few known and unknown in national terms are stidied. Foreign experience of organization of the greenhouse's kind and its using in national terms. In the lecture course the questions of the newest technologies of growing vegetables in the open and closed soil, especially soil preparation and fertilization, growing seedlings, general measures of care

for plants and harvest. In laboratory classes students are introduced to equipment and farming activities, unknown or little known in domestic greenhouse production. In the discipline of the questions of the newest technologies of vegetable crops, especially soil preparation and fertilization, growing seedlings to open ground, common measures of care for plants and harvest. In laboratory and practical classes taught productivity of vegetable crops in certain climatic conditions, the conditions of use of organic fertilizers, green manure. Rational selection of varieties and hybrids of vegetable crops depending on the purpose of production. Selection of equipment for specific field work. Selection of highly efficient tank mixes, fertilizers and identify opportunities and amount of irrigation.

Post harvest handling of fruits, vegetables and grapes. The Ukraine systems for marketing fresh vegetables under present-day conditions are complex, fragmented and dynamic. Demands for high-quality produce are continuing to increase now. In schemes supply of vegetables from field to table is of great importance postharvest technologies. The topics of our lectures are logical base of harvesting vegetables crops. The great importance are the methods of determining quality. The factors that influence on the quality are varieties, timing and method of harvesting, post-harvest technological methods of preparation. The definition of terms ripening vegetables. The biochemical changes during ripening and postharvest preparing vegetables. Under considering of field vegetables are shown the technology of crops harvesting for cabbage, carrot, table beet, parsley, selery, onion, tomato, sweet pepper, egg-plant, cucumber, and so on. On the cours lectures is present various aspects of postharvest stages of technology - harvest, load into field bins, trailers, transport, unload, cure, wash, sort and grade, size, cool, pack, cold storage and load into transport vehicles. Standards requirements for post-harvest technology training and vegetables are presented.

Floriculture in open and closed ground. We study history of floriculture open and closed ground, current floriculture trends in Ukraine and in the world. Types of flower and ornamental plants suitable for cultivation in the open and closed ground, their economic and biological characteristics. Requirements flowering plants to micro-climatic conditions in greenhouses. Cultivation techniques of major industrial flower crops on soil and artificial substrates. Reproduction methods of flowering and decorative foliage plants. Preying and pots culture of floral ornamentals. The use of growth regulators to improve the decorative flowers. Modern methods of pest and disease control flower crops. Standards for fresh and cut flower production. Ways to prolong life of cut flowers.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of

ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country. Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "Horticulture"

Uncommon fruit and berry plants. The course forms in future specialists the knowledge and skills of the production technology of rare fruits that are valuable nutrition products and raw materials to processing plants. After study the discipline student should know: state and prospects of the fruit of rare plants, meaning, morphological and biological characteristics of plants, physiology of resistance to environmental factors and patterns of fruiting. Modern technologies of high yields of environmentally friendly fruits of rare fruit and berry crops; able: to design fruit plantations for different ownership entities; design, develop advanced technologies growing production of rare fruit and berry crops, manage processes of formation of a crop; develop and implement measures to improve the quality and reduce the loss of production of rare fruit and berry crops; provide them with high economic efficiency.

Progressive technologies in nursery. The course examines modern intensive profitable production technology of planting materials such advances scientific institutions from Ukraine and horticulture best foreign technologies. The basis of the course is to study the system of production healed certified planting material of fruit and berry crops, intensive technology of growing seed and vegetative rootstocks, modern production technology of planting material pome, stone fruit, nut and berry crops. Syllabus also provides on standardization of planting material and modern technologies of storage.

Organic vegetable-growing in field terms and Protected Cultivated. The situation on world food markets shows the increasing consumer interest in healthy nutrition and with the direct contribution to the preservation of the natural environment. Therefore, meet the growing demand for organic products continues to be one of the strategic directions of development of agriculture. In a course from the study of discipline the «Organic production of green-stuffs» questions light up from the study of bases of receipt ecologically of safe food, maintainance of fertility of soil and protecting stuffs from contamination and токсикації soils. Organic agriculture - the production system that supports the health of soils, ecosystems and people. It depends on ecological processes,

biological diversity and natural cycles that are specific to local conditions, while don't use of resources that cause adverse effects. Organic agriculture combines tradition, innovation and science to improve the environment and promote fair relationships and adequate standard of living for this understanding. Organic productions now is popular kind of technologies. But there are any university in Ukraine that provide the students for the such kinds as organic horticulture. Becouse of it this discipline was introduced to the program of our department. This course is studied the choice of plaice for organic technologies, certifications schemes, methods of plant's depend for the pest, diseases and weeds in organic Horticulture.

Cultivar vegetables. Cultivar discipline devoted to vegetables and consists of three modules. It serves the origin, history and cultivation vnutrivydovi classification (subspecies, varieties, sort types) of vegetables and melons groups. Quality is the main target of which focused growing technology. Highlighted analysis of high-quality resources in Ukraine and their role in agricultural production products. Deep reasonable selection of varieties and hybrids for specific technologies of growing vegetables and vegetable of different directions. In practical laboratory studies examined specific varieties and hybrids of vegetables and melons different sort types. We study the system approbation and identification signs, especially on examination grades BOC - test vegetables and melons.

Few broaden cultures of the Protected Cultivated. The tendencies's of decorativeness cultures growing in Protected Cultivated in historical aspects and now are studied. Winter's gardens, their kinds and growing's technologies. The kind of tropical and subtropical plants, exotic cultures that were growing in greenhouses.

FACULTY OF PLANT PROTECTION, BIOTECHNOLOGY AND ECOLOGY

Dean - doctor in agricultural sciences, professor, academician of the NAAS of Ukraine M.M. Dolya

Tel.: (044) 527-86-99
E-mail: zr_eco_bio_dep@i.ua
Location: Building № 4, Room 42

Faculty organizes and coordinates educational process of master training in educational program within specialties:

Specialty 202 "Plant Protection and Plant Quarantine"

Educational program "Plant Protection"
Departments in charge of graduate training:
Department of Entomology named after Prof. M.P. Diadechko
Tel.: (044) 527-89-78
E-mail: entomologia@yandex.ua
Head of the department – PhD in Agricultural Sciences, Associate professor, Y.O. Likar
Department of Phytopathology named after Academician V.F. Peresypkin
Tel.: (044) 527-82-11
E-mail: phytopath_Peresupkin@ukr.net
Head of the department –– Doctor of Biology Science, Professor A. L. Kryuchkova

Educational program "Quarantine of Plants"
Department of Integrated Protection and Plant Quarantine
Tel.: 527-82-12
E-mail: kaf.izkr@yandex.ru
Head of the department – PhD in Biological Sciences, Associate professor, A. G. Babych

Specialty 162 "Biothechnology and Bioengineering"

Educational program "Environmental biotechnology and bioenergetics"
Department in charge of graduate training:
Department of Ecobiotechnologies and Biodiversity
Tel.: (044) 527-85-17
E-mail: eko_bio@nubip.edu.ua
Head of the Department – Doctor of Agricultural Sciences, M. V. Patyka

Specialty 101 "Ecology"

Educational program "Ecology and environmental protection "
"Ecological control and audit "
Department in charge of graduate training:
Department of Agricultural Sphere Ecology and Ecological Control
Tel.: (044) 527-81-95
E-mail: eco_dep@mail.ru
Head of the department – Doctor of Agricultural Sciences, Professor V. M. Chaika

Training of masters of sciences in educational program "PLANT PROTECTION" in specialty 202 "PLANT PROTECTION AND PLANT QUARANTINE" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	75
– Part-time	50
Duration of Training:	
– Full-time educational and professional program	1,5 year
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Plant Protection Scientists

The concept of training

Experts in the field of plant protection should have interdisciplinary theoretical knowledge about future activities and development of practical skills application of knowledge gained in the process of production and training practices and master's work. During the program, students acquire knowledge in such areas: entomology, phytopathology, herbology and plant quarantine. Experts in Plant Protection should have profound knowledge of biology, ecology, distribution, and damage characteristics of plants, breeding of pests, ensure phytosanitary control of seed and planting material, plants, soil, air, holding science-based support on the integrated protection of agricultural crops from pests, providing counseling for professionals of agricultural companies, farmers and private owners in carrying out measures to protect crops from pests and controlling of the situation.

Master's program "Biological justification of obligate and facultative pathogens control"

Demands obtaining by the experts of multilateral interdisciplinary knowledge regarding justification of environmentally friendly measures of restricting the development of the most common obligate and facultative parasites of major crops and development of the skills of practical application of the gained knowledge.

Sphere of graduates employment

Graduates can work as researchers in research institutions of Ukraine, as heads of laboratories, technicians, senior experts; in services for testing of plant varieties for resistance against pests, in seed inspections, etc.

Master's program "Phytosanitary monitoring and forecasting"

The program provides training for work in the State regional and district alarm services and forecasting of harmful and beneficial biodiversity of phytocenosis; inspections of plant protection and quarantine, pest control services, scientific research institutions, control and toxicological laboratories and biological plant protection, in farms of different ownership.

Sphere of graduates employment

Graduates can work in supporting companies of forecasts and occurrence of pests, farms of different ownership, companies, associations, societies of agricultural direction, in the position of scientific-research institutions of plant protection in regional inspections of plant protection and related areas of work (agronomic and agrochemical service).

Practical training

Teaching and research farms of NULES of Ukraine: PC of NULES "Agronomic Research Station", "Velykosnitynske TRF by the name of O. V. Muzychenko", TRF of NULES of Ukraine "Fruit and Vegetable Garden".

Research institutions of NAAS of Ukraine: Institute of Plant Protection, Institute of Microbiology and Virology, Institute of Horticulture, Institute of Ecological Hygiene and Toxicology by name of L.I. Medved, Institute of Zoology by name of I.I. Schmalhausen, Institute of Beekeeping, Institute of Agriculture, Institute of Bioorganic Chemistry, Research Center of the Institute of pomology by the name of L.P. Symerenko (Cherkasy reg., Horodyshche district, Mliev).

The State Veterinary and Phytosanitary Service of Ukraine and its regional units.

PC "Agro-Soyuz" Dnipropetrovsk region, CLL "Barishevsky Grain Company", Rivne Plant Protection Research Station, State Kostopolsky varietal station in Rivne region, agency of firms in Ukraine producing pesticides: Syngenta, Monsanto, BASF, Arysta Life Science, Bayer, JSC "Trans Oil" and others.

Proposed Topics for Master Theses

1. Optimization of useful insect culture in laboratory and production conditions.
2. Environmental peculiarities of leaf-eating fruit pests and influence of abiotic factors on the dynamics of their population.
3. Influence of anthropogenic factors on development of harmful insects.
4. Influence of biotical factors on development of herbivorous insects in green house terms.
5. Activity of ferments and their role in resistance to plant diseases.
6. Research of mikotoksin role in development of plant diseases.
7. Resistance of microbal cenosiss structures of basic soil types while different use.
8. Comprehensive effect of herbicides on sowing of cereals, legumes, technical, oil and vegetable crops.
9. Specific composition and bio-ecological features of basic rodents at field crops and measures of their control.
10. Measures of imported vegetable material protection from managed quarantine and unquarantine herbivorous insects.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training
in educational program "Plant protection"
(educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Logistic and communications in Plant Protection	1	90	3
2	Standardization and jurisprudence in plant protection	2	30	1
3	Managing the number of weeds in agrophytocenoses	1	90	3
4	Complex systems of crop plant protection from diseases	1	90	3
5	Phytofagous insect management	1	90	3
6	Civil Defence	1	30	1
7	Toxicology of Pesticides	2	120	4
8	Technology of mass rearing of beneficial insects	2	150	5
9	Epiphytotiology	1	90	3
10	Crop Seed pathology	2	90	3
11	Labour protection in plant protection	3	30	1
Total for standard part			**900**	**30**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	90	3
4	Economic and organization of agricultural service	2	90	3
5	Biosafety in Plant Protection	2	90	3
6	Desinfection of Management objects	1	90	3
7	Methods of plant protectant testing	2	90	3
Total (Disciplines offered by University)			**690**	**23**
2.2. Disciplines offered by students				
2.2.1. Master's program "Biological justification of obligate and facultative pathogens control"				
1	Actinomitsetes diseases of plant	3	90	3
2	Physiological and biochemical aspects of plant resistance to disease	3	120	4
3	Mycotoxicology	3	120	4
4	Methods for infectious backgrounds forming in phythopathology	3	90	3
5	Pathogenesis in plant production	3	90	3
6	Pathological process of plants' root system	3	90	3
Total (Disciplines offered by students)			**600**	**20**
2.2.2. Master's program "Phytosanitary monitoring and forecasting"				
1	Experimental research methods in entomology	3	120	4
2	Insect pathology	3	120	4
3	Insects ecology	3	120	4
4	Insect physiology	3	120	4
5	Technical entomology	3	120	4
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**2190**	**73**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1,2	330	11
2	Preparation and defense of master's work	3	180	6
Total			**510**	**17**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Logistic and communication in Plant Protection. The course is focused at analyze of supply, transpiration and storage of plant protection products with identification factors effecting level of production and sells of microbial products, pesticides and agrochemicals in different regions of Ukraine. The course is a foundation for estimation of plant protection products effective transportation of by mean using logistical models and computer technologies, considering mechanism of synergetic efficient use of compounds in local, regional and state levels.

Standardization and jurisprudence in plant protection. Discipline "Standardization and jurisprudence in plant protection", including study thus questions, discusses the main normative documents that regulate effective implementation of various technological operations in the protection plants, the main legal aspects the application of different pesticides in crop production. Compiling the content of courses taken into account the laws of Ukraine on standardization and safety of plant products

Managing the number of weeds in agrophytocenoses. Involves the study of factors that regulate the number of weeds in phytocenoses crops, environmental and economically sound principles of integrated crop protection from weeds.

Complex systems of crop plant protection from diseases. Using the newest informational and specialired technologies of plant prection Against diseases. The control of deyelopment of diseases of bield, vegetable and bonit crops and grape plantig are.

Phytofagous insect management. Phytofagous insect management deals from one side with key agricultural pests and from another side provide foundation for the population dynamic forecast and management (regulation) of phytophagous insects pests which is the important part of crop production technology.

Civil defence. Is an effort to protect the state citizens from military attacks.

Toxicology of Pesticides. Contents discipline toxicology of pesticides involves voluminous factual material on the rational and environmentally safe use of pesticides in agriculture, given their biological activity and the impact on the environment. We study the mechanism of action of pesticides on pests, crops, mammals, humans and the environment in general.

Technology of mass rearing of beneficial insects. The course deals with modern technologies of mass rearing of beneficial insects. Course objective is to teach students about theoretical foundation and technologies of laboratory and mass rearing of useful insects, nematodes and mites that is commercially used in green houses and open fields.

Epiphytotiology. The program provides for familiarization of students with the science of epiphytoties and different protective measures against diseases based on the intense increasing of infection and the interconnection between amount of infectious onset and disease development, to determine an influence of phytosanitation, selection of disease resistance, fungicides application and their influence on pathological process of limitation and abolition of epiphytoties.

Crop Seed pathology. The condition of seed infection, methods of phytopathological examination, ways of decrease of affect and damage of seed; seed pathology of basic groups of cultures, saprotrophytic mycobiota of seed.

Labour protection in plant protection. Includes the study of safety in all types of work associated with the use, transport, storage of pesticides, and the laws of Ukraine and instructional materials for the protection of plants, social and legal protection of specialists of this sector.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Economic and organization of agricultural service. This objects economic efficiency of agricultural service in market relations. Future specialists know specification of economic and business relations between agricultural farms and another spheres of agricultural industry.

Biosafety in Plant Protection. Includes the study of the impact of pesticides on living objects environment, toxicological and hygienic characteristics of chemical classes of pesticides, safety requirements at work, what related with the use of pesticides.

Disinfestation of Management objects. Foresees the study of technologies of disinfection of imported vegetable materials and plant products with the purpose of prophylaxis or eliminations of quarantine species while export-import trading operations.

Methods of plant protectant testing. The basic theoretical principles, classification of plant protection products, testing and assessment of technical, commercial and economic efficiency of modern pesticides on major crops.

2.2. Disciplines offered by students

2.2.1. Master's program "Biological justification of obligate and facultative pathogens control"

Actinomitsetes diseases of plant. The study of their biological and ecological features will be instrumental in timely diagnostics of actinomycosis and conducting of protective measures. Monitoring of actinomitsetes diseases. Diagnostics of symptoms of actinomitsetes diseases, learning methods of agent recovery in pure culture.

Physiological and biochemical aspects of plant resistance to diseases. Physiological and biochemical features of plants, which increasing plant immunity to diseases, training with methods of studying anatomical, morphological, physiological, biochemical characteristics of infectious and healthy plants to determine plant resistance to disease.

Mycotoxicology. Discipline allows students to analyze the features of toxic substances micromycetes, to characterize toxicogenic ability of phytopathogenic fungi, to justify measures to reduce damage plants, to overtake of method for determining mycotoxins in plant products.

Methods for infectious backgrounds forming in phythopathology. Discipline is one of the main training disciplines for plant protection specialists and is based on using of infectious backgrounds in selection of new crop varieties with high resistance to diseases.

Pathogenesis in plant production. Discipline explores the main diseases of plant production in the post-harvest period, its loss through effect of pathogenic organisms and influence of external environmental factors on the pathogenic development.

Pathological process of plants' root system. The main purpose of discipline is a study of species composition of the ground pathogens, which cause diseases of plant root system, research of roots pathology symtomatology, methods of their monitoring, establishment of bioenvironmental properties of microorganisms and features of the pathological process at the defeat of plants rootage, development and improvement of measures on the increase of resistance of agricultural crops against ground micromycetes.

2.2.2. Master's program "Phytosanitary monitoring and forecasting"

Experimental research methods in entomology. They are lighted up the modern methods of experiment planning, supervision and accounts, as well as making book-marks, carrying out the experiments, peculiarities of statistical treatment of the research results.

Insect pathology. Morphological characteristics, pathogenesis and epizootiology of important pathogen species in each major taxonomic group with examples of use in biological control programs and disease mitigation methods. In the laboratory, participants can learn how to identify the pathogen groups by observing the gross pathology of infected insects and to use phase contrast microscopy to observe the isolated pathogens. Laboratory techniques for studying and archiving pathogens were demonstrated and practical training provided.

Insects ecology. Is based on the study of influence of the different factors of filament on the regulation of the number of insects, basis morphological and physiological species and means existence.

Insect physiology. Insect physiology-is a study of internal and external structure and function of inspiration, extractor, digestion and circulatory systems, immunity reactions of hemicycle, functional organization of nervous system and chemoreceptor, endocrine organs, attractants and repellents and the role of hormones in reproduction and life cycle.

Technical entomology. Theoretical and practical skills of creating and controlling of insect culture during selection of initial material and introduction in artificial reproduction condition up to creation of initial population is considered.

Training of masters of sciences in educational program "QUARANTINE OF PLANTS" in specialty 202 "PLANT PROTECTION AND PLANT QUARANTINE" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	50
Duration of Training:	
– Full-time educational and professional program	1,5 year
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	inspector Plant Quarantine

The concept of training

In the process, students receive theoretical and practical knowledge and skills for the protection and quarantine of plants based on the latest methodology of scientific activities for effective implementation of the tasks of educational-scientific-production and innovation. Experts in the field of protection and quarantine of plants study of harmful and beneficial insects, mites, rodents, weeds, flowering parasites, venerated, plant diseases (fungal, bacterial, viral and other) and protection of crops from pests and learning to provide advice to the specialists of the farms, farmers and private owners in carrying out activities of protection of agricultural crops from pests and compliance of their control.

Master's program "Quarantine of Plants"

Program provides training of specialists with knowledge of domestic and European phytosanitary legislation; skills of pest control object control of internal and external plant quarantine, phytosanitary thorough examination; pest risk analysis of pests on the possibility of acclimatization in Ukraine; potential environmental and economic impacts and measures on their localization and elimination.

Sphere of graduates employment

Graduates are able to work as inspectors in the State Veterinary and Phytosanitary Service of Ukraine and its regional branch; quarantine laboratories in positions entomologist, plant pathologist, herboloha, nematoloha; in research institutions of Ukraine as researchers, technicians and others.

Practical training

Teaching and research farms of NULES of Ukraine: PC of NULES "Agronomic Research Station", "Velykosnitynske TRF by the name of O. V. Muzychenko", TRF of NULES of Ukraine "Fruit and Vegetable Garden".

Research institutions of NAAS of Ukraine: Institute of Plant Protection, Institute of Microbiology and Virology, Institute of Horticulture, Institute of Ecological Hygiene and Toxicology by name of L.I. Medved, Institute of Zoology by name of I.I. Schmalhausen, Institute of Beekeeping, Institute of Agriculture, Institute of Bioorganic Chemistry, Research Center of the Institute of pomology by the name of L.P. Symerenko (Cherkasy reg., Horodyshche district, Mliev).

The State Veterinary and Phytosanitary Service of Ukraine and its regional units.

PC "Agro-Soyuz" Dnipropetrovsk region, CLL "Barishevsky Grain Company", Rivne Plant Protection Research Station, State Kostopolsky varietal station in Rivne region,

agency of firms in Ukraine producing pesticides: Syngenta, Monsanto, BASF, Arysta Life Science, Bayer, JSC "Trans Oil" and others.

Proposed Topics for Master Theses

1. Optimization of useful insect culture in laboratory and production conditions.
2. Environmental peculiarities of leaf-eating fruit pests and influence of abiotic factors on the dynamics of their population.
3. Influence of anthropogenic factors on development of harmful insects.
4. Influence of biotical factors on development of herbivorous insects in green house terms.
5. Activity of ferments and their role in resistance to plant diseases.
6. Research of mikotoksin role in development of plant diseases.
7. Resistance of microbal cenosiss structures of basic soil types while different use.
8. Comprehensive effect of herbicides on sowing of cereals, legumes, technical, oil and vegetable crops.
9. Specific composition and bio-ecological features of basic rodents at field crops and measures of their control.
10. Measures of imported vegetable material protection from managed quarantine and unquarantine herbivorous insects.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Quarantine of Plants" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Civil Defence	1	90	3
2	Labour protection in plant	3	90	3
3	Desinfection of Management objects	2	120	4
4	External and internal quarantine	2	90	3
5	Methods for inspection and examination of objects of regulation	1	90	3
6	Quarantine pests	1-2	210	7
7	Phytosanitary law and international cooperation	2	120	4
Total for standard part			**810**	**27**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
2	Business foreign language	1	150	5
3	Agricultural policy	2	90	3
4	Economic and organization of agricultural service	2	90	3
5	Biosafety in Plant Protection	2	90	3
6	Desinfection of Management objects	1	90	3
7	Methods of plant protectant testing	2	90	3
Total (Disciplines offered by University)			**690**	**23**
2.2. Disciplines offered by students				
2.2.1. Master's program "Quarantine of Plants"				
1	International phytosanitary standards	3	150	5
2	Introductive pests	3	120	4
3	Quarantine pest risk evaluation	3	120	4
4	Geography quarantine organisms	3	150	5
5	Harmful organisms Ukraine in the international phytosanitary	3	150	5
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**2190**	**73**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1,2	330	11
2	Preparation and defense of master's work	3	180	6
Total			**510**	**17**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Civil defence. Is an effort to protect the state citizens from military attacks.

Labour protection in plant protection. It deals with studying of accident prevention at all types of works, which are related to application, transportation, storage of pesticides, and also laws of Ukraine and instructional materials concerning plant protection, as well as social and legal defense of specialists of this industry.

Disinfestation of Management objects. Foresees the study of technologies of disinfection of imported vegetable materials and plant products with the purpose of prophylaxis or eliminations of quarantine species while export-import trading operations.

External and internal plant quarantine. The course examines the procedure of phytosanitary control of import and export objects adjustment at the state border of Ukraine, at home to prevent the importation into the country of quarantine organisms. And organization, methods, timing control surveys farmland to detect quarantine organisms.

Methods for inspection and examination of objects of regulation. The most responsible chain system of quarantine measures is to determine the quarantine status of goods imported from abroad, determined the review and phytosanitary examination.Mastering the technique of detection of quarantine and other hazardous pests, plant diseases and weeds, mastering the methods of production micropreparations, storage of samples and prevention of quarantine rules. methods of inspection and sampling of the regulated objects, vehicles and phytosanitary examination method of considering diversity import-export trading.

Quarantine pests. The main goal of discipline is to study the biology of quarantine features species of insects, diseases, weeds missing in Ukraine, scientific substantiation of pest risk in case of delivery and possible acclimatization in our country, their harmful for agriculture, forestry and landscape management, potential environmental and economic damages as a result of their life.

Phytosanitary law and international cooperation. Provides study phytosanitary rules of import from abroad, transportation within the country, and exports of agricultural products. Study on plant quarantine laws in Ukraine and familiarization with foreign experience that the regulation in phytosanitary field.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Economic and organization of agricultural service. This objects economic efficiency of agricultural service in market relations. Future specialists know specification of economic and business relations between agricultural farms and another spheres of agricultural industry.

Biosafety in Plant Protection. Includes the study of the impact of pesticides on living objects environment, toxicological and hygienic characteristics of chemical classes of pesticides, safety requirements at work, what related with the use of pesticides.

Disinfestation of Management objects. Foresees the study of technologies of disinfection of imported vegetable materials and plant products with the purpose of prophylaxis or eliminations of quarantine species while export-import trading operations.

Methods of plant protectant testing. The basic theoretical principles, classification of plant protection products, testing and assessment of technical, commercial and economic efficiency of modern pesticides on major crops.

2.2. Disciplines offered by students

2.2.1 Master's program "Quarantine of Plants"

International phytosanitarian standards. Discipline studies the types of modern international fitosanitary standards and purposes of their creation, application and use.

Introductive pests. Discipline foresees the capture of student knowledge of distribution geography of adventive harmful organisms with the purpose of their identification and express-diagnosis of harmful organisms.

Quarantine pest risk evaluation. The harmful organisms of plants can make a risk which is added an estimation. He can be decreased by introduction of the technically grounded fitosanitary measures which will influence minimum on the free trading plants and plants materials.

Geography quarantine organisms. Study centers of origin of pests and climatic conditions in which these species live in phytocenoses. Possible ways of their settlement and entry into Ukraine.

Harmful organisms Ukraine in the international phytosanitary. We consider the species that may be harmful to other countries. In case of detection in plant production need additional treatments.

Training of masters of sciences in educational program "ENVIRONMENTAL BIOTECHNOLOGY AND BIOENERGETICS" in specialty 162 "BIOTHECHNOLOGY AND BIOENGINEERING" branch of knowledge "Chemical and Bioengineering"

Form of Training:	Licensed number of persons:
– Full-time	30
– Part-time	30
Duration of Training:	
– Full-time educational and professional program	1,5 year
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	biotechnologist

The concept of training

The aim of studying is mastering the theoretical basis and formation of appropriate practical skills by researching biological objects considering classical and modern scientific approaches, which harmonically combine student's perception and understanding of biotechnological and ecological directions. Special part allows to master main methods of work with genetic material, which is necessary for preparing high-qualified specialists of branch subdivisions. Practical part allows students to master the use of newest biotechnologies that are based on the use of laws of live nature for creation and realization of the newest systems for agrarian- industrial complex, energetics, light, chemical, mining industries, oil refining complex, quality management of biotechnology products, problems of legislative regulations, management and marketing, problems of biosafety and bioethics.

Master's program "DNA certification and genome mapping"

The essence of Training of masters of sciences lies in the studying of main methods of practical diagnostics and identification of genetically modified organisms in food, mastering the methodology and systems of DNA passport systems of precious agricultural plants with the help of modern biotechnologies and molecular-biological methods. The special part of the program gives an opportunity to master main techniques in the work with genetic material that is necessary for training highly qualified specialists of branch subdivisions.

Spheres of employment of the graduates

Graduates work Graduates work in the enterprises of ecological and sanitary control, in control-producing and control-analyzing laboratories, centers of product certification, commercial firms, and scientific research institutions on the posts of chief specialist, microbiologist, laboratory manager, senior laboratory assistant, scientific employees, bacteriologist, virologist, mycologist etc., postgraduate studies.

Master's program "Biosafety and bioethics"

The program is aimed at studying heredity and changeability of organisms with new, technically created features and their expansion and possible consequences for ecobiocenozes; studies the main legislative documents and agreements in the sphere of biosafety that are accepted in Ukraine and the range of other leading countries in the

world; ethical aspects and problems of biosafety ethics while manipulating the cells, organs and organisms, principles and mechanisms of manipulating the genomes, achievements of gen engineering and therapy and also a range of modern biotechnologies, their benefit and risks for bioworld of the planet.

Spheres of employment of the graduates

Graduates work Graduates work in institutions of environmental and health surveillance, in the control of production and control and analytical laboratories, centers of certification, commercial firms, post-graduate studies.

Practical training

Ukrainian Laboratory of Quality and Safety of Agricultural Products, State Enterprise "Ukrainian Research and Training Center of Standardization, Certification and Quality, State Scientific Control Institute of Biotechnology and strains of microorganisms, LLC "Agrus", Ukrainian State Research Institute "Resource", LLC of "Green Wolf".

Proposed Topics for Master Theses

1. Biotechnology and the use of a biological product Tryhoderminu-R based on new strains of fungi of the genus Trichoderma.
2. Studies of the interaction and use of eubacteria Clostridium new-NT for the treatment of cancer kolorektal-tion in Mus Musculus.
3. Biological and molecular genetic characteristics of the viruses perennial legumes.
4. Development of molecular diagnostic systems for the diagnosis and identification of the virus holeness wood apple.
5. Biotechnological processes and modes of equipment for biological protection of corn in SE NUBiP Ukraine “Agronomic Research Station”.
6. Pathological changes of fungi Pleurotus ostreatus Kumm. under conditions of bacterial infection in biotechnological processes.
7. Molecular genetic characteristics of the viruses of lucerne (Medicago sativa).
8. Biotechnological process of composting of agricultural waste.
9. Molecular genetic polymorphism raspberry varieties Ukrainian selection for DNA markers.
10. Development of molecular diagnostic system for diagnosis and identification of virus Sharkey plum (Plum Pox Virus).

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Environmental biotechnology and bioenergetics" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Philosophy of science and innovation development	1	60	2
2	Civil defense	2	90	2
3	World agriculture and food resources	1	30	1
4	Strategy of sustainable development of nature and society	1	30	1
5	Applied Genetics with the basics of Cytology	2	60	2
6	Ecology Biotechnology	2	90	3
7	Plant Biotechnology	2	90	3
8	Alternative energy: bioenergy and bioenergy conversion	2	90	3
9	Information Technology	2	90	3
10	Applied Ecology	1	90	3
11	Biological Statistics	3	90	3
Total for standard part			**810**	**27**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
4	Instrumental methods of analysis	1	90	3
5	Agricultural Radiobiology and Radioecology	1	90	3
6	Biosafety	2	90	3
7	Design bioprocess	3	150	5
8	Biotechnology in agriculture and biotehmetody in environmental biotechnologies	2	90	3
9	Biomarketing of biotech products	3	60	2
Total (Disciplines offered by University)			**900**	**30**
2.2. Disciplines offered by students				
2.2.1. Master's program "Biosafety and Bioethics"				
1	Microclonal plant propagation	3	90	3
2	Technology in vitro in crop growing	3	90	3
3	Biotechnology Biosafety	3	90	3
4	Immune Biotechnology	3	90	3
5	Biology of individual	3	90	3
6	Cell selection for resistance	3	90	3
Total (Disciplines offered by students)			**540**	**18**
2.2.2. Master's program "DNA-certification and mapping the genome"				
1	Diagnosis and identification of GMO DNA Passport	3	120	4
2	Cell and Molecular Biology	3	120	4
3	Population genetics	3	90	3
4	Genetic Engineering	3	90	3
5	Molecular Virology	3	120	4
Total (Disciplines offered by students)			**540**	**18**
Total for elective part			**2250**	**75**
3. OTHER TYPES OF TRAINING				
1	Practical training	1,2	300	10
2	Preparation and defense of master's work	3	150	5
Total			**450**	**15**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum
1. STANDARD ACADEMIC DISCIPLINES

Philosophy of science and innovation development. Studying the specifics of the philosophy of science and innovation development as a special type of human knowledge and as an academic discipline. The main stages of the historical development of the major trends and methodological techniques solve the main problems of philosophy of science based on the comparative characteristics of classical and nonclassical are considered. Postnonclassical ideals of scholarship. Studying ontological, epistemological, epistemological, methodological, structural and organizational, ideological, moral values and principles of measurement philosophy of science. Philosophical analysis of specific current state of Ukrainian and world science, the prospects for their development and interaction with other spheres of social life, and basic problems of biology and ecology.

Civil defense. Examining the functions and tasks of a unified state system of prevention and emergency response, protection of economic activity, providing practical skills for the securing of economic activity and its surrounding area.

World agriculture and food resources. Economics of agriculture in developed countries. Globalization of the world and the problem of human food. Food and feed capabilities continents. Food resources of crop and livestock sector. Food of animal resources sector oceans. Food pyramid nutrition. The world market for crop production, animal husbandry and its trends. Features pricing of agricultural products and food resources in developed countries. International scientific and technological cooperation in agriculture and food resources.

Strategy of sustainable development of nature and society. Studying provision of practical implementation mechanisms, coordination and harmonization of social, economic and environmental sustainable society in the country, organizes plans and timing of stages of the objectives of sustainable development. It promotes mastery and skills monitoring of indicators of sustainable development, identifying environmental risks and hazards for human development and sustainable development, the use of international agreements and documents related to sustainable development, developing plans and programs (region, city, town) in the transition to sustainable development of Ukraine and other countries in transition economy.

Applied Genetics with the basics of Cytology Mechanisms of destruction of the biosphere, methods and techniques of environmental management. Geotechnological, socialeconomical technological ecological and environmental research, the specific relations between organisms and the environment they exist in different geographical areas. Features of natural resources, development of environmental regulations and technical means of environmental protection, restoration of destroyed ecosystems.

Ecology biotechnology. Biotransformation, biodegradation bioavailability of major biochemical pathways of microbiological transformation of organic xenobiotics and genetic bases of creation of recombinant microorganisms, degradation of organic xenobiotics, pollutants biodegradation of inorganic nature, natural or synthetic polymeric materials, environments, anaerobic biological treatment, systems design and construction of anaerobic biological treatment, bioremediation soil bioremediation «in situ», «off site», Biological removal of heavy metals and radionuclides, phytoremediation, biological purification and deodorization gas-emission microbiological processing of organic waste.

Plant Biotechnology. Studying basic directions and prospects of plant biotechnology, object and methods of biotechnology, culture of isolated cells and tissues, callus and suspension cultures, microclonal plant propagation and recovery from viral infections, morphogenesis and regeneration of plants under in vitro (organogenesis,

embryogenesis), selection of plants under in vitro, cellular and genetic engineering methods for creating transgenic plants.

Alternative energy: bioenergy and bioenergical conversion. Classification and properties of fuels, the essence of the process of burning fuels, technologies and technical means to bring solid biofuels to a condition ready for burning, especially the use of different types of biofuels, their advantages and disadvantages. Technical means for combustion of solid biofuels and biofuel pelletizing, control of key process parameters biodiesel installation, maintenance and repair of equipment for the production of biodiesel, granules and pellets.

Information Technology. Mastering the art information technology based on knowledge of technical components of computer systems and required complex software to organize and implement information and research complex in ecology and biotechnology for processing textual, numerical and graphical information, conduct mathematical analysis of experimental studies, as well as preparation of advertising and promotional materials to highlight the research results, methods of mathematical models of the major abiotic and biotic processes, use of basic elementary functions and their combinations for constructing models.

Applied Ecology. The mechanisms of destruction of the biosphere, methods and techniques of environmental management. Geotechnological, technosocial economical and environmental research, the specific relationships of organisms and the environment they exist in different geographical areas. Features of natural resources, development of environmental regulations and technical means of environmental protection, restoration of destroyed ecosystems.

Biological statistics. Generates knowledge of basic methods of statistical data Math. Providing the skills of mathematical processing of the results of research, graphics.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their

lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Instrumental methods of analysis. Studying the basic theoretical principles underlying physical, chemical and visual instrumental systematic study of biological objects in vitro and in vivo. Studying the basic techniques of electrophoresis, chromatography, colorimetry and spectrophotometry, the technique works on light, fluorescent, confocal and electron microscopes.

Agricultural Radiobiology and Radioecology. The general question of supply and migration of radionuclides in the environment and agriculture. The basics of specific sectors of agricultural production in the contaminated territories, technological methods of treatment of crop production and animal husbandry of radionuclides are considered . Studying the methodology of radiation monitoring in agricultural production.

Biosafety. We study the heredity and variation of organisms with artificially created new features, as well as their distribution and possible consequences for ekobiocenoses.

Design.**Bioprocess** Studying the techniques of designing biotechnological equipment and techniques needed to master the development and introduction of new bioprocess.

Biotechnology in agriculture and biotehmetody in environmental biotechnologies. The use of non-waste technologies and processes in agriculture, rational use of organic fertilizers, silage, feed additives, amino acids, enzymes, growth regulators, biological products, plant protection against pests without breaking agrocenosis. Biotechnological processes in ecosystems that are created during the growth of environmentally friendly crop production are explained.

Biomarketing of biotech products are considered general principles and functions, basic categories and concepts of biomarketing of biotechnology products, pricing methods, methods of promotion and marketing, the organization and control of marketing activity that forms the basis of the marketing practices of biotech products. Attention is focused on the market research products or services biotechnological direction; range planning biotechnology products in enterprises; organization processes and sales promotion services or biotech company. The market economy makes new demands to specialist biotechnology. They must be qualified, have modern means of organization of industrial and commercial activities, timely adapt to changing of marketing environment, to ensure sustainable functioning of biotech companies.

2.2. Disciplines offered by students

2.2.1. Master's program "Biosafety and Bioethics"

Microclonal plants propagation/ Studying theoretical and practical aspects microclonal propagation of plants under in vitro, namely the principles and theoretical basis of preparation of culture media, the effect of growth regulators on the growth and development of plants, the physiological basis of morphogenesis, method and technique

microclonal reproduction phenomenon of apical dominance. Attention is focused on microclonal propagation of herbaceous and woody plants (growing of tropical and subtropical plants, technical, cereal, vegetable, fruit, berry and tree crops).

Technologies In vitro in crop growing. The purpose of this course is to familiarize students with the principles of the use of biological knowledge in the production of valuable products virtually and gain an understanding of modern biotechnological processes based on genetic and cellular engineering.

Biotechnologies Biosafety. Provides fundamental knowledge and practical aspects of ecological biotechnology industry, domestic and international legislation on biosafety biotechnology industries, the concept of the basic principles of design and selection of producers of biotechnology, biotechnological aspects of bakery, dairy, meat, alcohol, yeast, sugar, malt, beer and drinks.

Immune biotechnology. Masters get fundamental knowledge in immunology and immunochemistry, get acquainted with the latest developments in the field of science and technology for development of immunological products – vaccines, immunoglobulins, serum diagnostics including the use of genetic engineering. Get knowledge about methods of state control safety and quality of immunological agents. Special part involves mastering molecular genetic and immunochemical methods of analysis and purification method for obtaining biopolymers, for example proteins and nucleic acids.

Biology of individual The course focuses on the study of genetic information during ontogeny. During the course students are introduced to morphological aspects of development, as well as biochemical and molecular genetic mechanisms that accompany them during embryonic and postnatal development. Particular attention is paid to the molecular-genetic aspects of the determination and differentiation of cells and their stability during ontogeny.

Cell selection for resistant The foundations and methods of resistant plants producing to biotic and abiotic factors, especially the mutagenesis and selection of mutants *in vitro*, nature and mechanisms of somaclonal variability, obtain the resistant lines to pesticides, temperature stressors, pathogens are studied. The attention is focused on the principles of obtaining mutants, using cell technologies and their application in the cell engineering; effects of stressors on the plants, nature and mechanism of resistance to individual substances; *in vitro* selection methods and uses of resistant variants to salinity, ionic stress, pesticides and plant pathogens; types and selection auxotrophic and ts-mutants; creating new forms of plants with selective marker signs.

2.2.2. Master's program "DNA-certification and mapping the genome"

Diagnosis and identification of GMO, DNA certification. The main purpose of discipline is the assimilation of theoretical foundations and practical formation of appropriate skills in the study of biological objects and genetically modified organisms, genotyping methods and techniques of agricultural plants and their DNA certification in accordance with modern scientific approaches, harmoniously combining the perception and understanding of practical and theoretical environmental knowledge for students and ecobiotehnological direction.

Cellular and molecular biology. The purpose of this course is to familiarize students with the current state of research and practical application fields of the discipline, course Objective is to build students' understanding of the unity of biological systems, resulting in structural and chemical similarities organization, and fundamental molecular processes that distinguish them from inanimate objects. Particular attention is given to mechanisms that ensure the preservation and realization of genetic information in the cell is the basic structure of any organism.

Population genetics. Discipline program provides an opportunity for students to expand knowledge and practical skills in basic and applied aspects of population genetics. Main topics of lectures and workshops include the study of population structure, variability of traits in plants, humans and animals, factors that alter the genetic structure of populations, natural selection, population genetics of modern methods used in agriculture, scientific research, biotechnology, ecology, medicine and genetic engineering.

Genetic Engineering. The purpose of this course is to familiarize students with current trends and challenges of genetic engineering methods of producing genetically modified organisms. Course description: creates a knowledge of methods of cloning DNA fragments structural features vectors from prokaryotes and eukaryotes, creating libraries genomes, restriction maps, obtaining drugs, obtaining transgenic plants and animals. As a result, the discipline master should be able to based on the latest achievements using the guidelines, plan and choose the optimal conditions for transformation of recombinant DNA and genetic material.

Molecular virology. The acquisition of the teoretical foundations and practical skills appropriate formation in the study of biological objects based on classical and modern scientific approaches.Special part of the discipline makes it possible to learn the basic techniques of working with infectious materials, create diagnostic test kits for the identification of viruses, the diagnosis, identification of viruses using molecular biology techniques, to carry out genetic manipulation of viruses analyze genetic sequences and trace phylogenetic relationships, the need for training highly qualified specialists biotechnological areas.

Training of masters of sciences in educational program "ECOLOGY AND ENVIRONMENTAL PROTECTION" in specialty 101 "ECOLOGY" branch of knowledge "Natural sciences"

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of Training:	
– Full-time educational and professional program	1,5 year
– Part-time	1,5 year
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	biotechnologist

The concept of training

The graded training of ecologists is realized through the continuous, integrated programs of basic and specific directions and the direction of national administration, including those which are adapted to the level of better world analogues, to the joint or simultaneous training at the universities-partners by means of integration into education and scientific complexes or international university consortiums and consists in the complete higher education qualification obtaining – Ecology Master, Academic (under the basic direction), Standardization, Certification and Quality Specialists, Environmental Management Experts (under specific directions) and Public Officer (under national administration direction).

Creating the Master programs the next possibilities were taken into account: ecological erudition and provision of general ecological constituent training of all professionally interested; representation in education process the social and ecological order for stable development; availability of favorable environment for integration of education, sciences, innovations, academic education informational support; valedictorian competency formation in formation of concepts, strategies, policies and programs of socio-economical and environmentally safe development and conservancy of nature for optimization of life and environment quality indicator on the basis of ecologically oriented administration decisions by means of improvement of education and scientific researches quality; performance assurance of the mechanisms of ecological policy and management on the global, national, regional and local levels.

Master's program "Ecology and protection of aquatic resources of the agrarian sphere"

The training provides the study of purification technology and requirements to the quality of the sources of centralized and decentralized water supply; methodology of environmental assessment of the quality of agrarian sphere water resources; ecological certification of water bodies; ecological safety of water ecosystems; means of sustainable utilization and protection of agrarian sphere water resources and the quality control, ecological problems of irrigation and drained farming; formation of land and water ecosystems development and society economical development ecological bases.

Sphere of graduates employment

The valedictorians of this Master program are engaged with the protection and regeneration of water ecosystems, the ecologically safe use of water bodies and sources and

the carrying out of scientific support in scientific researches, planning and surveying works for resource conserving water use in the sphere of water and land resources eco-management under the branches of national economy; they contribute to the improvement of general ecological education of the population, in particular, employing for National Agency of water Resources of Ukraine and its structural divisions (basin, regional department of water resources, channels department), Public Enterprise “Water Exploitation”

Master’s program "*Ecological control in agrarian sphere: monitoring, certification, expertise*"

The training of ecologist, who gain the knowledge of agro-ecological monitoring of agrarian sphere territories; inspector inspections of economic entities, entities of ecological certification of industrial and agricultural enterprises, rural communities, hard domestic waste, land lots, fodder grounds and natural and recreation objects; landscape and ecologic expertise of the agrarian objects and the cultivation of crops technologies.

Sphere of graduates employment

The valedictorians activity of this master program concerns the organization, support, performance and observance of ecological control in the agrarian sphere of monitoring, audit, certification, examination for regulation of socio-economical and ecologically safe development of territories and enterprises of the agro-sphere. The places of employment for such valedictorians are the enterprises of the agribusiness industry of different property forms, in particular: LLC "Agrokhimservis"; PE "Agroresursy", LLC Agrarian "Germes", CJSC Stud Farm "Agro Region", LLC "Druzhba-Nova", Kraft Foods Ukraine etc.

Practical training

The practical training of the experts is held on the scientific and research farm units of SD of the National University of Life and Environmental Sciences of Ukraine: "Velukosnitynskyi scientific and research farm named after O. V. Muzychenko", "Scientific and research farm "Vorzel", "Agronomic research station", and the Institute of Agroecology and Ecosystem Exploitation of the NAAS of Ukraine, the Institute of Plant protection of the NAAS of Ukraine, LLC "Svitanok-agrosvit", Ukrainian Public Scientific and Research Institute "RESURS", LLC scientific and Production Firm "Agroecosystems Ltd.".

Proposed Topics for Master Theses

1. Ecological certification of different origin and economic use water sources.
2. Assessment of lands appropriateness developing the ecologically safe raw materials zone for production of baby and diet food.
3. Ecological control of soils quality – territories ecological certification.
4. Ecological and hydroeconomic measures for water quality establishment.
5. Ecological management, marketing and audit on the agrarian enterprises.
6. Ecological policy: global, national (public), regional, field, corporative.
7. Water quality ecological assessment of different level occurrence on the farm or production district.
8. General environment impact assessment of the agribusiness enterprises and ecological situations characteristic in agrarian sphere.
9. Environmental approval of the agricultural products and raw materials production technologies.
10. Ecological inspection of the hazardous agrarian enterprises.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Ecology and Environment Protection" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Civil defense	2	60	2
2	Labor Safety in the industry	2	30	1
3	Pedagogy and Psychology of high school	1	30	1
4	Teaching methods at higher school	1	60	2
5	Methods and organization of scientific studies	1	90	3
6	Sustainable development strategy	1	90	3
7	Ecological management and audit	1	90	3
8	Systems analysis of environmental quality. GIS analysis of agrolandscapes	2	150	5
Total for standard part			**600**	**20**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Philosophy of science and innovation development	1	60	2
2	Business foreign language	1,2,3	120	4
3	Agricultural, Land and environmental Law	1	30	1
4	Agricultural and Ecological policy	1	90	3
5	Agricultural radio-ecology	2	120	4
6	Ecological standardization and certification	2	90	3
7	Problems of environmental safety and modern concepts of nature use	2	150	5
8	Information technologies	2	90	3
9	Intellectual property and world information resources	2	60	2
Total (Disciplines offered by University)			**810**	**27**
2.2. Disciplines offered by students				
2.2.1. Master's program "Ecology and protection of aquatic resources of the agrarian sphere"				
1	Monitoring of water quality in the agricultural domain	3	90	3
2	Disposal of sewage, recovery and neutralization	3	180	6
3	Methodology of modern chemical analysis	3	180	6
4	Environmental safety of aquatic ecosystems	3	90	3
Total (Disciplines offered by students)			**540**	**18**
2.2.2. Master's program "Environmental management in the agricultural domain: monitoring, certification, expertise"				
1	Agroecology	3	180	6
2	Ecological expertise in agriculture (agro-biotechnologies)	3	90	3
3	Agro-ecological control and management (monitoring, certification, management, inspection)	3	180	6

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
4	Modern biotechnologies and bio-safety	3	90	3
Total (Disciplines offered by students)			**540**	**18**
Total for elective part			**1950**	**65**
3. OTHER TYPES OF TRAINING				
1	Academic Practice	1,2	60	2
2	Production Practice	1,2	540	18
3	Preparation and defense of master's work	3	150	5
Total			**750**	**25**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Civil defense. The discipline studies the functions and tasks of a unified state system of prevention and emergency response, protection of subjects of economic activity, provides practical skills for the protection of subjects of economic activity and their surrounding area.

Labor Safety in the industry. The discipline generates knowledge of theoretical and practical training of students in creating safe working conditions of workers of agro industrial complex.

Pedagogy and Psychology of high school. The discipline examines the state, structure and methods of modern psychology and pedagogy, the development of creative personality. Generates knowledge of the principles and patterns of training and education of individuality, psychological characteristics of the formation and development of individuality and of individual psychological characteristics causing a specific personal-social behavior, activities and communication, helps to clarify the motives of human actions, to regulate interpersonal relationships.

Teaching methodology in higher education. The discipline provides acquisition of knowledge of the nature of teaching methods and their optimal choice in educational activities. Discloses methods of preparation of lectures and lecturing, giving seminars and workshops. We give a description of the most famous modern teaching methods, recommendations for study and use.

Methods and organization of scientific studies. The discipline creates in students a representation of self-creative, scientific thinking and develops the skills of scientific activity, promotes mastery of the latest environmental research methods allowing obtaining the quantitative and qualitative data needed for overall ecological characteristic of objects, processes in the environment leading to the right choice of technology, organizational and administrative decisions, ability to be oriented by the laws and regulations and clearly generate evidence-based conclusions.

Sustainable development strategy. The discipline generates knowledge of the principles and strategies of sustainable development as a harmonious process that ensures sustainable economic convergence, promotes environmental ecological culture - the preservation of natural resources, ensures the Biosphere space and environmental safety meeting the needs of human life. Learns provisions of practical implementation mechanisms, coordination and harmonization of social, economic and environmental strands of the development of sustainable society in the country, organizes plans and schedules of stages of sustainable development. Promotes mastery and skills of monitoring the indicators of sustainable development, identifies environmental risks and hazards for human development and sustainable development, promotes the use of

international agreements and documents related to sustainable development, performance of plans and programs (region, city, town) in the transition to sustainable development in Ukraine and other countries in transition.

Ecological management and audit. Environmental Management examines managerial relationships in an institution ensuring its sustainable development, environmental protection, safety of human life, sustainable use of natural resources and environmental safety of the institution and its activity aimed to the implementation of environmental objectives and programs of environmental impact, and creates a knowledge of environmental strategy of social development, management of natural resources and environment-related activity, which are determined by biological and socio-economic characteristics of enterprises, strategic goals of the society and allow the enterprises to survive and achieve their goals in the long run. Environmental audit is a management tool which examines the effectiveness of management in preserving the environment and maintaining competitiveness through ecological production, creates knowledge of systematization, documentation, frequency of objective evaluation of conformity of environmental management, operation of equipment and its conformity with environmental objectives, creates the ability and skills for assessment of environmental regulations and environmental policies of the company.

Systems analysis of environmental quality. GIS analysis of agrolandscapes. Systems theory in ecology is an interdisciplinary area of scientific research and eco-oriented disciplines that forms knowledge for developing generalized models of natural and anthropogenically-modified systems, constructing logical and methodological conceptual description of functioning and behavior at the ecosystem objects, generating the generalized theories (hypotheses, laws) of ecosystems (land, water - natural and anthropogenic) of different types (agro, urbo-, techno- systems), including the systems dynamic theory of purposeful behavior, genesis, evolution and historical development of the hierarchical structure, the governance processes of systems. System Analysis of the environmental quality examines the set of scientific, educational, industrial (technological) problems, which in their specificity and diversity are similar and are considered as a whole in terms of the object being tested in different types of ecosystems, generates skills for building scenarios of representation of ecosystems and means of the study of objects and their components (description, explanation, interpretation, modeling, prediction, prevention, design, construction).

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Philosophy of science and innovation development. Philosophical and scientific approaches to the study of science and innovation. Philosophy of science: ontological, gnoseological, epistemological dimension. Forms of organization of science. Classical, non-classical and postnonclassical ideals of scientism. Methodology of perception of scientific and innovative activity. Study of basic scientific forms. Value of basic and applied research strategies. Philosophical foundations of classification of sciences. Philosophy of technology: theoretical and methodological aspects. Philosophical understanding of scientific worldview. Logic of scientific research in the context of contemporary global issues (environmental, technological and social). Axiological dimension of science: the problem of responsibility of the scientist.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another

language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agricultural, land and environmental law. The purpose of the discipline is to explore the regulation of certain types of economic activity of agricultural enterprises and their legal environment as well as Contractual relationship of agricultural business entities, legal regulation of agricultural lands and other natural resources in agriculture in Ukraine. The discipline involves the study of law and state regulation of legal relationship in the field of environment, natural resources and environmental safety and environmental human and civil rights in Ukraine.

Agricultural and Ecological policy. Examines the documented and officially declared (approved) system of ecological concepts, principles, approaches, priorities and activities, that defines the relationship between the society, the state and the environment, generates knowledge and skills of future leaders in the development of environmental policies, systems of production, management of enterprises and corporations through which the adherence of the administration for environmental priorities shall be demonstrated.

Agricultural Radio-ecology. The discipline learns concentration and migration of radio nuclides in environmental objects of environment and agricultural production, agricultural environment and their effects on plants, animals and agro-ecosystems as a whole. Generates knowledge of designing the principles for the development of agriculture in the contaminated territories, complex protective measures for ensuring production of agricultural products and raw materials meeting radiological standards, regulations, requirements.

Ecological standardization and certification. The discipline examines the system of mandatory functional and environmental requirements for products, technologies, management, is aimed to improving their environmental performance and implementing the system-wide identification for establishing compliance and certification. Provides the ability and skills in management, preparation and development of documents certifying conformity of environmental management of the enterprise to the requirements of standards and additional regulatory documents. Generates knowledge of basic provisions and terminology of the state control on the environment, the current state of the environment in Ukraine and Europe, environmental regulation of control parameters of the environment, methods and means of control of parameters of the environmental objects, transboundary pollution issues, accreditation of laboratories, using interlaboratory comparative trials.

Problems of environmental safety and modern concepts of nature use. The discipline generates knowledge about ecologically friendly environment provided by prevention of negative impacts leading to the environmental degradation and risks to human health, the ability to determine the types of environmental safety according to the territorial basis (global international, stat -national, regional, local), according to the means of ensuring: technological, ecological (radiological, socio-ecological, economic and natural environmental safety), according to the objects of the environmental safety: the environment and its components, environmental safety of human and human society; skills of development and introduction of modern concepts of management of natural resources aimed to the protection of the environment and public health. Optimization of management of natural resources. Generates knowledge about the conditions of balanced interaction of human society with all natural biomes of the biosphere. Provides the skills to achieve the effective results in management and obtain maximum economic benefit with minimal damage to the environment, consumption of natural resources and their restoration and protection of the environment from pollution and destruction.

Information Technologies. Mastery of modern information technologies based on knowledge of technical components of computer systems and complex software needed to organize and implement information and perform the research complex in the ecology for processing textual, numerical and graphical information, conducting mathematical analysis of experimental studies and preparing advertising and promotional materials to highlight the research results.

Intellectual property and worid information resources. The discipline generates knowledge about the latest technologies of the work with information data, study of legal aspects of their use, the use of the modern tools, production of digital content related master's research, information expertise, research expanded database of Internet resources, new approaches to processing the Information data and direction of research, quality of presentation of the results of independent research, legal aspects of copyright law, particularly for the use of Internet resources, protection of intellectual property rights at the national and international level, principles of organization and operation of computer networks, WWW systems and Web 2.0technologies, composition, structure and principles of the search engines used in the global Internet, the main methods of finding information data, organization and expansion of conventional web search, the main agrarian resources, including FAO resources (electronic and depository libraries, AgroWEB and other Internet resources), concept of digital content formats and their main purpose, including media, formats, office documents, databases, spreadsheets, presentation of the principles of research results through publications, presentations, website, principles of social community and social services of the Internet - blogs, wikis, Geocaching, geographic information systems, principles of creating and using databases , expert systems, data processing using the spreadsheets. Provides the following skills after completing the course: conducting the effective information retrieval, including academic and professional direction, using traditional and electronic sources including the Internet resources, evaluating the resources found online, using professional and scientific information in compliance with the protection of copyright and Intellectual property, make out in compliance with the requirement of the WAC (the State Commission for Academic Degrees and Titles) of Ukraine the links to the Internet resources, experience of work with office applications for registration of research results, including word processors, presentation of packages, spreadsheets and database, using the e-mail, forums, blogs, wikis, geographic information systems, photography and video services to share information and to present the results of research on the net, making the publication of research results in the web-compatible formats; organizing the research work, choosing the best methods and tools for presentation of the results.

2.2. Disciplines offered by students

2.2.1. Master's program "Ecology and protection of water resources in the agro sphere"

Monitoring of water quality in the agricultural domain. Study of the discipline as a part of the final phase of the master's degree in the field of ecology and environment, creating the base of scientific outlook on current knowledge in monitoring of water quality. Mastering the techniques of water quality parameters and their evaluation.

Disposal of sewage, recovery and neutralization. Formation of theoretical and practical knowledge of the foundations of modern water treatment technologies with a focus on the problem of purification of agricultural wastewater. Examines and sets the composition of wastewater and pollution, physical and chemical foundations of water and wastewater treatment, water purification methods of waste products and the organization of closed water cycles. Related with the prevention and reduction of waste, its collection and transportation, storage, processing, disposal and removal, disposal and burial, as well as preventing negative effects on the environment and human health.

Methodology of modern chemical analysis. The main purpose of the study of the theoretical part of methodology of modern chemical analysis is to provide knowledge about modern methods of analytical chemistry of the environment, the methodology of sample preparation for analysis, exploring mathematical processing of the results of chemical analysis, determination of heavy metals in water and soils and learning new techniques methods of environmental assessment.

Environmental safety of aquatic ecosystems. Study of environmental issues and general concepts of ecological status of aquatic ecosystems, the main factors of influence on them, sources of pollution, methods of treatment, transboundary sources of pollution, ecological features of small rivers, lakes, wetland ecosystems.

2.2.2. Master's program "Environmental management in the agricultural domain: monitoring, certification, expertise"

Agroecology. Developing the knowledge of the components and importance of the of agro ecology for the development of agro sphere and society, new approaches and methods of ecological safety of agricultural production, ecological agriculture methods, tools of performance and rehabilitation of modern agricultural landscapes, and ensuring the production of environmentally safe products, the main characteristics of the structure, function and types of modern agro-ecosystems, identifying, predicting and simulating the causes and consequences of destabilization, changes of energy and stamina, factors and prospects of stabilization, capturing the strategic direction of the agro sphere features of alternative agriculture, biotechnology and modern agriculture in the agro industrial complex in the world and in Ukraine.

Ecological expertise in agriculture (agro-biotechnologies). The discipline generates knowledge and skills on a comprehensive assessment of the impact on natural resources, human health and environmental quality of various innovations (projects of enterprises, buildings, structures, technologies, inventions, standards, materials, products, materials, projects for transforming the nature etc.) across selected areas of the region, and providing skills for pre-verification of compliance with the requirements of environmental protection projects of social and environmental areas, guarantees of environmentally friendly importation of products and technologies, research and management of human impacts on the environment for technology assessment and environmental risks.

Agro-ecological control and management (monitoring, certification, management, inspection). The discipline examines features of monitoring systems (observations) natural ecosystems, agricultural lands, urban areas and the formation of agroecological knowledge of database, instructional techniques of quality management of ecosystems, methods for optimal decision-making in the field of management of development of the agro sphere based on environmental laws, allows students-environmentalists acquiring knowledge and skills in the collection, analysis and processing systems, generalized, comprehensive information on the qualitative assessment of the environment and its documentary describing the natural, environmental, social, economic, energy, man-made characteristics of objects of environmental performance, territories, territorial-production complexes and groups, as well as commercial facilities for various purposes, forms the skills of development of evidence-based recommendations for the adoption of environmentally-oriented management solutions.

Modern biotechnology and biosafety. Examines the principles and methods of applied areas of environmental science and classical and modern biotechnology processes carried out by the use of living organisms or other biological agents, and are aimed to protecting and restoring the environment damaged by human, maintaining functional stability of the biosphere as a whole or certain components of natural ecosystems.

Training of masters of sciences in educational program "ECOLOGICAL CONTROL AND AUDIT" in specialty 101 "ECOLOGY" branch of knowledge "Natural sciences"

Form of Training:	Licensed number of persons:
– Full-time	30
– Part-time	30
Duration of Training:	
– Full-time educational and professional program	1,5 year
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Expert on ecology

The concept of training

The aim of education is learning theoretical bases and formation of appropriate practical skills: environmental control procedures and audit of environmental protection and balanced nature use, namely the monitoring of the environment (natural and artificially altered terrestrial and aquatic ecosystems, Hydroecological, geoecological, soil and environmental, phytosanitary, environmental reclamation, bioecological, agrarian forest-technical, socio-environmental, geoinformative); audit (risk, areas, industrial and environmental facilities); environmental passportisation (companies, territories, facilities management and natural reserve fund); inspection (of enterprises and organizations as sources of pollution); examination (activities, goods and services, draft laws and other legal acts pre, project materials and documentation from the introduction of new techniques, technologies, scientific research, software development areas) in environmental consulting, licensing, certification, which will be effectively used in the agricultural and environmental sector to the production of environmentally friendly products and materials.

Master's program "*Control and expert regulation in the agrosphere*"

Preparation involves the formation of knowledge to solve natural and resource, environmental and ecological problems and anthropogenic issues of control in bio, agro, urbo-, technological, geosphere, recreational, tourist and social sectors. In particular, the development, planning, design and implementation of industrial and economic systems and controls; prediction, forecasting and modeling of natural systems and the development and technogenically disturbed natural-territorial complexes geosphere; identification of sources of environmental impact; establishment an acceptable level of risk for people and the environment now and in the future, and others.

Valedictorians sector of employment

Graduates' of the specialty "Ecological control and audit" can work as an ecologist, engineer in restoration of natural ecosystems, protection of natural ecosystems, natural resources, environment, nuclear safety; specialist, environmental management, environmental education, standardization, certification and environmental quality spheres; Inspector: radiation safety, environmental protection, nature conservation reserve fund; environmental auditor and expert on ecology.

Practical training

Ukrainian Laboratory of Quality and Safety of Agricultural Products, State Enterprise "Ukrainian Research and Training Center of Standardization, Certification and Quality, Ukrainian State Research Institute "Resource", LLC of "Green Wolf", Institute of Agroecology and Ecosystem Exploitation of the NAAS of Ukraine and other.

Proposed Topics for Master Theses

1. Implementation of ecological expert assessment of the project documentation when making environmentally focused solutions for strategic planning and sustainable development of territories.
2. Implementation of ecological and socio-economic expertise of enterprises and objects on conservation areas.
3. Development of programs of sustainable development of agricultural areas in the optimization of social systems.
4. Implementation of environmental inspection of air-security, water management, reclamation and re cultivation work.
5. Determination of environmental risk and safety at the facilities management (by types of nature).

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Ecological control and audit" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Civil defense	2	30	1
2	Labor safety in the industry	2	30	1
3	Sustainable development strategy	1	90	3
4	Methods and organization of scientific studies	1	120	4
5	Ecological inspection	1,2	210	7
6	Ecological management	1,2	180	6
7	Ecological audit	1,2	210	7
Total for standard part			**870**	**29**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Ecological policy	1	90	3
2	Higher education and Bologna process	1	60	2
3	Intellectual property	2	90	3
4	Systems analysis of environmental quality	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
5	Business foreign language	2	180	6
6	Ecological control and safety	1	90	3
7	Regulatory and methodological support of control of expert activity of ecologist	3	90	3
8	Ecological and low regulation of environment	2	90	3
9	Methods of environmental analyses	3	90	3
Total (Disciplines offered by University)			**870**	**29**
2.2. Disciplines offered by students				
2.2.1. Master's program "Control and expert regulation in the agrosphere"				
1	Ecological expertize and audit of areas and enterprises	3	120	4
2	Soil and environmental monitoring and management of land resources in the agrosphere	3	120	4
3	Professional ecological expert activity	3	90	3
4	Ecotoxicological estimation of pesticides, agrochemicals and technologies	3	90	3
Total (Disciplines offered by students)			**420**	**14**
Total for elective part			**2160**	**72**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1,2	180	6
2	Preparation and defense of master's work	3	360	12
Total			**540**	**18**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Civil defense. The discipline studies the functions and tasks of a unified state system of prevention and emergency response, protection of subjects of economic activity, provides practical skills for the protection of subjects of economic activity and their surrounding area.

Labor Safety in the industry. The discipline generates knowledge of theoretical and practical training of students in creating safe working conditions of workers of agro industrial complex.

Sustainable development strategy. The discipline generates knowledge of the principles and strategies of sustainable development as a harmonious process that ensures sustainable economic convergence, promotes environmental ecological culture - the preservation of natural resources, ensures the Biosphere space and environmental safety meeting the needs of human life. Learns provisions of practical implementation mechanisms, coordination and harmonization of social, economic and environmental strands of the development of sustainable society in the country, organizes plans and schedules of stages of sustainable development. Promotes mastery and skills of monitoring the indicators of sustainable development, identifies environmental risks and hazards for human development and sustainable development, promotes the use of international agreements and documents related to sustainable development, performance of plans and programs (region, city, town) in the transition to sustainable development in Ukraine and other countries in transition.

Methods and organization of scientific studies. The discipline creates in students a representation of self-creative, scientific thinking and develops the skills of scientific activity, promotes mastery of the latest environmental research methods allowing obtaining the quantitative and qualitative data needed for overall ecological characteristic of objects, processes in the environment leading to the right choice of technology,

organizational and administrative decisions, ability to be oriented by the laws and regulations and clearly generate evidence-based conclusions.

Ecological inspection. Generates knowledge of the procedures of the influence of society on the environment, monitoring and evaluation of the impact of economic and social activity in the living environment (air, water, soil), the degree of environmental safety or environmental economic activity of the situation at the sites (areas), natural resources and human health across particular objects, preventing or stopping the negative impact of certain types of human activities on human health and the environment, mastering the methodology and procedures of state control in the sphere of environmental protection and use of natural resources, monitoring of compliance with environmental legislation, prediction, prevention and establishing the degree of environmental risks and ecological security study conclusions environmental control, environmental inspection entities (individuals and legal entities) of all shapes, forms, basic tasks, functions, structures and rights of Environmental Inspection, the procedure for organizing and conducting environmental inspections, order forms and types of prosecution of violators of international and national environmental legislation. Provides the skills of a comprehensive science-based control certain types of activities in order to determine the degree of environmental risk, the definition of sustainable activity in the course of matching the inspected object to the requirements and standards of environmental legislation, evaluating efficacy study of measures for the protection of the environment; training objective conclusions based on the results of environmental monitoring; clearance acts on the results of inspections and public awareness.

Ecological Management. Environmental Management examines managerial relationships in an institution ensuring its sustainable development, environmental protection, safety of human life, sustainable use of natural resources and environmental safety of the institution and its activity aimed to the implementation of environmental objectives and programs of environmental impact, and creates a knowledge of environmental strategy of social development, management of natural resources and environment-related activity, which are determined by biological and socio-economic characteristics of enterprises, strategic goals of the society and allow the enterprises to survive and achieve their goals in the long run.

Ecological Audit. Environmental audit is a management tool which examines the effectiveness of management in preserving the environment and maintaining competitiveness through ecological production, creates knowledge of systematization, documentation, frequency of objective evaluation of conformity of environmental management, operation of equipment and its conformity with environmental objectives, creates the ability and skills for assessment of environmental regulations and environmental policies of the company.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Ecological policy. Examines the documented and officially declared (approved) system of ecological concepts, principles, approaches, priorities and activities, that defines the relationship between the society, the state and the environment, generates knowledge and skills of future leaders in the development of environmental policies, systems of production, management of enterprises and corporations through which the adherence of the administration for environmental priorities shall be demonstrated.

Higher education and Bologna process generates knowledge due to main tasks, principles and documents that are confirmed in terms of Bologna process, mastering the methods and means of their implementation in higher education Ukraine, formation of

knowledge system of essence and content of the Bologna process as the basis for the formation of a unified European Higher Education Area in a market economy, the problems of creating an unified European educational system.

Intellectual property. The discipline generates knowledge about the latest technologies of the work with information data, study of legal aspects of their use, the use of the modern tools, production of digital content related master's research, information expertise, research expanded database of Internet resources, new approaches to processing the Information data and direction of research, quality of presentation of the results of independent research, legal aspects of copyright law, particularly for the use of Internet resources, protection of intellectual property rights at the national and international level, principles of organization and operation of computer networks, WWW systems and Web 2.0technologies, composition, structure and principles of the search engines used in the global Internet, the main methods of finding information data, organization and expansion of conventional web search, the main agrarian resources, including FAO resources (electronic and depository libraries, AgroWEB and other Internet resources), concept of digital content formats and their main purpose, including media, formats, office documents, databases, spreadsheets, presentation of the principles of research results through publications, presentations, website, principles of social community and social services of the Internet - blogs, wikis, Geocaching, geographic information systems, principles of creating and using databases , expert systems, data processing using the spreadsheets. Provides the following skills after completing the course: conducting the effective information retrieval, including academic and professional direction, using traditional and electronic sources including the Internet resources, evaluating the resources found online, using professional and scientific information in compliance with the protection of copyright and Intellectual property, make out in compliance with the requirement of the WAC (the State Commission for Academic Degrees and Titles) of Ukraine the links to the Internet resources, experience of work with office applications for registration of research results, including word processors, presentation of packages, spreadsheets and database, using the e-mail, forums, blogs, wikis, geographic information systems, photography and video services to share information and to present the results of research on the net, making the publication of research results in the web-compatible formats; organizing the research work, choosing the best methods and tools for presentation of the results.

Systems analysis of environmental quality. Systems theory in ecology is an interdisciplinary area of scientific research and eco-oriented disciplines that forms knowledge for developing generalized models of natural and anthropogenically-modified systems, constructing logical and methodological conceptual description of functioning and behavior at the ecosystem objects, generating the generalized theories (hypotheses, laws) of ecosystems (land, water - natural and anthropogenic) of different types (agro, urbo-, techno- systems), including the systems dynamic theory of purposeful behavior, genesis, evolution and historical development of the hierarchical structure, the governance processes of systems. System Analysis of the environmental quality examines the set of scientific, educational, industrial (technological) problems, which in their specificity and diversity are similar and are considered as a whole in terms of the object being tested in different types of ecosystems, generates skills for building scenarios of representation of ecosystems and means of the study of objects and their components (description, explanation, interpretation, modeling, prediction, prevention, design, construction). GIS analysis of agrolandscapes examines the foundations of geographic information systems and spatial analysis allowing the use of GIS in ecology for modeling, forecasting and monitoring.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Ecological control and safety. The discipline examines features of monitoring systems (observations) natural ecosystems, agricultural lands, urban areas and the formation of agroecological knowledge of database, instructional techniques of quality management of ecosystems, methods for optimal decision-making in the field of management of development of the agro sphere based on environmental laws, allows students-environmentalists acquiring knowledge and skills in the collection, analysis and processing systems, generalized, comprehensive information on the qualitative assessment of the environment and its documentary describing the natural, environmental, social, economic, energy, man-made characteristics of objects of environmental performance, territories, territorial-production complexes and groups, as well as commercial facilities for various purposes, forms the skills of development of evidence-based recommendations for the adoption of environmentally-oriented management solutions.

Regulatory and methodological support of control of expert activity of ecologist. The discipline examines the system of mandatory functional and environmental requirements for products, technologies, management, is aimed to improving their environmental performance and implementing the system-wide identification for establishing compliance and certification. Provides the ability and skills in management, preparation and development of documents certifying conformity of environmental management of the enterprise to the requirements of standards and additional regulatory documents. Generates knowledge of basic provisions and terminology of the state control on the environment, the current state of the environment in Ukraine and Europe, environmental regulation of control parameters of the environment, methods and means of control of parameters of the environmental objects, transboundary pollution issues, accreditation of laboratories, using interlaboratory comparative trials.

Ecological and low regulation of environment. The purpose of the discipline is to explore the regulation of certain types of economic activity of agricultural enterprises and their legal environment as well as Contractual relationship of agricultural business entities, legal regulation of agricultural lands and other natural resources in agriculture in Ukraine. The discipline involves the study of law and state regulation of legal relationship in the field of environment, natural resources and environmental safety and environmental human and civil rights in Ukraine.

Methods of environmental analyses forms in students the idea of structure and elements of the environment, hydrosphere and lithosphere parameters to be measured and evaluated, methods and instruments for measuring the chemical, physical, mechanical and biological parameters, norms and standards for water quality and soil assessment, nature, objectives, types and methods of environmental monitoring, organizing and monitoring the features of geosphere, skills and abilities: measuring the chemical, physical and mechanical parameters of the environment in the field and laboratory during environmental assessments and examining the aquatic environment and soil, conducting the environmental monitoring, assessing by the results of the measurements and making the appropriate predictions about the state of the environment,

use of environmental monitoring data, recommend specific types of monitoring the performance of environmental assessments and examinations territories and objects, predicting the environmental situation on the basis of monitoring data.

2.2. Disciplines offered by students

2.2.1. Master's program "Control and expert regulation in the agrosphere"

Ecological expertize and audit of areas and enterprises. Generates knowledge and skills of comprehensive assessment of the impact on natural resources, human health and environmental quality of various innovations (projects of enterprises, buildings, structures, technologies, inventions, standards, materials, products, materials, designs transform nature etc.) across selected areas of the region, and providing skills for pre-verification of compliance with the requirements of environmental protection projects of social and environmental guarantees of importation of environmentally friendly products and technologies, research and management of human impacts on the environment through the assessment of technology and environmental risks.

Soil and environmental monitoring and management of land resources in the agrosphere. Learns the basics of effective use of soil management in accordance with environmental legislation. The aim of the course is to explore the theoretical and practical assimilation of Land Management as a soil biotic complex, which is the basis of agro-ecosystems, the introduction of environmental friendly technologies aimed to restoring the soil fertility, use of intensive, extensive technologies for products and raw materials, and reducing anthropogenic nutrient loading on agroecosystems , implementation and development of alternative ("organic") agriculture, land management and reclamation in the dangerous areas due to the erosion. Meeting the relevant agricultural requirements of applicable law, the applicable standards and regulations, standardization, certification, licensing the operation of land for various purposes in agricultural domain.

Professional ecological expert activity. Discipline ensures the formation of students' knowledge of the requirements for specialist training in accordance with the construction of higher education and scientific research, the formation of primary knowledge on the basics of ecology and perceptions of future employment, acquirement of the basic concepts and terminology of ecology and understanding of the economic aspects of the environment, understanding of ways of environmental development of society.

Ecotoxicological estimation of pesticides, agrochemicals and technologies studies the toxic effects of pollutants on ecosystems, populations and organisms, existing environmental problems and radiation threats to the population and territories, existing in the state system of environmental and radiation safety evaluation at all levels - from local to global - the probability of negative changes in the environment caused by anthropogenic or other influence.

FACULTY OF LIVESTOCK RAISING AND WATER BIORESOURCES

Dean – Kondratiuk Vadym Mykolayovych, Associated Professor, Candidate of Agricultural Science
Tel.: (044) 527-85-56 E-mail: vadkondratyk@rambler.ru
Location: Building № 1, Room. 80

The faculty organizes and coordinates the educational process of educational program in specialty:

Specialty 204 "Technology of production and processing of livestock products"

Educational program "Technology of production and processing of livestock products"
Graduating departments:
Genetics, Breeding and Biotechnology of animals
Tel.: (044) 527-82-30
E-mail: krozgen@ukr.net
Head of Department − Andrey Hetya, candidate of Agricultural Sciences, Senior Researcher
Milk and Beef Production Technology
Tel.: (044) 527-83-93, (044) 527-82-32
E-mail: ugnivenko@i.ua
Head of Department – Ugnivenko Anatoly, Professor, Doctor of Agricultural Science
Professor P.D. Pshenychnyi Department of Animal Nutrition and Feed Technology
Tel.: (044) 527-85-55
E-mail: feeding_animals@ukr.net
Head of Department − Kryvenok Nikolai, Associated Professor, Doctor of Agricultural Science
Horse Breeding and Beekeeping
Tel.: (044) 527-82-68
E-mail: horse_chair@twin.nauu.kiev.ua
Head of Department – Losev Aleksey, Associated Professor, Candidate of Agricultural Sciences
Technology in poultry, pig and sheep farming
Tel.: (044) 527-87-60, 527-84-78, 527-88-49
E-mail: zasukha_y_u@ukr.net
Head of Department - Doctor of agricultural sciences, Professor Yuri Zasuha.

Specialty 207 "Water Bioresources and Aquaculture"

Educational program "Water Bioresources and Aquaculture"
Graduating departments:
Aquaculture
Tel.: (044) 527-89-65
E-mail: aqua_chair@twin.nauu.kiev.ua
Head of Department – Vovk Nadiya, Professor, Doctor of Agricultural Science,

Ichthyology and Hydrobiology

Tel.: (044) 527-86-83
E-mail: gidrobio@ukr.net
Head of Department – Shevchenko Petro, Associated Professor, Candidate of Biological Science.

Master course
in educational program "TECHNOLOGY OF PRODUCTION AND PROCESSING OF LIVESTOCK PRODUCTS"
in specialty 204 "TECHNOLOGY OF PRODUCTION AND PROCESSING OF LIVESTOCK PRODUCTS"
branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	90
– Part-time	60
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of Teaching	Ukrainian, English
Qualification	Livestock products research engineer

The concept of training

The concept of Master's degree training level 204 with major in "Technology of production and processing of livestock products" is to have combined theoretical studies, practical training and research to build professional skills in modern energy-saving technologies of high-quality animal products.

The aim of the concept is to satisfy the need for professionals possessing systematic knowledge and ability to solve problems of innovative nature in the livestock industry; scientific basis of research, data acquisition and data statistical analysis; forecasting animal productivity, ability to use inbreeding, improve and create animal branches and species, preserve the gene pool, develop animal breeding programs; design animal feeding trials; be able to analyze, organize and process scientific information on standardized animal feeding; develop and introduce new animal husbandry systems and methods; control physical, chemical and biological environmental factors; perform testing and sanitary-hygienic evaluation of new fodder varieties and additives, processing equipment, animal care products and study their behavior to obtain from them the maximum number of products in terms of their genetic potential; develop various models of technological livestock production processes; analyze populations, species and types of farm animals, determine their and commercial value by origin, individual qualities and progeny; optimize livestock breeding programs; manage milk production of cows based on deep knowledge of lactation physiology, dairy cattle husbandry, specifics of feeding high production cows, processing equipment of dairy companies and intensive technologies of breeding of young cattle stock, management and marketing principles of dairy farming; stimulate egg production of poultry, sheep wool production, yield of bee families, meat productivity of cattle, pigs, chickens and other farm animals; know how to use milk stimulants; manage meat productivity of cattle under market conditions of the industry based on a profound knowledge of beef cattle biology, husbandry and feeding systems, features of breeding environmentally friendly beef; develop competitive pig production and processing technologies; be able to maintain the modern production process and primary processing of table eggs and poultry meat, poultry marketing system; manage processes

of procuring voluminous forage, preparation of animal feed and feed additives and know methods of their effective use to feed ruminants and monogastric animals; estimate and predict efficiency of farm animals, evaluate genetic resources in the riding, trotting and draft horse breeding, their rational use in the racing industry, equestrian sport and non-traditional horse breeding, possess the skills of implementing modern methods of experimental studies.

Educational and professional program of master's training

Master's program "Animal Feeding"

Master's program "Animal Feeding". Students learn how to manage a technological process of bulky feed harvesting, producing animal feed and feed additives and methods of their effective use in feeding ruminant and monogastric animals. Students also learn specific animal feed, how to analyse, systemize and process information on standards of animal feed. Students will be able to solve problems in practice while producing and processing of quality and biological safe products of livestock and effectively use obtained knowledge and skills technologies.

Areas of employment of graduates

On completing the course graduates will be able to work at livestock enterprises, commercial firms which specialize at selling feed and to provide advice on aanimal feeding.

Master's program "Save and use of breeding resources"

The main objective of the master program is to train specialists in animal breeding who are able to work in the Agency for Animal Identification at the Ministry of Agrarian Policy of Ukraine or its regional branches, in the Chief State Breeding Inspectorate of the Ministry of Agrarian Policy of Ukraine or its regional branches, in research institutions, in breeding farms dealing in setting up, improvement or breeding dairy, dual-purpose and beef cattle, pigs, sheep, goats, poultry and horses.

Areas of employment of graduates

Upon completing of the master's degree program, the managers/ specialists licensed to produce and process, improve and develop animal products can work in public and private breeding farms, provincial and district departments of agriculture, agriculture breeding centers of different levels, as heads of agricultural enterprises and also in higher educational institutions of I-II accreditation levels and in academic schools.

Master's program "Dairy cattle breeding"

This program provides students with modern deep knowledge of dairy cattle breeding under industry market conditions.

Areas of employment of graduates

After completion of the master's program the specialists/ managers can work in livestock production enterprises of different ownership forms, at II level of accreditation higher education institutions, NAAS of Ukraine's research institutions and apply for the post-graduate studies in graduate schools.

Master's program "Specialized beef cattle"

Lack of Ukraine in the specialized beef cattle, low efficiency and high cost of imports necessitated the creature of meat species taking into account conditions soil-climatic zones. Organized commodity beef cattle. Under these conditions, the role of beef production engineers who have to master the system of practical and theoretical knowledge and skill to use them in their work.

The aim is that based on the knowledge of specialized features cattle meat breeds will be master mastered the theory and practice of environmentally friendly beef production and obtaining highly productive pedigree animals.

Areas of employment of graduates

After graduation, professional managers can work in enterprises with livestock production of various forms of ownership, higher educational institutions I-II levels of accreditation, research institutions NAAS of Ukraine and are entitled to admission to graduate school.

Master's program "Modern technologies of industrial poultry"

The master's degree program provides students with the opportunity to obtain knowledge in biology of chickens, turkeys, ducks, geese, quail, guinea fowl, ostriches and morphophysiological patterns observed in growth of different bird species and to acquire skills of poultry breeding, egg incubation, feeding poultry and egg and poultry meat production by using modern technology and latest equipment, subject to strict observation of veterinary and sanitary measures and quality control through current poultry husbandry management system.

Areas of employment of graduates

After having successfully completed the master’s degree program, the professionals can apply for employment with poultry breeding enterprises of different ownership forms, poultry incubation stations, poultry farms, animal feed mills, in the higher educational institutions of I-II accreditation levels, research institutions as well as apply for the post-graduate studies in graduate schools.

Master's program "Technology management in pig farming"

The master's degree program considers the issues related to development of body systems and organs during ontogenesis, characteristics of gestation, generative processes, lactation and energy metabolism and thermoregulation in pigs; breeding biology; behavior of different gender and age groups; adaptation to the environment. The students also examine the issues of animal herding and selection, pure breeding and crossbreeding methods, hybridization and large-scale breeding; methods and ways of identifying estrus cycle in sows; breeding boars and sows; exploitation of breeding boars, methods of obtaining and preparing boar semen, artificial insemination.

Areas of employment of graduates

After having successfully completed the master’s degree program, the specialists licensed to produce and process, improve and develop animal products can apply for employment with livestock production enterprises of different ownership forms, at higher education institutions of I and II accreditation levels, NAAS of Ukraine’s research institutions as well as apply for the post-graduate studies in graduate schools.

Master's program "Technologies productive use of the capacity of bees"

The program focuses on studies in biology of bee colonies, basics of honey bee genetics, selection work in apiculture industry, bee breeding, breeding of queen bees and inseminating them to use breeding material for increasing productivity of bees and entomophile crops through their pollination. The students enlisted in this program acquire deep knowledge in assessing nectar resources and ability to efficiently use them for improvement of honey harvest and various bee products, effectively use bees for pollination of crops. They will be able to introduce mechanization in bee production processes, know how to handle tools, equipment and automation means to maintain and reproduce bee colonies and reproduce breeding material; operate apiculture facilities. The students under this program will also acquire extensive knowledge about origins, composition, properties and processes of apiculture products and their manufacture, processing and storage processes, standardization and implementation in accordance with market needs.

Areas of employment of graduates

After having successfully completed the master's degree program, the specialists can apply for employment with the leading bee-breeding enterprises, NAS and NAAS.of Ukraine's scientific research institutions.

Master's program "The racing industry and sport horse breeding industry"

The master's degree program provides specialist with knowledge in the field of breeding and feeding horses of various breeds and is aimed at studying racing industry, sports, organization of small and medium-sized businesses in the context of the industry's future development.

Areas of employment of graduates

After having successfully completed the master's degree program, the specialists can apply for employment with public and private breeding enterprises, zonal research institutes and stations, at racetracks and in equestrian centers, tourist bases and medical centers and may also apply for and attend graduate school.

Master's program "Animal husbandry of protected areas"

Specialization aims to provide students with knowledge and skills for the conservation, breeding and management of wild and exotic animals both in their natural existence (hunting, nature reserves, etc.) And in captivity (kennels game animals, kennels exotic animals, zoos, etc.). Students will learn modern methods of genetic information preservation of rare and endangered species, their reproduction, introduction to nature and adapt to new conditions. Within this specialization, students will receive additional knowledge in four subjects: "Biology of wild and exotic animals", "Management biocoenosis", "Technology wildlife protection", "Technology introduction and breeding animals."

Areas of employment of graduates

After learning professionals can work managers, technologists and managers of nature reserves, the hunting farms, nurseries hunting and exotic animals, zoos; staff of research institutions engaged in the study of biological and economic useful properties of wild animals, including candidates for domestication, commercial breeding farms or relocation to new, non-traditional for them, climatic conditions.

Educational and research program of master's training

Master's program "Animal Feeding and feed technology"

The program aims to provide future research engineers with current knowledge and skills in procuring voluminous forage, preparing fodder and feed additives and getting acquainted with methods of their effective use to feed ruminants and monogastric animals. The program is aimed at learning the basic aspects of performing animal feeding trials, systematization and analysis of scientific information and research results, which presumes knowledge in the following areas that define specialization of the master's programs: animal nutrition, feed resources in animal breeding; feeding of ruminant animals; feeding of monogastric animals; planning of trials and experiments. Studying of these sections contributes to solving practical problems related to production and processing of high quality and biologically safe animal products and to effectively using the acquired knowledge in professional activities to generate new innovative knowledge in animal feed area.

Master's program "The technology of the production of beef products"

The task of the program is to teach students to search for perspective focuses for cattle productivity researches based on the results of studies of contemporary state of thisdomain in the countries with well–developed livestock production. The courses of this program give theoretical knowledge and cultivate skills which will enable a master and researcher to enhance milk and beef production in Ukraine, using new research trends. A Master has to be able to conduct researches on evaluation and increase of cattle productivity and to develop economically and ecologically friendly options of technological processes of beef production.

Areas of employment of graduates

A Master of «The technology of the production of beef products» is able to work in scientific and research organizations and enterprises which produce beef and milk products.

Master's program "Reproductive bio engineering"

The aim of the program is to give knowledge about researches, achievements of contemporary embryology and biotechnology, to provide students with knowledge about animal breeding and selection, genetic and cell engineering, genomics and proteomics, new biological material and technologies of training specialists able to solve key problems of modern life such as to provide sustainable development and increase life quality with the help of increasing animal food products.

Areas of employment of graduates

A Master of «Reproductive bio engineering» is able to work in scientific and research organizations of NAAS of Ukraine, enterprises which produce livestock products and are able to continue their education as postgraduate students.

Practical training

The aim of practical training is to provide students with knowledge in modern methods, organization forms and tools they can use in their future profession, make them build knowledge and skills based on the knowledge base they have acquired in the University sufficient to make independent decisions in specific lines of work under real

market conditions, educate in them the need for regularly replenishing their knowledge and applying it in practice.

Practical training is continuous and consistent and the students undergoing this it obtain the desired scope of practical knowledge and skills as required by qualification of the master's degree.

The main objective of practical training is to consolidate and expand students' theoretical knowledge and their practical skills in organization and management of basic agricultural production processes, and in scientific research.

While studying at the University, the students receive profound theoretical and practical training in modern laboratories equipped with new equipment, computer classes, as well as at the leading animal breeding enterprises, such as IP NUBiP of Ukraine "Agronomic Research Station," "O. Muzychenko Velykosnitynske NDH," "NDH Vorzel," SP "South Crimean Sheep Breeding," PE "Borodino-A," FE "Merino-Zahid," pig breeding complex "Agroprime," AASO Agrokombinat "Kalita", JSC "Agro-Soyuz," Dibrovsky Stud Farm 62, Stud Farm "Shakhtar", JV "NIBULON," FE "Nina," FE "Medovi Polia," Pedigree Bee Breeding Farm "Pribuzki Medobory," JSC "Med Podillia," JSC "Poultry Farm Kiyvska," JSC "Nadia," SE "Nova Peremoha," CJSC "Complex Agromars" and others.

Proposed Topics for Master Theses

1. Optimization of cattle feeding techniques.
2. Improvement of replacement heifer nutrition.
3. Productiveness of quails at different levels of fat in feed.
4. Growth and utilization of feed nutrients in rabbits at different levels of fiber in their diet.
5. Effective use of enzymes in poultry nutrition.
6. Improvement of compound feed and premixes' recipes to ensure adequate nutrition of pigs.
7. Better exploitation of sows in conditions of using industrial technologies.
8. Comparative evaluation of performance exhibited by pigs of different genotypes in conditions of using industrial technologies.
9. Effect produced by milk production level on cow reproductive abilities.
10. Assessment of individual cow behavior elements during their milking with milking robots.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Technology of production and processing of livestock products" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Occupational Health and Civil Defence in Livestock	1	90	3
2	Biological productivity of farm animals	1	120	4
3	Feed resources	1	120	4
4	Process control in livestock	1, 2	90	3
5	Production management in livestock	2	120	4
6	Modern trends of selection in animal husbandry	2	120	4
7	Information technology in animal husbandry	1	120	4
8	Organization of agribusiness	2	120	4
9	Technology of production and processing of livestock products	1, 2	300	10
10	Philosophical biological problems	1	90	3
Total for standard part			**1290**	**43**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines offered by students*				
2.2.1. *Master's program "*Save and use of breeding resources*"*				
1	Technology breeding of animals	3	150	5
2	Keeping of livestock genetic resources	3	150	5
3	Management of the selection process in livestock	3	120	4
4	Biotechnology of animal reproduction	3	90	3
5	Genetics of quantitative and qualitative characteristics of animals	3	90	3
Total (Disciplines offered by students)			**600**	**20**
2.2.2. *Master's program "Animal Feeding"*				
1	Animal feeding	3	90	3
2	Evaluation of the quality and nutritive value of feeds	3	90	3
3	Feeding of ruminant animals	3	90	3
4	Feeding monogastric animals and poultry	3	240	8
5	Feeding fish	3	90	3
Total (Disciplines offered by students)			**600**	**20**
2.2.3. *Master's program "Dairy cattle breeding"*				
1	Physiology of lactation	3	120	4
2	Management of milk productivity	3	120	4
3	Intensive technologies of rearing young cattle stock	3	120	4
4	Management and marketing in dairy farming	3	120	4
5	Quality management in the dairy sector	3	120	4
Total (Disciplines offered by students)			**600**	**20**
2.2.4. *Master's program "Specialized beef cattle"*				
1	Management of productivity	3	120	4
2	Beef cattle management systems	3	120	4
3	Control of production of products beef cattle	3	120	4
4	Processing beef cattle	3	120	4
5	Production of ecologically pure beef	3	120	4
Total (Disciplines offered by students)			**600**	**20**

2.2.5. *Master's program "Technology management in pig farming"*				
1	Biology of the pigs	3	120	4
2	Management of feeding and housing pigs	3	150	5
3	Slaughtering pigs and pig of products processing	3	150	5
4	Industrial pig production technology	3	180	6
Total (Disciplines offered by students)			**600**	**20**
2.2.6. *Master's program "Modern technologies of industrial poultry"*				
1	Technology of production of eggs and meat	3	300	10
2	Breeding business	3	120	4
3	Incubation of the birds eggs	3	90	3
4	Bird biology	3	90	3
Total (Disciplines offered by students)			**600**	**20**
2.2.7. *Master's program "The racing industry and sport horse breeding industry"*				
1	Global genetic horses resources	3	90	3
2	Racetrack and sports training	3	150	5
3	Horse-breeding	3	120	4
4	Organization of pedigree business in horse breeding	3	120	4
5	Horse biology	3	120	4
Total (Disciplines offered by students)			**600**	**20**
2.2.8. *Master's program "Technologies productive use of the capacity of bees"*				
1	Biology of bees	3	90	3
2	Breeding and keeping of bees	3	120	4
3	Production, storage and processing of bee products	3	150	5
4	Technological equipment in beekeeping	3	120	4
5	Prevention of diseases of bee colonies	3	120	4
Total (Disciplines offered by students)			**600**	**20**
2.2.9 *Master's program "Animal husbandry of protected areas"*				
1	Biology of wild and exotic animals	3	120	4
2	Management of biocoenosis	3	240	8
3	Technology to protect wildlife	3	90	3
4	Technology introduction and breeding animals	3	150	5
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1	**240**	**8**
2	Preparation and defense of master's work	3	**240**	**8**
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Technology of production and processing of livestock products" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Occupational Health and Civil Defence in Livestock	1	120	4
2	Biological productivity of farm animals	1	120	4
3	Feed resources	1	120	4
4	Management of of livestock production	1, 2	210	7
5	Modern trends of selection in animal husbandry	2	120	4
6	Information technology in animal husbandry	2	120	4
7	Organization of agribusiness	2	90	3
8	Technology of production and processing of animal products	1, 2	300	10
9	Philosophical biological problems	1	90	3
Total for standard part			**1290**	**43**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines offered by students*				
2.2.1. *Master's program "Animal Feeding and feed technology"*				
1	Methods and organization studies	3	240	8
2	Animal feeding	3	210	7
3	Evaluation of the quality and nutritive value of feeds	3	300	10
4	Feeding of ruminant animals	4	240	8
5	Feeding of monogastric	4	270	9
6	Feeding of poultry	4	240	8
Total (Disciplines offered by students)			**1500**	**50**
2.2.2. Master's program "Reproductive bio engineering"				
1	Contemporary methods of regulating animals reproductive capacity	3	360	12
2	Biotechnological methods in livestock raising	3	210	7
3	Biotechnology of reproductive cells	3	240	8
4	The technology of substances and solutions	4	210	7
5	The genetics of qualitative and quantitative features	4	240	8
6	Conservation of livestock genetic resources	4	240	8
Total (Disciplines offered by students)			**1500**	**50**
2.2.3 Master's program "The technology of the production of beef products"				
1	Animal ethology	3	210	7
2	Experiment planning	3	210	7
3	Contemporary livestock raising	3,4	480	16
4	Control of livestock products production	3	180	6
5	Analysis and summarizing research results	4	420	14
Total (Disciplines offered by students)			**1500**	**50**
Total for elective part			**1830**	**61**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1	240	8
2	Preparation and defense of master's work	3	240	8
Total			**480**	**12**
Total for educational program			**3600**	**120**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Occupational safety and civil protection in animal husbandry. Cultivates the ability and competence to conduct effective management of labor and improve working conditions on the basis of scientific and technological progress and international experience, and promotes awareness of the indissoluble unity of successful professional activity with mandatory compliance with all safety requirements in a particular area. Studies international standards on safety, basic laws and regulations on health and safety in the field of system safety management in the organization, injuries and diseases in the area, investigate accidents, the main measures of fire prevention for industrial facilities. Examines the organization and to protect the population from the consequences of emergencies, economic, natural, environmental; prevention of emergency situations, the measures to reduce losses; warning about the threat of disasters; life support during accidents, major fires, accidents, natural disasters and in armed conflicts, conducting rescue operations, forecasting, monitoring and control of radioactive contamination, chemical contamination, ensuring the sustainability of agriculture facilities in an emergency.

Biological productivity of farm animals. This discipline allows students to capture extensive knowledge of the problems related to digestion, physiological and biochemical mechanisms of nutrients' transformation in feed ingredients of milk, meat, eggs, wool; control methods and ways by which biologically active substances affect biosynthetic processes in animal tissues. It examines theoretical aspects of hydrolysis mechanisms and transport of proteins, fats, carbohydrates, aminoacids, macro-and microelements in the gastrointestinal tract, the impact of biologically active substances and growth promoters on those processes, and the ways of nutrients transformation in feed constituents of milk, meat, eggs, wool; control methods and ways of improving animal productivity.

Feed resources. The discipline is aimed at creating a system of knowledge and skills of managing planning, production and use of basic feed varieties used in animal nutrition. The discipline curriculum provides for the study of bulky fodder process and operation control system; cattle, sheep and horse feeding systems; management of animal feed and feed additives production and operation system; pig and poultry farming feed systems; information technology used to optimize calculated consumption of animal nutrition.

Process control in livestock. The subject aims at highlighting the essence of process control as part of production technology and production management in livestock. It considers the basic principles of manufacturing processes in space and time, the stages of calculating the parameters of line production, principles of organization and planning workflows and system of "standard operating procedures" in various fields of animal husbandry. It reveals the basic approaches to operational process control in livestock systems in the context of "management based on deviations" and determine the critical control points in the processing chain, shows the basic structure and functionalities of modern automated process control systems.

Modern trends of selection in animal husbandry. The objective of discipline is to help students to master the breeding theory to identify promising areas of animal husbandry and skills of applying animal assessment, screening and breeding methods in practice. It examines the methodology of selection process in animal husbandry, methods of measuring or determining the main selection parameters. The students examine the issues of using achievements made by population genetics in animal breeding; theoretical

basis of selection; animal evaluation and selection methods; inbreeding and heterosis; selection and breeding. The students also learn the features of breeding milk and meat cattle, pigs, sheep, horses and poultry.

Information technology in animal husbandry. The discipline provides students with a system of theoretical knowledge and practical skills in modern software used in agricultural production sector, including livestock breeding industry.

Organization of agribusiness. This discipline examines the economic substance, specifics of setting up and developing enterprises and businesses, an enterprise as part of business; type of management, business characteristics and functions; economic and legal foundations of business; legal forms of economic activities in agribusiness; business planning at enterprises; cost-effectiveness of small and medium business and methods of its assessment.

Technology of production and processing of livestock products. Students learn how to produce and process products of cattle, pigs, poultry, beefarming, sheep and goats, rabbits and fur farming**.**

Production management in livestock. This course will provide with theoretical knowledge and practical skills of production management that is how to develop an enterprise strategy, to analyze projects and methods of evaluation of their effectiveness, how to manage capital investment using the most effective tools of activities to get profit as well as to increase social effect, the value of assets and own capital.

Philosophical biological problems. Students are able to learn about ways of fostering polyphony and pluralism of contemporary philosophical thinking in order to enlarge holistic worldview. Students will learn about world and Ukrainian philosophical view and to become aware of philosophical principles of the specialty.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and

synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Educational and professional program of master's training
2.2. Disciplines offered by students
*2.2.1. Master's program "*Save and use of breeding resources*"*

Technology breeding of animals. The program is designed to provide students with theoretical and practical knowledge on various technologies of breeding of farm animals, breeding organization, accounting, calculating the efficiency of breeding activities, forecasting breeding success, determining the impact of various factors on formation of productivity of farm animals.

Students will be able to form skills and abilities to use available information on animal performance, determine the breeding value of animals in the complex sources of information to model and calculate the selection index of animals, specifically conduct the selection of animals based on their connectivity and qualified to solve organizational issues of breeding.

Conservation of genetic resources of livestock. The program is designed to develop theoretical and practical knowledge of principles, methods to preserve the gene pool of farm animals. Students will learn about modern conceptual and methodological principles of conservation of genetic diversity of farm animals, which are based on a complex combination of breeding, genetic, biotechnological and organizational measures and will be able to apply the knowledge and abilitites. The main objective of this course is to teach future specialists to balance the actual ultimate goal of breeding animals with desirable genotype projected economic and biological indicators of performance.

The task of the discipline is to provide students with theory and practice of improving existing and creating new herds and breeds of farm animalswhich are more highly productive and better adapted to modern technology of livestock production.

Management of the selection process in animal husbandry. Students will obtain knowledge of principles of breeding in Ukraine and abroad, as well as the most advanced methods of evaluating quality breeding animals adopted and implemented in the world, based on these measures, aimed at increasing productivity in livestock populations.

Biotechnology of animal reproduction. The discipline allows students to master the latest knowledge and achievement in reproductive biotechnology for intensification of breeding genetically valuable animals to promote selection and enhance livestock productivity and improve its reproductive functions. It examines theoretical and practical bases of embriobiotechnology in farm animals breeding industry, oogenesis, fertilization, embryogenesis, chimerism, transgenosis, cloning, sex determination and their importance for animal breeding; the use of DNA technology in farm animals breeding; identification of animals who are carriers of lethal mutant genes.

Genetics of quantitative and qualitative characteristics of animals. This course aims at studying patterns of inheritance of pets traits. Students will become

familiar and learn how to work with basic database of quantitative traits QTL of different species. After completing the course, students will be able to select different species of animals which is aimed at breeding work in herds based on different types of genetic markers.

2.2.2. Master's program "Animal Feeding"

Animal feeding. This discipline studies theoretical aspects of functioning animals such as the consumption of food, the assimilation of digested nutrients and the use of them for vital processes and production. Students will be able to acquire the ability to develop practical control techniques and feeding quality management products on this basis.

Evaluation of the quality and nutritive value of feeds. The course provides theoretical and practical study on evaluation of feed quality, laboratory studies and different feeding groups based on their nutritional feed determination, practical and theoretical skills in decision making regarding the possibilities of using fodder in animal feed. The subject of the study is different feeding groups, their evaluation and determination of the actual nutritional value for animals and birds of different species.

Feeding of ruminant animals. The purpose of discipline is to help students develop a system of knowledge and skills in feeding ruminants as required by description of major discipline: “Technology of production and processing of animal products.” The subject of study is to know techniques of feeding cattle, sheep and goats; use feed products, diets, ensure nutrition adequacy, quality and safety; prevent animal diseases.

Feeding of monogastric animals and poultry. The objective of the discipline is to introduce the students to specifics of feeding monogastric animals and poultry; modern approaches to regulation and organization of animal feeding. The object of study is nutrition of hogs, horses, poultry, fur animals; feeding of monogastric animals; quality of products depending on nutrition by highlighting theoretical and practical aspects of monogastric animal feeding scientific basis; feeding of pigs and horses; feeding of poultry, rabbits, nutria (European beaver) and fur animals.

Fish feeding. The course aims at studying the characteristics of fish nutrition, nutritional assessment of feeds, their classification and use of feed and feeding normalized different species of fish. The course consists of two parts: the theoretical foundations of feeding and normalized fish feeding fish. The subject of the study is anatomical and physiological characteristics of digestion and metabolism and energy in fish feed and assessment of their quality, feeding carp, salmon, sturgeon and other species.

2.2.3. Master's program "Dairy cattle breeding"

Physiology of lactation. The disciple aims at studying origin and types of breast function of secretory cells of the breast, the biosynthesis of the major components of milk, regulation of secretion and excretion of milk, the interaction of the breast to other body systems, laws of regulating lactation in ruminants, evaluatation of the growth and development of breast, affect their growth and create optimum conditions for maximum manifestation processes of milk and milk excretion reflex.

Management milk production. This course aims at acquiring knowledge system of scientifically grounded control milk production by genetic factors and organization of modern operation process of milk production; future specialists will be able to effectively measure to ensure receipt in market conditions.

Intensive technologies of rearing young cattle stock. The discipline allows students to study the intensification level of animal body growth, development and formation at the early stages of ontogenesis and the influence produced by environmental factors on the process of breeding production animals.

Management and marketing in dairy farming. The discipline generates the system of knowledge about the nature and content of management and marketing as a business philosophy under conditions of market economy and competition. It examines the nature and concept of management, marketing and market research of dairy products market, system of marketing (mix-marketing) measures and international marketing.

Quality management in the dairy sector. The course studies modern methods of quality control. The student should know the requirements for the quality of raw milk provided by the current legislation in Ukraine, to be able to assess its compliance with the requirements, to take the necessary measures for non-compliance of products with specified requirements.

2.2.4. Master's program "Specialized beef cattle"

Management of productivity. The discipline provides deep knowledge of patterns of individual animals specialized meat breeds that will allow future professionals to manage production of cattle meat during its growing and fattening in order to obtain cheap quality beef. The student should acquire knowledge about the characteristics of the waste animal genetic potential productivity patterns of individual development of animal feed, depending on age, performance and physiological status and be able to apply them in practice in order to increase beef production.

Beef cattle management systems. The discipline focuses on the study of the maintenance of beef cattle of different sex and age groups (bulls, cows, calves, calves) of feeding livestock on pasture as the cheapest way to beef production, energy and resource saving technologies, as well as the characteristics of modern systems keeping beef cattle that are used abroad.

Control of production of products beef cattle The discipline involves the provision of theoretical knowledge regarding the selection of new forms and methods of control when creating an integrated, efficient and flexible production of beef cattle to market conditions. Knowledge management theory will enable to master the art of team management, including the ability to set general and specific goals and objectives of the company, to develop a management strategy with regard to social, collective and personal interests, monitor their implementation.

Processing beef cattle. The discipline involves studying the problems of formation of quality and process performance characteristics of meat animals as raw materials for the processing industry, the implementation of cattle for meat processing companies for the existing systems and regulatory documentation, technology, processing and storage of slaughter animals with a maximum yield of useful products for manufacturing , evaluation of beef quality indicators for its technological and culinary properties and methods of preserving meat and meat products from it to improve the quality of long-term storage.

Production of ecologically pure beef. The course examines the requirements for the production of quality and safe beef, sets technical standards and rules of hygiene to obtain, from the growing of calves and young beef breeds and their crosses and finishing of cattle at processing plants and meat in the retail trade.

2.2.5. Master's program "Technology management in pig farming"

Biology of the pigs. Examines issues such as the development of systems and organs during ontogenesis, especially gestating, generative process, lactation, metabolism and energy and thermoregulation pigs, breeding biology and behavior of different gender and age groups, adaptation to the environment. The main objective of the course "Biology pigs" - a study of the vital processes of individual organs, systems and whole body, allowing you consciously change them in the right direction for the man.

Management of feeding and housing pigs. The course combines a set of sciences studying and planning features of pigs feeding and maintenance, watering, maintenance of microclimate, manure removal and disposal of manure disinfection of others. Also considered regulations that govern the use of an equipment for feeding and pigs and how to accommodate depending on the technology of pork production.

Slaughtering of pigs and processing of pig products. The discipline allows the students to master methods of slaughter products' rational management; methods of slaughtering pigs and processing pig products. It also examines preparation, pre-processing and storage of raw pig products, pig transport, morphological and chemical composition and factors affecting the quality of meat.

Industrial pig production technology. The discipline cultivates the ability to implement rational use of various modern technologies of industrial pork production on an industrial basis. It considers the characteristics of one-, two- and three-phase technology of pork production, bioengineering systems in pig farming.

2.2.6. Master's program "Modern technologies of industrial poultry"

Technology of production of eggs and meat. The discipline studies maintenance of modern process of production and primary processing of eggs, which is based on the use of specialized egg and cross breeds of birds using complete feed, complete mechanization and automation of the production process, while respecting the system of veterinary-sanitary measures and quality control.

Breeding business. Studies breed poultry, methods of selection and breeding of poultry breeding farms types, and especially breeding of egg and meat chickens, turkeys, ducks, geese, quails, guinea fowl and ostriches.

Incubation of the birds eggs. It studies rules of obtaining standard hatching eggs, the storage and transportation, processing methods incubation eggs regime and biological control. Master acquires skills of organization and planning process technology incubation, and learns causes of disorders in embryos and methods for their prevention.

Bird biology. The course examines the structure and functions of individual organs and systems of birds in general. The knowledge about the circulatory, respiratory, digestive, metabolic and energy, thermoregulation, reproduction, neuro-humoral regulation of various processes enable technologists poultry companies maintain a high level of productivity of poultry.

2.2.7. Master's program "The racing industry and sport horse breeding industry"

Global genetic horses resources. It studies horse genetic resources as a factor of development of small and medium businesses. It considers characterization methods and improved conservation of genetic resources in horse breeding.

Racetrack and sports training. It studies the physiological bases sport horse breeds system factory and racetrack training rules test horses on the racetrack, racetrack use the results of tests in breeding work. The discipline compares the experience of Britain and the United States to improve technology and training thoroughbred horses.

Horse-breeding. It stu of hereditiyies variability of the main signs of breeding horses of different types and species, the relationship between the main selection signs of breeding, selection and selection features mares to stallions in the breeding horse breeding, methods of assessment of stallions and mares for breeding and quality of offspring horse breeding base in the country.

Organization of pedigree business in horse breeding. The key issues are the subject horse breeding structure and brief description of its components, breed creative process as a social need, government measures to promote breeding.

Horse biology. The course "Horse biology" studies biological characteristics of horses associated with their maintenance, feeding, reproduction, behavior, adaptation to living conditions and creating conditions of use and methods of improvement and the improvement of breeds of horses for various purposes, which will enable to more effectively conduct breeding work will provide quality improvement horse herd and economic efficiency of the industry and will not only provide internal needs of the state in breeding and working horses, but also supply them for export.

2.2.8. Master's program "Technologies and productive use of bees capacity"

Biology of bees. The discipline thoroughly studies the biology of honeybees functions of individuals, morphology, anatomy, physiology and ecology working bees and the drone of the uterus; master issues lifestyle patterns of social bees that functions that appear only as a result of living bees holistic biological units (families). These include phenomena - heat, building nests, a high increase in body mass, swarming, use medosbora, wintering and more. Knowledge of patterns of social life of bees is the foundation on which the possible development of effective techniques and methods of beekeeping.

Breeding and keeping bees. This discipline helps students to: study systems designed to monitor and sustain bees and their colonies, maintain them during the annual cycle; variability and heredity characteristics of individual bees and their colonies; organization and performance of breeding work in the industry; study theoretical foundations underlying natural reproduction of bee colonies and stasis bees, development and implementation on the basis of modern technologies and methods of breeding and bee breeding material output.

Production, storage and processing of bee products. This discipline introduces students to technologies of producing honey, wax, pollen (bee pollen), bee-glue, royal jelly and bee venom; biology and chemistry of honey, wax and other biologically active products' making process. The discipline allows students to study properties of biologically active products, their effect on quality of different factors and methods of determining fraud; organization of production at the apiaries of different ownership; definition of quality; measures of enhancing apiculture economic efficiency.

Technological equipment in beekeeping. The discipline the development of new and improvement of existing methods of automated control systems and technological production processes in beekeeping methods and algorithms of maintenance and repair of complex electromechanical and computer-integrated automation systems. It highlights of the main provisions of the production and exploitation of beekeeping equipment, wax raw materials processing, pumping, processing and packaging of honey, obtaining other bee products, queen bees breeding, disease control bees, bees mechanization of transportation, beekeeping buildings.

Prevention of diseases of bee colonies. The discipline studies the importance of compliance with the terms of feeding, keeping and breeding of bees to the prevention of diseases of bee colonies, the biology of pathogens of infectious diseases, ways to spread the losses from diseases and combat them, and the acquisition of skills show signs of morphological changes in species of bees in various diseases in terms of apiaries, select material for laboratory research and carry out recreational activities.

2.2.9. Master's program "Animal husbandry of protected areas"

Biology of wild and exotic animals. It studies the biological characteristics of different wild animals and exotic species, including domestication candidates for their zoogeography, physiological features, ethology, patterns of individual development, especially the exterior, nutrition and reproduction, the nature of inheritance of certain traits and characteristics.

Management of biocoenosis. This discipline provides management expertise with unity of plants, animals and microorganisms coexist in natural or artificial areas (nature reserves, hunting, game kennels, zoos, unique reservoirs, etc.), including in the face of increasing anthropogenic pressure.

Technology to protect wildlife. It studies known technological solutions based on the interaction of legal, organizational, economic, logistical and other measures aimed at conservation, restoration and sustainable use of wildlife. Covers technology breeding rare or endangered species under natural and artificial conditions of existence and conservation technologies and long-term storage of genetic information.

Technology introduction and breeding animals. The course gives a special knowledge of techniques and methods of breeding of wild and exotic animals in nature reserves, game farms, nurseries hunting game, zoos, providing them expanded reproduction without increase in inbreeding as well as methods for introduction in the territory, monitoring as exotic species during their adaptation and continued existence.

Educational and research program of master's training

2.2. Disciplines offered by students

2.2.1. Master's program “Animal Feeding and feed technology”

Methods and organization studies. Students study principles of conducting researches, modern classification of experiments, selection methods. Students also learn how to systemitize and analyse scientific information and research outcomes in animal feeding and feed technology, how to to meet the demands of a research work and rights on intellectual property in a specific sphere.

Animal feeding. This discipline studies theoretical aspects of functioning animals such as the consumption of food, the assimilation of digested nutrients and the use of them for vital processes and production. Students will be able to acquire the ability to develop practical control techniques and feeding quality management products on this basis.

Feeding of ruminant animals. The purpose of this discipline is to develop skills and knowledge about systems of feeding ruminants according to the job description specialty "Technology of production and processing of livestock products." The subject of the study is feeding cattle, sheep and goats; feeding means rations adequacy of supply, quality and product safety, prevention of diseases.

Evaluation of the quality and nutritive value of feeds. The course provides theoretical and practical study on evaluation of feed quality, laboratory studies and different feeding groups based on their nutritional feed determination, practical and theoretical skills in decision making regarding the possibilities of using fodder in animal feed. The subject of the study is different feeding groups, their evaluation and determination of the actual nutritional value for animals and birds of different species.

Feeding of poultry. Tasks of the course are to provide future specialists with knowledge of poultry nutrition, organization of science-based nutrition and control of its usefulness. The specialist should know about the changes that occur during harvesting, storage and preparation of feed for feeding and feed impact on the quality of animal products. The program provides providing theoretical and practical knowledge about the

basics of energy saving, scientifically grounded production technologies, storage and use of feed for poultry in order to introduce them to further practice for high-efficiency driving conditions for poultry of different forms of economic activity.

Feeding of monogastric. The course aims at studying the characteristics of power monogastric animals, modern approaches to regulation and organization of animal feed. The subject of the study are power hogs, horses, poultry, fur animals; feeding monogastric animals; quality products depending on your nutrition by highlighting the theoretical and practical aspects of scientific bases of power monogastric animals; feeding pigs and horses; feeding of poultry, rabbits, nutria and fur animals.

2.2.2. Master's program "Reproductive bio engineering"

Contemporary methods of regulating animals reproductive capacity. Students will learn how to implement new technologies and methods of evaluation and improvement of animals reproductive capacity which are based on modern methods forms and means of diagnosis and enhancement this function.

Biotechnological methods in livestock raising. Students will learn about biotechnology of animal reproduction, its physiological features and deviation, its dependence on feeding, care and use, the impact of endogenous and exogenous factors. They will study artificial insemination, embryo transplants, cloning, genetic engineering, they will consider questions about sterily prevention, directed regulation of reproductive functions of animals.

Biotechnology of reproductive cells. Students will learn about sperm, eggs and embryos cryopreservation. They will learn about different ways of sperm and embryos preservation, detect and correct mammals sex using molecule and biological foundations of its forming and using cytogenetic, immune and molecule methods. They will learn about fertilization and cultivation of female gametes invitro, cultivation zygotes and embryos invitro.

The technology of substances and solutions. Students will learn about what biologically active substances and drugs in various forms consist of, a production process and its monitoring, the choice of wrapping material. They will also learn about physical and chemical, biological and microbiological properties of a product during the process of its making and using in order to create quality substances and solutions and to provide its registration and quality in mass production.

The genetics of qualitative and quantitative features. Students will learn about applied genetics which will help them to do their scientific and research work effectively in future in order to enhance animals productive and reproductive capacity.

Conservation of livestock genetic resources. Students will learn about how to preserve and use rationally livestock resources, to organize breeding of commercial and local breeds, how to do accounting and registration of animals, to evaluate the efficiency of breeding activities, to prognose a breeding success, to determine the impact of various factors on animals productivity.

2.2.3. Master's program "The technology of the production of beef products"

Animal ethology. Students will learn about cattle life, the impact of nervous system, hormones inherited and abiotic factors to implement genetically conditioned productivity.

Experiment planning. Students will get the knowledge, skills and abilities to plan, organize and conduct researches on cattle feeding, breeding as well as cattle production. It will also enhance students' interest to scientific researches.

Contemporary livestock raising. This course will enable students to learn how to manage the production of livestock products. Students will learn about systems of beef cattle breeding and keeping, possible problems of managing meat productivity and processing. They will also learn about eco beef production and technological processes of milk and beef production using innovative technologies.

Analysis and summarizing research results. Students will learn about theoretical basis of scientific research, methods of data collecting and processing and conducting an analysis of production indicators, laboratory and statistic analysis, the use of contemporary technological firm equipment and software and summarizing research results. They will learn how to write academic work, how to get author's certificates and patents and how to publicize the results.

Control of livestock products production. Students will learn how to control livestock production according to legislative acts and standards how to take managerial decisions to coordinate technological processes of livestock production and to correct deviations from set aims.

Master course
in educational program "WATER BIORESOURCES AND AGUACULTURE"
in specialty 207 "WATER BIORESOURCES AND AGUACULTURE"
branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of people:
– Full-time	75
– Part-time	75
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of Teaching	Ukrainian, English
Qualification	Aquaculture researcher

The concept of training

In the process of their studies, the specialists in water bioresources learn biological resources of the hydrosphere: production of aquatic resources, productivity, raw water resources. They also study dynamics, abundance and biomass of aquatic organisms, fish productivity of water bodies, dynamics of fishing hydrocole (fish), predicting abundance and biomass of aquatic resources and levels of allowable catch. As a result, the students acquire technology of rational (sustainable) management of aquatic resources in fishery ponds.

Over the course of their training, the specialists in aquaculture study and master the techniques of artificial breeding and reproduction of aquaculture industrial facilities and production as well as technologies of restoring native, rare and endangered hydrocole (fish) species. By the end of the course, the students acquire the techniques of artificial and natural reproduction and production of aquatic resources in fishery ponds.

Finally, the future experts on protection, reproduction and rational use of hydro-bioresources acquire knowledge of hydrocole (fish) selection methods applied for their protection. They also study technologies used to protect and restore native, rare and endangered hydrocole (fish), as well as rational (sustainable) use of aquatic resources, predicting their abundance, biomass and levels of allowable catch. As a result, the master degree candidates acquire the techniques of artificial and natural restoration and protection of native, rare and endangered aquatic resources (AR) in fishery ponds.

Educational and professional program of master's training
Master's program "Sturgeon Breeding"

The objective of the Master's degree program is to train sturgeon breeding specialists who will work at sturgeon fisheries, in specialized sturgeon fish farms of different types, and in research institutions focusing on preservation of sturgeon populations and breeding of its industrial stocks in natural waters and promote development of commercial sturgeon breeding; the graduate students will also be employed in agencies of the State Department of Fisheries of Ukraine and address issues related to restoration and monitoring the use of natural resources and ensuring further development of sturgeon commercial aquaculture.

Areas of employment of graduates

After having successfully completed the master's degree program, the specialists can apply for employment with the State Department of Fisheries of Ukraine, Ukrainian sturgeon factories and private farms, Department of Aquatic Biological Resources Protection, Reproduction and Regulation of Fisheries in Kyiv Oblast, and the Research Institute of Fisheries, NAAS of Ukraine.

Master's program "Commercial fishing"

The task of the program is to train researchers in aquaculture ponds for fish farms of different types, research institutes specializing in reproduction and cultivation of traditional and non-traditional aquaculture facilities, research fish diseases, nutrition, genetic-molecular research.

Areas of employment of graduates

After finishing university specialists can work in state fish farms and private farms in Ukraine; State Fisheries Agency of Ukraine; State Enterprise "Ukrryba"; Research Institute of Fisheries.

Master's program "Protection of Hydro-bioresources"

The main objective of the master's degree program is to prepare specialists of environmental protection who are able to work in the agencies under jurisdiction of the Ministry of Environment or the State Department of Fisheries of Ukraine, oblast or regional fisheries departments, in research institutions, public or private enterprises, whose business relates to protection and reproduction of rare and endangered fish species, moving them into the water in order to restore biodiversity, increasing biological and fish productivity of aquatic ecosystems. Implementation of these measures is based on the scientific substantiation of the main approaches used to optimize efficiency of water use and commercial utilization of water resources and on development of specific measures for protection of aquatic biodiversity, increasing its abundance and sustainable use.

Areas of employment of graduates

After having successfully completed the master's degree program, the specialists can apply for employment with the State Department of Fisheries of Ukraine, Department of Aquatic Biological Resources Protection, Reproduction and Regulation of Fisheries in Kyiv Oblast, territorial (oblast and district) fishery protection bodies, the territorial agencies of the Ministry of Environmental Protection of Ukraine, Research Institute of Fisheries, NAAS of Ukraine, the Institute of Hydrobiology, NAS of Ukraine, public and private fishery farms; the State Fishery Inspection in Kyiv and other Ukrainian Oblasts.

Master's program "Harvested biological resources"

The aim of the program is to teach specialists in rational harvesting biological resourses who will be able to work in the system of State agency of fisheries of Ukraine and regional and district ichthyological services, in scientific and research enterprises in state and private fisheries which harverst hydrobioresources out of the natural waters. Students will obtain skills to restore biological variety of hydrobioresources, enhance bio and fish productivity of natural waters. It is possible only on the scientific basis of rational use of resource base of hydrobionts, its effective resource saving haversting which is grounded on sciemtific amd legal awareness about bioresources, predicting and managing fish productivity of waters.

Areas of employment of graduates

On completing this master's degree program, specialists can apply for employment at State Department of Fisheries of Ukraine, Department of Aquatic Biological Resources Protection, Reproduction and Regulation of Fisheries, territorial (oblast and district) fishery protection bodies, the territorial agencies of Ministry of Environmental Protection of Ukraine, Research Institute of Fisheries of NAAS of Ukraine, Institute of Hydrobiology of NAS of Ukraine and other scientific and research enterprises, at public and private fishery farms in harvesting commercial hidro bioresources of waters.

Master's program "The fauna of the wetlands"

The task of this master's program is to train specialists who will be able to work in the system of Ministry of Environmental Protection of Ukraine or in the system of State cominttee of fishery of Ukraine in oblast or district fishery protection bodies, in scientific and research enterprises which grow, protect and restore rare os extinguishing fish species, moving them into waters in order to restore biological variety, enhance bio and fish productivity of water eco systems. It is possible on the basis of scientific verification of main approaches to optimize rational water use and utilization of water bioresources and to develop specific measures to protect water biovariety its increasing and rational use.

Areas of employment of graduates

On completing this program, specialists can apply for employment at State Department of Fisheries of Ukraine, Department of Aquatic Biological Resources Protection, Reproduction and Regulation of Fisheries in Kyiv Oblast, territorial (oblast and district) fishery protection bodies, territorial agencies of Ministry of Environmental Protection of Ukraine, Research Institute of Fisheries of NAAS of Ukraine, Institute of Hydrobiology of NAS of Ukraine and other scientific and research enterprises, at public and private fishery farms in harvesting commercial hidro bioresources of waters.

Master's program "Bio productivity of waters"

The main task of this Master's program is to train specialists who will be able to estimate the productivity of waters. Students will study the ability of water eco systems to form an amount of biological products such as the biomass of aquatic plants, invertebrates, fish and other aquatic organisms.

Areas of employment of graduates

Graduate can work in the system of State Agency for Fishery of Ukraine, Department of Protection, reproduction and use of water bio resources and fishing regulation; territorial fishery bodies (regional and district); Institute of fishery of NAAS of Ukraine; Institute of hydro biology of NAS of Ukraine and other scientific and research organizations; at state and private fisheries.

Educational and research program of master's training

Master's program "Ichthyofauna of Mixed-Use Ponds"

The main objective of the master's degree program is to train ichthyology professionals who can work in the State Department of Fisheries of Ukraine, State Fishery Inspection, its oblast and district structures, research institutions and other public and private enterprises dealing with cultivation and fishing in the fish farms, particularly in mixed-use ponds.

Areas of employment of graduates

After having successfully completed the master's degree program the specialists can apply for employment in Ichthyological Service of the State Department of Fisheries of Ukraine, Water Bioresources Unit of the State Department of Fisheries of Ukraine, State Institution "Ukrryba"; ichthyological services of Aquatic Biological Resources Protection, Reproduction and Regulation of Fisheries oblast offices and as private entrepreneurs in specialized fish farms at mixed-use ponds.

Master's program "Experimental aqua culturea"

Master's program «Experimental aqua culture» will train specialists for scientific organizations which work in the domain of aquaculture. Students will learn about laws of biology in terms of productivity of aquaculture, peculiarities of reproduction and cultivation of as traditional so rare and extinguishing fish species.

Areas *of employment of graduates*

Specialists will work in the system of State Agency for Fishery of Ukraine, Department of Protection, reproduction and use of water bio resources and fishing regulation; territorial fishery bodies (regional and district); Institute of fishery of NAAS of Ukraine; Institute of hydro biology of NAS of Ukraine and other scientific and research organizations.

Practical training

Practical training of Fisheries Department students is a component of the curriculum the students require to obtain necessary qualification, professional skills and abilities. This training is performed at the forefront of modern fishery enterprises under organizational and methodological guidance of Department of Aquaculture's faculty and specialists of the enterprises.

While studying at the University, the students receive a thorough theoretical and practical training in modern laboratories equipped with new equipment, in computer classes as well as at leading fishery enterprises such as PJSC "Kyyivrybhosp", SE "Irkliiv Fishpond", SE "Ukrryba", DG "Great Lubin", PJSC "Hmelnytskrybhosp", PE "Aquarium Technologies", PJSC "Sumyrybhosp", PJSC "Hersonrybhosp", JSC "Vilshanka", ARC "Kherson Fishermen", PJSC "Poltavarybhosp", Fishing Farm "Nyvka", IRG NAAS of Ukraine, JSC "Chernihivrybhosp", Astrakhan State Technical University (Astrakhan, Russia) and the Louis Pasteur National Lyceum (France) and others.

Proposed Topics for Master Theses

1. Fish-breeding and biological rationale for the project of full-scale Lena Sturgeon (Acipenser baery Brandt) pond fishery.
2. Features and methodological approaches to breeding domesticated stock of Russian Sturgeon (Acipenser guldenstadty Brandt) in sturgeon fisheries.
3. Aqua -design of South America aquasystem decorative freshwater habitat.
4. Innovations in Cichlid fish (Ciclidae) keeping and breeding technologies.
5. Methods to improve bioproductivity potential of industrial fishing farms.
6. Forecasting biological productivity of fishery ponds based on the aquatic environment's abiotic factors.
7. Methodological approaches applied to selection and breeding of rainbow trout (Oncorhinchus mykiss) in breeding farms.
8. Effective use of synthetic germ cell ovulation stimulants in artificial reproduction of the white carps (Hypophtalmichthys molitrix).

9. Current status of fish fauna in mixed-use fishery ponds and ways to improve their fish productivity.

10. Structural and functional characterization of plankton, benthic organisms, and macrophytes in changing aquatic environment conditions.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Water Bioresources and Aquaculture" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Occupational Health and Civil Defence in fishing industry	1	90	3
2	Communication in the fish farming collectives	1	90	3
3	Information technologies in fish farming	2	90	3
4	Theoretical foundations of fish farming	2	150	5
5	Theory of fish population dynamics	2	120	4
6	Intensive aquaculture technologies	1, 2	240	8
7	Economics of fisheries sector	2	120	4
8	Fisheries research methods	1	90	3
9	Environmental physiology and biochemistry of aquatic organisms	1	120	4
10	Production management in fishery	2	90	3
11	Philosophical biological problems	2	90	3
Total for standard part			**1290**	**43**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Protection of hydrobioresources"				
1	Protection of aquatic organisms	3	120	4
2	Management of of aquatic organisms	3	120	4
3	Protection of water resources	3	120	4
4	Assessment of the ecological state of water bodies	3	120	4
5	Hydro bio facies	3	120	4
Total (Disciplines offered by students)			**600**	**20**
2.2.2. Master's program "Sturgeon breeding"				
1	Biological productivity of sturgeon species	3	120	4

2	Selection of sturgeon breeding objects	3	150	5
3	Sturgeon husbandry in ponds	3	150	5
4	Industrial sturgeon	3	180	6
Total (Disciplines offered by students)			**600**	**20**
2.2.3. Master's program "Commercial fishing"				
1	The productivity of objects of commercial fishing	3	120	4
2	The selection of objects for commercial fishing	3	150	5
3	Technical equipment of commercial fishing	3	150	5
4	Technologies of commercial fishing	3	180	6
Total (Disciplines offered by students)			**600**	**20**
2.2.4. Master's program "Harvested hydrobiological resources"				
1	Industrial ichthyology	3	180	6
2	International regulation of fishing	3	120	4
3	Managing fish productivity of reservoirs	3	150	5
4	Forecasting of productivity of reservoirs	3	150	5
Total (Disciplines offered by students)			**600**	**20**
2.2.5. Master's program "The fauna of the wetlands"				
1	Biology of productivity objects wetland fauna	3	150	5
2	Trofology and animal reproduction	3	150	5
3	Biomonitoring and protection of wetland fauna	3	120	4
4	Resource management of wetland fauna	3	180	6
Total (Disciplines offered by students)			**600**	**20**
2.2.6. Master's program "Bioproductivity of waters"				
1	Hydro bio facies	3	120	4
2	The bio productivity of waters	3	120	4
3	The methodology of evaluation of water bioproductivity	3	120	4
4	Modern methods of hydrobiological researches	3	120	4
5	Management of water productivity	3	120	4
Total (Disciplines offered by students)			**600**	**20**
Total for elective part			**930**	**31**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1	**240**	**8**
2	Preparation and defense of master's work	3	**240**	**8**
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Water Bioresources and Aquaculture" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Occupational Health and Civil Defence in fishing industry	1	120	4
2	Communication in the fish farming collectives	1	120	4
3	Information technologies in fish farming	2	120	4
4	Theoretical foundations of fish farming	2	120	4
5	Theory of fish population dynamics	2	120	4
6	Intensive aquaculture technologies	1, 2	240	8
7	Economics of fisheries sector	2	150	5
8	Fisheries research methods	1	90	3
9	Environmental physiology and biochemistry of aquatic organisms	1	120	4
10	Philosophical biological problems	2	90	3
Total for standard part			**1290**	**43**
2. ELECTIVE ACADEMIC DISCIPLINES				

2.1. *Disciplines offered by University*				
1	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines offered by students*				
2.2.1. Master's program "Ichthyofauna of mixed-use ponds"				
1	Native ichthyofauna	3	180	6
2	Modern methods of ichthyological research	3	180	6
3	Ichtyocenology	3	180	6
4	Ichthyofauna of Ukrainian ponds	3	210	7
5	Productivity in continental of reservoirs	4	180	6
6	Prediction of fish harvest	4	210	7
7	Protection of continental waters' fish fauna	4	180	6
8	Fishing of continental waters of Ukraine	4	180	6
Total (Disciplines offered by students)			**1500**	**50**
2.2.2 Master's program "Experimental aqua culture"				
1	The biology of the productivity of objects of pond aqua culture	3	240	8
2	The technology of freshwater aquaculture	3	300	10
3	The methodology of experimental researches in aquaculture	3	210	7
4	The selection of objects of aquaculture	4	240	8
5	Technologies of mariculture	4	300	10
6	The methodology of experiments in ichtyo pathology	4	210	7
Total (Disciplines offered by students)			**1500**	**50**
Total for elective part			**1830**	**61**
3. OTHER TYPES OF TRAINING				
1	Production Practice	1	**240**	**8**
2	Preparation and defense of master's work	3	**240**	**8**
Total			**480**	**16**
Total for educational program			**3600**	**120**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Occupational health and Civil Defense in fishing industry. The discipline examines the ways of setting up protection measures and protecting the public against the effects of economic, natural and environmental emergencies; prevent emergencies; reduce losses; disseminate threat alerts; provide life support during accidents, major fires, natural calamities and disasters, military conflicts; conduct rescue operations; forecast, monitor and control radioactive and chemical contamination; ensure sustainability of agricultural facilities in emergency situations. This is a regulatory discipline that is tought to develop in the future professionals holding the master's degree the knowledge about current status and issues in the field of labor safety in the fishery sector adjusted to the priorities of their basic training. It summarizes organizational requirements of inter-sectoral and industrial safety regulations (NPAOP – Ukrainian Labor Protection Regulations) to be implemented in fishery enterprises at safety management units; requirements to setting up and operating at businesses and enterprises the labor protection services; ways, methods and means of enforcing environment and labor protection regulations during technological processes in the fishing industry to adopt managerial decisions to prevent accidents, injuries and occupational diseases in the industry.

Communication in the fish farming collectives. Students study the current state and problems of work safety in fishery. Students learn organizational demands of

interbranch and branch standard and legal acts in work safety in order to implement them at fisheries which belong to the system of managing work safety; establishment and functioning work safety service at enterprises; means of keeping standards of productive environment and work safety while doing technological processes in fishery in order to approve management solutions which will prevent accidents, injuries, occupational diseases at the enterprises. Students also learn organization and population protection in emergency situations of economical, natural and ecological nature; prevention of appearance of emergency situations, measures to reduce loss; warning about the threat of disasters; life support during accidents, major fires, accidents, natural disasters and in armed conflicts, conducting rescue operations, forecasting, monitoring and control of radioactive contamination, chemical contamination, ensuring the sustainability of agriculture facilities in emergencies.

Information technologies in fish farming. Students learn the behavior and work of a specialist using standard reference and specialized literature, laws of Ukraine, government acts, and results of phychoanalytic researches, calculation techniwues and information technologies. Students learn to organize production processes in fishery taking into account personal peculiarities of a specialist, to reveal leader features and professional competence in managing fishery teams, to to conduct business communication to prevent and regulate industrial conflicts at fisheries, to процеси рибництва з урахуванням індивідуальних особливостей особистості; проявляти лідерські якості та професійну компетентність в управлінні рибницькими колективами; організовувати ділове спілкування, попереджувати і врегульовувати виробничі конфлікти в колективах рибницьких підприємств; to manage personnel policies, to promote the image and professional ethics of specialists and fisheries.

Theoretical foundations of fish farming. This discipline focuses on basics of breeding theory, evidence-based methods and techniques underpinning the modern farming and reproduction of fish stocks under specific environmental conditions in order to improve existing technologies applied in artificial reproduction of rare and endangered species; develop science-based methods enhancing vitality of fish stocking material at different stages of ontogenesis; grow high-quality commercial fish farming products; create optimal conditions for breeders in factory conditions; develop new sustainable resource-breeding technologies.

Theory of fish population dynamics. The discipline offers an introduction into the science of sustainable fisheries management and quasi-natural reservoirs relying on the consistent patterns of dynamics in fish populations, estimation of the extent of their stocks and correlation between changes of this value and fishing intensity. The value of fish stocks and their composition undergo annual and long-period fluctuations that can be forecasted and planned by combination of such processes as replenishing industrial fish herds, nutrition, fertility, growth and maturation, mortality from fishing and natural reasons.

Intensive aquaculture technologies. This discipline completes the cycle of special courses and focuses on the most recent world and national achievements and scientific research in the field of freshwater and marine aquaculture. Future professionals studying this discipline must get acquainted with the latest global and domestic research and foster their creativity in future careers. Studying this discipline is aimed at developing science-based solutions of process control in fish production, learning measures to increase efficiency of technological processes, develop production plans and evaluate their effectiveness through modeling techniques. Knowledge of methodological approaches to development of mathematical models improve qualification of fishery engineers, help them develop a scientific understanding of technology and enable with new opportunities of improving it in their future careers. This discipline provides for a clear understanding of

modern methods used in fisheries management, the current state of fish production in the world and in Ukraine, the ability to assess the prospects of the fishing industry in the current environment with regard to trends in global fish market, available resources, increasing fishery production and aquaculture.

Economics of fisheries sector. Students learn the profile of future administrator and specialist who knows the state of fishery of Ukraine within economic globalization, learns how to provide food security using fishery potential, development of national bodies of state regulation of fishery, regulatory policy in fishery, rent price for a water body and rent payment for the land under this body, conducting land auctions.

Fisheries research methods. The discipline combines general methods and techniques of hydrological, hydrochemical, hydrobiological, ichthyological and fisheries research aimed at enhancing sustainable use of natural and artificial hydrobiocenoses.

Environmental physiology and biochemistry of aquatic organisms. This discipline studies physiological and biochemical processes occurring in the body of aquatic animals at different stages of embryonic and postembryonic development and during their growth in ontogenesis under normal conditions and under the influence of natural aquatic environment factors (temperature, gas treatment, water salinity, etc.). The curriculum of this discipline provides also for studying age-related characteristics and seasonal peculiarities of metabolism in fish at different periods of their annual cycle, as well as physiological and biochemical mechanisms of fish adaptation to natural factors.

Production management in fishery. This course will provide with theoretical knowledge and practical skills of production management that is how to develop an enterprise strategy, to analyze projects and methods of evaluation of their effectiveness, how to manage capital investment using the most effective tools of activities to get profit as well as to increase social effect, the value of assets and own capital.

Philosophical biological problems. Students are able to learn about ways of fostering polyphony and pluralism of contemporary philosophical thinking in order to enlarge holistic worldview. Students will learn about world and Ukrainian philosophical view and to become aware of philosophical principles of the specialty.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic

competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Educational and professional program of master's training

2.2. Disciplines offered by students

2.2.1. Master's program "Protection of hydrobioresources"

Protection of aquatic organisms. This discipline examines the scientific basis underlying development and implementation of substantiated hydrosphere protection measures where hydrosphere is regarded as an environment inhabited by aquatic organisms, biological balance of aquatic ecosystems is restored, aquatic biodiversity is maintained, sustainable use of water resources is provided and human impact on water bodies of different types is reduced.

Management of of aquatic organisms. Is examines the management and structure of fisheries legislation specific activity of the state, which has executive i administrative nature, is organizing influence on relations through the use of state-power. Study courses aimed at mastering the instructions for use of fish and other aquatic resources with creative use of each new transaction corresponding current regulatory and technological base, in order to apply this knowledge in professional activity of future specialists.

Protection of water resources. The course studies ways of pollution of continental waters (mechanical, chemical, bacterial, biological, radioactive, thermal, etc.) which lead to changes in physical, chemical and biological properties of the water in the water reservoirs, making the water there unsafe to consume, causing damage to the national economy, health and safety of the population. Students also study activities and measures to protect water resources and aquatic rehabilitation continental basins as well as legal regulation of protection of water resources and mathods of wastewater treatment (mechanical, chemical, physical-chemical and biological, or when they are used together, combined.

Assessment of the ecological state of water bodies. Students learn a system of monitoring water quality and environmental condition of continental reservoirs according to European Water Framework Directive; current standardized indicators of water quality of continental fishery ponds as well as evaluation of ecological state of continental water bodies of different types by integrated indicators for indicator organisms such as natural (rivers, lakes, reservoirs) and artificial (ponds) hydroekosystems.

Hydro bio facies. Students will learn about the structure of hydrobiofacies, their components, factors which influence on the quality of water eco systems, interconnection

between structural components of hydrobifacies, their functioning and behavior, the dynamics and development of hydrobiofacies. They will be able to develop rational and effective system of management of quality of water environment and water productivity.

2.2.2. Master's program "Sturgeon breeding"

Biological productivity of sturgeon species. This discipline studies biological and economic features of sturgeon, the current state of sturgeon stocks in the world, population structure and life cycle of most valuable species, the impact produced by natural and anthropogenic factors on performance and techniques of sturgeon artificial reproduction in order to increase the abundance of this species.

Selection of sturgeon breeding objects. This is the discipline that studies theory and practice of selection and breeding in sturgeon farming. The students will obtain knowledge about sturgeon's biological characteristics and commercial traits in order to develop theoretical and practical foundations for development and operation of domesticated reproduction sturgeon stock, identifying areas of sturgeon selection and breeding work.

Sturgeon husbandry in ponds. This is the discipline that completes the cycle of special courses and provides students with knowledge about the most recent world and national research in the field of sturgeon husbandry in ponds, examines organizational structure of sturgeon fish farms, their arrangement, biological basis of comprehensive measures to intensify pond sturgeon aquaculture, enhance biological and fish productivity of ponds, technologies for fostering spawn in sturgeon breeding farms, technologies of building the reproduction sturgeon stock and stock of commodity pond sturgeon in warm-water aquaculture, taking into account systems, forms and cycles of fisheries management.

Industrial sturgeon. Students study a theoretical basis and obtain practical skills for planning and management processes of cultured sturgeon in gardens, pools and recirculation fish farming systems and analyze the results of this work. Students obtain advanced knowledge about technological processes in the industrial sturgeon farming, modern technologies of artificial reproduction, intensive sturgeon production in gardens, pools with recycled water supply. Students also learn to use modern regulatory and technological base while planning production processes and analyzing the results of aquaculture; learn how to use environmentally friendly approach in planning and carrying out work on industrial methods of sturgeon aquaculture.

2.2.3. Master's program "Commercial fishing"

The selection of objects for commercial fishing. Students will learn about fish productive properties when grown for commercial fisheries; modern methods of fish selection in order to form and consolidation economically and hereditary useful properties of aqua culture grown in nurseries, pools and recirculation installations. They will also learn about the use of genetic methods of fish selection to detect breeding material to accelerate the formation and consolidation of aquaculture objects; organization and conducting selection and breeding activities at enterprises of different types and forms of ownership; the methodology of researches in the domain of fish selection.

The productivity of objects of commercial fishing. Students will learn about ecological and biological peculiarities of main objects of commercial fishing; factors influencing their productivity, the analysis of keeping conditions, peculiarities of fish feeding in terms of different commercial growing, methods how to increase the productivity. They will also learn about biological peculiarities of fish to increase their

productivity, the analysis of hydrological, chemical and thermal regimes of waters, their correction, technological and financial abilities of fisheries.

Technologies of commercial fishing. Students will learn about technologies of reproduction and growing aquaculture objects; innovative technologies in commercial fishing; new methods of breeding and cultivating fish in European Union, the USA, Canada, China, etc.; integrated technologies in fisheries.

Technical equipment of commercial fishing. Students will learn about effective use of technical equipment of aquaculture complexes and fisheries, types of general characteristics of types of equipment to grow fish, technological regimes of exploiting equipment, how to calculate the equipment necessary to fulfill specific tasks.

2.2.4. Master's program "The fauna of the wetlands"

Biology of wetland fauna productivity. Students study biological potential of wetland fauna for a certain period of time and in certain environmental conditions: marshlandscienega, moss land, bog either artificial or natural, permanent or temporary, static or flowing, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters including areas in which coastal river and sea zones adjacent to the wetlands, and islands can be located. Students learn the possibility of wetland fauna to form medium or maximum biomass, conditions of optimal state of wetland ecosystems in which productivity stability or its growth is achieved.

Wetland ecology and reproduction of water and wetland fauna. Students study food chain and animal reproduction in wetlands. A significant variety of habitats is characterized by the same variety of environmental conditions for nutrition and breeding animals. Students study chains of feeding in order to reveal ecosystems of wetlands, to learn each each of its level and condition of ecological resources is necessary to ensure vital issues and animal breeding wetlands.

Biomonitoring and protection of water and wetland fauna. Students learn a structural and functional organization of water and wetland eco systems, processes of their natural and anthropogenic dynamics. Ecological researches and monitoring environmental objects which are a part of multi aspect ecological activity which is done in the country ensure the formation and effective functioning of the system of biological monitoring of water and wetland eco systems. The program aims at identifying and predicting the state of water and wetland ecosystems taking into account landscape and climate conditions, tyoes of water and wetland ecosystems and anthropogenic changes of the environment (climate changes and pollution of the environemt)

Management of water and wetland fauna resources. Students learn animal resources of water and wetland, its rational use, reproduction and protection on the basis of International and All-Ukrainian standards. As water and wetland are presented by various natural and artificial biotopes where animal world live there is need in revising kinds of animal world and their importance as ecological resource for human needs.

2.2.5. Master's program "Harvested hydrobiological resources"

Industrial ichthyology. Students learn scientific information about the variety of commercial fish which are in continental waters of the world and Ukraine in particular. Students learn about systematic groups of commercial fish and peculiarities of structural features of their representative as well as learn how to identify fish species belonging in the waters of the world and Ukraine in particular, to be skilful in identifying, characterise commercially valuable species of ichthyfauna their structure, biology, commercial value, perspective of possible commercial and other use.

International regulation of fishing. It considers the issue of sharing biological resources of international water bodies, defining the role of Ukraine as a sovereign state, to regulate these processes on the basis of priorities of domestic and foreign policy of Ukraine in the field of protection, use and reproduction of aquatic resources taking into account the state course toward integration into the European Union , and in particular the harmonization of national legislation with EU directives and international environmental standards.

Managing fish productivity of reservoirs. Students learn how to use ichthyfauna variety of natural and natural and technical (reservoirs) continental waters of Ukraine on the basis of a clear strategy and tactics of management of domesic reservoirs of various purposes, normalization of relations between water users identifying major ones, who would be responsible for the state of fish diversity in each reservoir. Students also learn how to provide regional control system of continental water fish productivity through changes in legislation and regulations in fishery, inventory, developing a net of water-reserves, the development and implementation of government recovery programs listed in Red fish Book of Ukraine as well as learn how develop ways to increase fish productivity and improve the fish fauna of continental waters.

Forecasting of productivity of reservoirs. Students learn patterns of transformation of energy and matter cycle in aquatic ecosystems, learn how to identify aquatic organisms productivity, develop methods for predicting productivity of reservoirs and measures for their improvement. Students also study theoretical foundations of aquaculture and practical implementation of recommendations aimed at its rational use, learn main factors of reducing biotechnical methods of productivity enhancement of continental waters as well as methods of forecasting of continental waters productivity and learn how develop methods of forecasting the state of fish fauna and fish productivity of continental waters.

2.2.6. Master's program "Bioproductivity of waters"

Hydro bio facies. Students will learn about the structure of hydrobiofacies, their components, factors which influence on the quality of water eco systems, interconnection between structural components of hydrobifacies, their functioning and behavior, the dynamics and development of hydrobiofacies. They will be able to develop rational and effective system of management of quality of water environment and water productivity.

The methodology of evaluation of water bioproductivity. Students will learn how to plan, organize and conduct hydro biological researches, principles of systematization, summarizing and interpretation of the received results about the state of hydro biological waters.

The bio productivity of waters. Students will learn about biological process in water plankton benthos, methods of revealing primary plankton product and organic substances destruction in waters, ways of calculating aqua products, general laws of population growth and the increase. Students will also learn about the balance of organic substances and energy and aqua animals participation in the process of transformation in water eco systems. They will study the formation and transformation of substances and energy by means of autotrophic and heterotrophic aquatic component eco systems, factors that limit and stimulate production and destruction processes.

Management of water productivity. Students will learn about the management of processes of products of organic substances in natural and artificial waters. It is the final stage of training ichthyologists, pisciculturists and hydrobiologists. Students will learn about processes of formation of quality water, its influence on bio production and bio productivity of waters of complex and commercial fishing.

Modern methods of hydrobiological researches. Students will study the methods of selecting and office studies on order to detect qualitative and quantitative content of bacteria-, phito-, and zoo plankton, periphyton, phito and zoo benthos. They will study the peculiarities of diagnoses and systematic features of separate taxonomic groups of ohito plankton, zoo plankton and the evaluation of quality of water according to the level of its development.

Educational and research program of master's training

2.2.1. Master's program "Ichthyofauna of mixed-use ponds"

Ichthyofauna of Ukrainian ponds. This discipline is part of professional and practical training of master's degree students with major in "Water Bioresources"; upon completion of this course, the students will master modern data on fish biodiversity of Ukraine's inland waters, Azov and Black Seas, and the current classification system for ichthyo and fish, their biological characteristics; fundamentals and principles of Ukrainian ichthyofauna's systematics.

Modern methods of ichthyological research. This is a comprehensive professional applied discipline for ichthyologists and fish breeders. It generalizes and extends the hydrological, hydrochemical, ichthyological research methods in fish husbandry.

Ichtyocenology. This discipline provides knowledge about fish grouping habits and patterns of such grouping in water reservoirs of different types, dependence of fish communities (ichthyocenosis) on environmental factors. Particular attention is given to groups dominated by commercial fish species and some rare and endangered species of Ukrainian fauna.

Ecotrophology of fish. Explore processes of food organisms for fish in different ecological conditions and their impact on processes of various kinds of fish supply and productive potential of reservoirs. As well as the chemical composition of food objects, formation of matter and energy and their transformation processes in fish organism. Influence of food quality feed on productive characteristics of fish, various forms of metabolism in their body and the quality of sexual products and progeny viability.

Ichthyologytoxicology of continental waters. It considers toxicological status of inland waters: the main river basins, reservoirs and lakes as well as modern toxicological problems of inland waters' aquatic ecosystems, influence of water quality on the quality of fish products, noxemia of native fish fauna, their features in waters of various types. Management of ichthyologytoxicological situation in inland waters.

Prediction of fish harvest. This is the professional applied discipline targeting the audience of ichthyologists and fish breeders. Its main task is to teach students make industry forecasts that are necessary to achieve rational planning of fishing industry and ensure its sufficiency of raw materials. The discipline generalizes and extends the knowledge of laws applicable to fish population dynamics, as well as ichthyological and commercial fishery research methods in fish husbandry.

Protection of continental waters fish fauna. It combines a system of legal, organizational and economic, logistical, educational and other measures to preserve, and improve living conditions, reproduction and rational using of water biological resources, enforcement of legal and natural persons legislation. Examines natural or artificial (breeding, relocation, etc.) size renovation of water bioresources (transformation) that decreases in the using or natural death. It is aimed at preserving and acclimatization of fish fauna organisms and feed conditions', creating for them for their industrial using.

Fishing of continental waters of Ukraine. This discipline is the final phase of training for the specialty "Water Bioresources". It studies management of fishing in

continental waters of Ukraine, obtaining ability to evaluate the prospects of complex purpose reservoirs in fishery purposes of considering the legal aspects and mechanisms of removal of fish living resources.

2.2.2. Master's program "Experimental aqua culture"

The biology of the productivity of objects of pond aqua culture. Students will learn about the productivity of objects of pond fishery; biological peculiarities of fish in terms of their reproduction; biological grounds of management of gender cycles of pond fish; biological peculiarities of nurseries and receiving gender products; biological support of conditions of eggs incubation and growing young fish; the increase of water fish productivity.

The selection of objects of aquaculture. Students will learn about traditional and modern methods and means of selection; organization of selection work and breeding; the role of genotype and environment in forming positive features. They will also learn about fish genetics as a theoretical ground for their selection.

The methodology of experimental researches in aquaculture. Students will learn about methods of organization and conduction of scientific and scientific and productive experiments in aquaculture; principles of researches, their planning, the formation of experimental groups of objects of aquaculture, their organization. Students will learn about a creative approach to solve problems of fish diseases using modern methods of experimental researches, foundations of academic writing.

The technology of freshwater aquaculture. Students will learn about methodological approaches to conducting technological processes in freshwater aquaculture using modern scientific researches and global experience. They will also learn how to conduct technological processes of reproduction and growing as traditional so valuable delicious hydro bionts, particularly sturgeon and salmon as well as non-traditional objects. Students will also learn how to save resources and receive eco friendly products of freshwater aquaculture.

Technologies of mariculture. Students will learn about organization and functioning of enterprises of commercial mariculture; modern technologies of weed mariculture, molluscs, echinoderms and fish in order to get commercial products which possesses high quality consuming properties at enterprises with grazing and intensive mariculture; methods of increasing economic effectiveness of enterprises functioning; the methodology of organization and conduction of scientific researches at mariculture enterprises.

The methodology of experiments in ichtyo pathology Students will learn about methods of organization and conduction of research, research and productive experiments on ichtyo pathology, methodology of laboratory ichtyo pathological researches, principles of scientific researches, their planning, formation of experimental groups of objects of aquaculture, the development of preventive measures. Students will learn about a creative approach to solving problems about fish health using modern methods of experimental researches, grounds of academic writing.

FACULTY OF VETERINARY MEDICINE

Dean – Doctor in Biology, Professor, Academician of NAAS of Ukraine Mykola Tsvilikhovskyy

Tel.: (044) 527-82-31
E-mail: m_tsvilikhovsky@nubip.edu.ua
Location: Building № 12, room № 324, «G»

Faculty organizes and controls educational process of preparation for the Masters educational program to the specialties:

Specialty 211 "Veterinary medicine"

Educational program "Veterinary medicine"
Graduating departments:
Obstetrics, Gynecology and Animal Reproduction Biotechnology
Tel.: (044) 527-83-46
E-mail: akusherstvo@nubip.edu.ua
Acting Head of Department **–** Candidate of Veterinary Science, Associate Professor Oleksandr Valchuk
Veterinary-sanitary examination
Tel.: (044) 527-88-41
E-mail: vse@nubip.edu.ua
Head of Department – Doctor of Veterinary Sciences, Professor Olga Yakubchak
Epizootiology and organization of veterinary medicine
Tel.: (044) 527-89-22
E-mail**:** epizootology@nubip.edu.ua
Head of Department – Doctor of Veterinary Sciences, Professor Vitaliy Nedosekov
Parasitology and Tropical Veterinary Medicine
Tel.: (044) 527-83-65
E-mail: parazitologia@nubip.edu.ua
Head of Department – Doctor of Veterinary Sciences, Professor Natalia Soroka
Pathological anatomy
Tel.: (044) 527-86-17
E-mail: pathological_anatomy@nubip.edu.ua
Head of Department – Candidate of Veterinary Science, Associate Professor Natalia Shestiaieva
Therapy and clinical diagnosis
Tel.: (044) 527-87-92
E-mail: Kostenko_vm@nubip.edu.ua
Head of Department – Candidate of Veterinary Sciences, Associate Professor Vilaliy Kostenko
Surgery named after prof. I.O Povazhenko
Tel.: (044) 527-88-68
E-mail: chirurgia@nubip.edu.ua
Acting Head of Department - Doctor of Veterinary Sciences, Associate Professor Mykola Malyuk

Specialty 212 "Veterinary hygiene, sanitary and expertise"

Educational program "Veterinary hygiene, sanitary and expertise"

Graduating department:

Veterinary-sanitary examination

Tel.: (044) 527-88-41

E-mail: vse@nubip.edu.ua

Head of Department – Doctor of Veterinary Sciences, Professor Olga Yakubchak

Hygiene and Sanitation named after A.K. Skorokhodko

Тел.: (044) 527 -81-56

E-mail: sanitary_chair@nubip.edu.ua

Head of Department – DBSc., Professor, Corresponding Member of the NAAS of Ukraine Mykola Zakharenko

Training of masters of sciences in educational program "VETERINARY MEDICINE" specialty 211 "VETERINARY MEDICINE" branch of knowledge "VETERINARY MEDICINE"

Form of training:	Licensed number of persons:
– full-time	250 (based on secondary education)
– part-time	25 (based on the educational level "Specialist")
Duration of training	6 years
Credits ECTS	360
Language of teaching	Ukrainian, English
Qualification	Doctor of veterinary medicine

The concept of training

Means training of highly qualified specialists in veterinary medicine, quality and safety of animal products in accordance to international standards. Professional herd health management, issues of quality and safety of animal products during its production, transportation, processing, storage and marketing. Elaboration and implementation in practice of innovative methods of prevention, diagnostics and treatment of animal diseases.

Educational and professional programs of master's training

Master's program "Methods of biochemical research"

Preparation of masters in applied biology specializing on "laboratory work" in the MA program provides training of specialists capable to perform modern biochemical, physicochemical and molecular biological research methods in order to conduct biochemical analysis of the environment and the macro system, analytical, biochemical, physic-chemical analysis of raw materials, food and forages in production laboratories for various purposes.

Sphere of graduates employment

Ukrainian Laboratory of Quality and Safety of Agricultural Products and its affiliates, state analytical and diagnostic centers for standardization and certification of agricultural products, research institutes and laboratories of veterinary medicine, analytical laboratories of companies engaged in production, processing, storage and marketing of agricultural products.

Master's program "Microbiological diagnostic methods in animal husbandry and veterinary medicine"

The aim of the program is to train of highly qualified specialists in laboratory diagnosis of infectious diseases, microbiological (bacteriological, virological) study of materials and foodstuffs, animal feed and environmental objects.

The basic task of the program is to master modern methods of detection of bacteria and viruses, the formation of future professionals in the environmental and of biological thinking, knowledge of their possible essence of phenomena caused by microorganisms (viruses) in animal organisms, raw materials, food and various environmental objects.

Sphere of graduates employment

Microbiological laboratories , providing diagnostic tests in veterinary medicine (state laboratories of veterinary medicine) and general sanitary practice, providing

microbiological control of animal products, industry labs (poultry farms, incubator stations, pig farms, companies producing animal feed), laboratories of food industry.

Master's program "Pathomorphological diagnostics of animal diseases"

The program involves the study of the structure of government veterinary laboratories, the main methods of histological studies, pathomorphological diagnostics of diseases of different etiology (bacterial, viral, parasitic, noncontagious, poisoning) in animals of different species.

We study the methodological and methodical features of pathoanatomical diagnostics and formulating of conclusion about the cause of death of the animal based on done preventive and therapeutic measures. The program includes the following courses: quality management laboratory activities, basis of histological techniques and research methods; pathomorphology of animal diseases of different etiologies.

Sphere of graduates employment

Professional activity of veterinary medicine doctor under this program will be carried out in the field of veterinary medicine in positions veterinary pathologist in the regional offices of Veterinary Medicine, Institute of Laboratory Diagnostics and Veterinary Examination, State Veterinary Laboratory of regional and district levels, pig, poultry other types of industrial enterprises, as well as provide solutions for forensic veterinary medicine.

Master's program "Preventive veterinary technologies of Animal Health Providing"

The program includes training of professional doctors of veterinary medicine who possess knowledge required for veterinary service of owners of productive animals and poultry, horses, small animals and who is ready to analyze the epizootic situation, carry out preventive measures and diagnostic tests, to ensure the provision of medical care the animals suffering from infectious and non-infectious pathology.

Sphere of graduates employment

The field of employment of graduates of the program can be specified professional activities in the state veterinary medicine in rural areas (hospitals veterinary medicine, paragraphs, sections), a private veterinary practice to meet the needs of owners of productive veterinary service and small animals, farms and collective farms.

Master's program "Veterinary welfare of cattle, sheep and goats"

The program provides training of professional masters in cattle, sheep and goat farming and aimed up to the formation of veterinary knowledge and skills to implementation and using of innovative technologies in nutrition, genetics, breeding, biotechnology and ruminant reproduction and ensuring of preventive technologies from noncontagious and contagious diseases of ruminants.

Sphere of graduates employment

Professional activity of expert due to master's program means working in manufacturing sector of employment associated with modern highly technological enterprises and dairy companies, complexes with beef, lamb and sheep, production, farms that specialized on growing of goats and the production goat farming.

Master's program "Providing of pig breeding"

The program includes training of professional doctors of veterinary medicine who have knowledge of modern technologies of production of pig welfare, veterinary ensuring of specialized high-tech pig complexes and became capable to improve processes, veterinary and sanitary, preventive and diagnostic measures aimed the economic indicators of the industry.

Sphere of graduates employment

The field practical activity which is specified in graduate programs are complex and specialized farms producing pork, breeding, reproducers fattening centers and research institutions engaged in scientific accompaniment of the industry, innovational and advisory activities in pig industry.

Master's program "Veterinary equine welfare"

Training of specialists of veterinary medicine involves material development of undergraduates related on biotechnology of horse reproduction and other hoofed animals, modern technologies of breeding, housing, feeding and maintenance. During the training masters acquire the latest methods of diagnosis, treatment and prevention of animal diseases.

Sphere of graduates employment

Professional activity of graduates by certain program will be associated with the veterinary maintenance of industry in large state stud farms, horse farms, equestrian sports schools, racetracks, divisions of Ministry and border guards, maintenance of individual horse owners and collective farms and wild hoofed animals in nature reserves, innovation and advisory activities.

Master's program "Providing poultry farming"

The program provides training for doctors of veterinary medicine who possess theoretical knowledge and practical skills for work in the field of modern poultry farming (technological processes of production, methods ecological safe methods, poultry waste utilization, health and safety requirements for poultry farms, technological schemes of prevention of contagious and noncontagious diseases of poultry, economy of modern poultry farming).

Sphere of graduates employment

Practical activities of graduates encompasses national and regional industrial associations poultry farming, National Centre for specialists of veterinary medicine poultry raising, Regional Departments of Veterinary Medicine, commercial egg and poultry meat plants , Incubator stations poultry processing plant etc.

Master's program "Veterinary welfare of dogs and cats"

The aim of program is to train a doctor of veterinary medicine who has knowledge of biology of dogs and cats, their housing, feeding and breeding, also to study the modern methods of diagnosis and prevention of contagious and non-contagious diseases , effective schemes of therapy for small animals.

Sphere of graduates employment

Field of graduate`s practice includes official dog breeding by Ministry of Internal Affairs and the State Border Service, kennels for dogs, dog clubs, shelters for small animals, veterinary clinics for small animals, private service for owners of small pets.

Master's program "Veterinary care of exotic and wild animals"

The aim of program is to train a doctor of veterinary medicine who has knowledge of biology of exotic and wild animals, their housing, feeding and breeding, diagnosis and prevention of contagious and non-contagious diseases , treatment of animals in conditions of wild fauna or kept in zoos, apartments owners.

Sphere of graduates employment

The field of graduate`s practice may be state-owned enterprises which affiliated to the Ministry of Environment and the State Forestry Committee (national parks, forestry, hunting, nature reserves and wildlife sanctuaries, zoos) research zoological institutions and veterinary clinics for small animals.

Master's program "Veterinary support of pisciculture"

The master's program provides graduate students to master the knowledge of the fundamentals of development and reproduction, cultivation of fish and other aquaculture objects, quality and safety of fish products, sanitary requirements for water and food for growing fish, diagnosis and prevention of noncontagious diseases and poisonings, infectious and parasitic diseases, carrying out therapeutic measures for diseases of fish and other aquatic organisms, providing hygienic standards and veterinary-sanitary requirements for the technological processes on fish processing plants.

Sphere of graduates employment

Doctor of Veterinary Medicine by the Master's program "Veterinary service of pisciculture" is ready for work on the corresponding positions in the system of the fishing industry of Ukraine, such as fishery, fish processing plant, fishing farm, breeding plants for veterinary welfare of aquaculture of objects.

Master's program "Veterinary pharmacy"

In accordance to their future master's degree in veterinary pharmacy should be ready for creative and professional pharmaceutical activities in the sphere of veterinary medicinal products, providing of their research, development, production, packing, storage, transportation, state registration, certification, standardization and quality control, sale, marketing, use and disposal of medicines which came shelf life.

Sphere of graduates employment

Professional activity of Masters in Veterinary Pharmacy can be productive (pharmacy, pharmaceutical and chemical-pharmaceutical companies, etc.).organizational and managerial, supervisory (licensing, certification, registration), the total pharmaceutical practice (city and district veterinary pharmacy, pharmacy in rural areas, veterinary pharmacies in therapeutic and diagnostic centers and clinics), information and education, research.

Educational and research programs of master's training

Master's program "Physiology of higher nervous activity of animals"

The program aims to train veterinary-scientist who has knowledge about the properties and function of the cerebral cortex, brain's innate and conditioned reflex activity of the organism, classical and modern investigation methods of higher nervous activity, methods of correction of physiological processes towards improving animal productivity and evaluation methods of behavioral acts. In the study is focused on the pathology of higher nervous activity, micro-and ultrastructure of the nervous and endocrine systems, as well as the pharmacodynamics and pharmacokinetics of medicines that act on the nervous and endocrine systems.

Sphere of graduates' employment

Further study in graduate school for fundamental scientific specialties of veterinary and biological profiles, professional activity in research institutions of biological, veterinary and medical standpoints, veterinary clinics for small and exotic animals, breeding and training centers of small and exotic animals, zoos, parks and reserves.

Master's program "Cellular technology in veterinary medicine and biology"

The program aims to train veterinary-scientist who has the necessary knowledge for the scientific support of fundamental and applied veterinary medicine. Future expert competence includes the knowledge and skills for obtaining, cultivation, storage and usage of cells, including stem cells to restore the abnormal animal tissue, diagnostic investigation using cell cultures and tissues; applying of acquired knowledge and skills in research and development regulations.

Sphere of graduates' employment

A further study in graduate school on fundamental and applied scientific specialties of veterinary and biological profiles, professional work in veterinary oriented research institutions, veterinary, medical and biological research laboratories, Ukrainian laboratory of quality and safety of agricultural products, genetic and breeding centers, veterinary clinics for small animals and horses that use cellular technology in therapy and transplantology.

Master's program "Biomorfology and plastination of vertebrates"

This program aims to train veterinary-scientist who has knowledge and understanding of the morphological component of the life phenomena knowledge. Assimilation of the Master's program will give the opportunity to shape future professionals synthetic approach to the issues of the organization of animal organisms, that is, to combine holistic organism with its place of existence and way of life with the help of biomorphological researches. Assimilation of the plastination technology or moderate embalming will give opportunity to prepare specialist who is able to make educational and scientific collections of morphological preparations that can be stored for a long time.

Sphere of graduates' employment

Further postgraduate study on research specialty pathology, oncology and morphology of animals, professional work in research veterinary oriented institutions that are dealing with comparative morphology and forensic veterinary medicine problems, Institute of zoology NAS of Ukraine, zoological museums, ornithological stations, dolphinariums, serpentariums and scientific expeditions to investigate wildlife.

Practical training

The bases of practical training of students is educational, scientific, educational scientific industrial laboratories of university basic institution (Kiev), its separated units, primarily educational and experimental farms of the University ("Velykosnitynske educational and experimental farm named after O.V. Muzychenko, "Agronomic Research Station", Teaching and Research Farm "Vorzel" Nemishaevo Agricultural College), where there are held laboratory and practical classes, educational and industrial practice of students. In addition, the faculty has bilateral agreements with private clinics for small animals, agricultural enterprises of different ownership forms, which are used as a basic for practical training.

Proposed Topics for Master Theses

1. Management in dairy farming and monitoring indicators of safety and quality of milk.
2. The organization of veterinary support in pig farming using Dutch technology.
3. Development of quality management system in production of veterinary drugs.
4. Obstetric and gynecological clinical examination of mares at stud-farm.
5. Monitoring the spread of genetically modified food products in Ukraine.
6. Veterinary preventive measures in the system of preventing respiratory diseases in calves.
7. Substantiation of treatment methods for pets in case of poisonings by components of health care animal feed.
8. Anaesthetization in surgery of wild feline.
9. Forensic veterinary examination the causes of death in poultry farming of industrial type.
10. Clinical and pharmaceutical approaches to the selection of drugs in pathologies of the cardiovascular system.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Veterinary medicine"

№	Name of Academic Discipline	Semester	Number	
			Hours	Credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	History of veterinary medicine	1	60	2
2	Inorganic chemistry	1	120	4
3	Biophysics	1	120	4
4	Latin language (terminology)	1	90	3

№	Name of Academic Discipline	Semester	Number	
			Hours	Credits ECTS
5	Organic chemistry	2	90	3
6	Medicinal plants	2	60	2
7	Genetics	2	60	2
8	Ecology in veterinary medicine	2	90	3
9	Animal anatomy	1-3	330	11
10	Cytology, histology, embryology	2, 3	210	7
11	Basics of breeding	3	90	3
12	Veterinary microbiology	3	150	5
13	Biochemistry of animails with basics of physical and colloid chemistry	3, 4	240	8
14	Physiology of animals	3, 4	240	8
15	Animal alimentation	4	120	4
16	Informatics and computer engineering	4	60	2
17	Veterinary immunology	4	60	2
18	Veterinary virology	4	120	4
19	Hygiene of animals	4, 5	210	7
20	Biotechnology in veterinary medicine	6	90	3
21	Pathological physiology	5, 6	240	8
22	Operative surgery, topographic anatomy and anesthesiology	5, 6	240	8
23	Clinical diagnostic of internal diseases of animals	5, 6	240	8
24	Pharmacology	5, 6	240	8
25	Pathological anatomy, autopsy and forensics	6-8	300	10
26	Parasitology and invasive disease	6, 7	270	9
27	Veterinary radiobiology	7	150	5
28	Clinical biochemistry	9	120	4
29	Obstetrics, gynecology and animal reproduction biotechnology	7-9	330	11
30	Veterinary toxicology	8	120	4
31	General and special surgery	7-9	270	9
32	Veterinary-sanitary examination	7, 8	240	8
33	Domestic animal diseases	8-10	330	11
34	Epizootology and infectious diseases	8-10	330	11
35	Organization and economy of veterinary affairs	9	120	4
Total for standard part			**6150**	**205**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian nationhood	1	90	3
2	Etnoculturology	1	90	3
3	Ukrainian language (for professional purposes)	1	90	3
4	Philosophy	2	90	3
5	Foreign Language	1, 2	150	5
6	Physical Education	1-4	-	-
7	Agricultural policy	4	90	3
8	Life safety	5	90	3
9	Methodology and organization of scientific research on the basics of intellectual property	10	90	3
10	Business foreign language	10	90	3
11	Personal legal culture	10	90	3
Total (Disciplines offered by University)			**960**	**32**
2.2. Disciplines offered by students				
Educational and professional programs of master's training				
2.2.1. Master's program "Methods of biochemical research"				
1	Quality management of the laboratory	12	300	10
2	Modern methods and instruments biochemical research	11	540	18
3	Special biochemistry	11, 12	600	20
2.2.2. Master's program "Microbiological diagnostic methods in animal husbandry				

№	Name of Academic Discipline	Semester	Number	
			Hours	Credits ECTS
and veterinary medicine"				
1	Quality management of the laboratory	12	300	10
2	Biology of microorganisms	11, 12	540	18
3	Methods for microbiological testing	11, 12	600	20
2.2.3. Master's program "Pathomorphological diagnostics of animals diseases"				
1	Quality management of the laboratory	12	300	10
2	Pathomorphology animal diseases by type	11, 12	540	18
3	Fundamentals of histological techniques and histological research methods	11, 12	600	20
2.2.4. Master's program "Preventive veterinary technologies of Animal Health Providing"				
1	Preventive technologies to ensure the health of productive animals	11, 12	480	16
2	Preventive technologies to ensure the health of horses	12	480	16
3	Preventive technologies to ensure the health of small animals	11	*480*	16
2.2.5. Master's program "Veterinary welfare of cattle, sheep and goats"				
1	Innovative technologies nutrition, genetics and breeding of cattle, sheep and goats	11	240	8
2	Preventive veterinary technology non-communicable diseases of ruminants	11, 12	600	20
3	Preventive veterinary technology communicable diseases of ruminants	11, 12	600	20
2.2.6. Master's program "Providing of pig breeding"				
1	Innovative technologies nutrition, genetics and breeding pig	11	240	8
2	Preventive veterinary technology non-communicable diseases of pigs	11, 12	600	20
3	Preventive Veterinary Technology contagious disease of pigs	11, 12	600	20
2.2.7. Master's program "Veterinary equine welfare"				
1	Innovative technologies nutrition, genetics and horses breeding	11	240	8
2	Preventive veterinary technology non-communicable diseases of horses	11, 12	600	20
3	Preventive veterinary technology contagious disease of horses	11, 12	600	20
2.2.8. Master's program "Providing poultry farming"				
1	Innovative technologies nutrition, genetics and poultry breeding	11	240	8
2	Preventive veterinary technology non-communicable diseases of poultry	11, 12	600	20
3	Preventive veterinary technology contagious disease of poultry	11, 12	600	20
2.2.9. Master's program "Veterinary welfare of dogs and cats"				
1	Innovative technologies nutrition, genetics and dogs and cats breeding	11	240	8
2	Preventive veterinary technology non-communicable diseases of dogs and cats	11, 12	600	20
3	Preventive veterinary technology contagious disease of dogs and cats	11, 12	600	20
2.2.10. Master's program "Veterinary care of exotic and wild animals"				
1	Housing, feeding and reproduction of exotic and wild animals	11	360	12
2	Modern diagnosis and treatment of non-communicable diseases exotic and wild animals in the non-contagious diseases	11, 12	360	12
3	Infectious diseases of exotic and wild animals	11, 12	360	12
4	Parasitic diseases of wild and exotic animals	11	360	12
2.2.11. Master's program "Veterinary support of pisciculture"				
1	Hygiene and Sanitation in fish farming	11	360	12
2	Diseases of fish	11, 12	360	12
3	Hygiene and Sanitation fish processing companies	11, 12	360	12
4	Aquaculture	11	360	12
2.2.12. Master's program "Veterinary Pharmacy"				

№	Name of Academic Discipline	Semester	Number	
			Hours	Credits ECTS
1	Pharmacognosy, Pharmaceutical Chemistry and Toxicological Chemistry	11, 12	360	12
2	Pharmacy and pharmaceutical technology	11	360	12
3	Clinical Veterinary Pharmacology and Clinical Veterinary Pharmacy	11	360	12
4	Preclinical and clinical studies of drugs	11, 12	360	12
Educational and research programs of master's training				
2.2.1. Master's program "Physiology of higher nervous activity of animals"				
1	Physiology of higher nervous activity and zoopsychology	11, 12	480	16
2	The pathophysiology of higher nervous activity	11, 12	480	16
3	Pharmacodynamics and pharmacokinetics of drugs	11	240	8
4	Histology of the nervous and endocrine systems	12	240	8
2.2.2. Master's program "Cellular technology in veterinary medicine and biology"				
1	Clinical animal pathophysiology	11, 12	360	12
2	Molecular biology of the cell	11	360	12
3	Theory and practice of using stem cells in veterinary medicine	11, 12	180	6
4	Oncology and transplantology in veterinary medicine	12	180	6
5	Molecular mechanisms of cellular and humoral immunity in animals	11	360	12
2.2.3. Master's program "Biomorfology and plastynation of vertebrates"				
1	Anatomical museum appliances	11	240	8
2	Evolutionary biomorfology of vertebrates	11, 12	600	20
3	Methods of scientific and morphological studies	11, 12	600	20
Total (Disciplines offered by students)			**2160**	**72**
Total for elective part			**3120**	**104**
3. OTHER TYPES OF STUDY				
1	Teaching practice	2,4,6,8,10	600	20
2	Practical training	10, 12	600	20
3	Preparation and defense of master's work	12	90	3
Total for educational program			**10800**	**360**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

History of Veterinary Medicine. Veterinary history of primitive society; in old Russian principalities in IX-XIV century; in Russia in XVIII and XIX century. The history of veterinary medicine in the USSR. The current state of veterinary medicine in Ukraine.

Inorganic Chemistry. The chemical structure of matter, the basic theory of chemical processes, complex compounds. Chemistry of inorganic elements and their role in the life of the body, the basis of chemical isotopes. Volumetric analysis, acid-base titration, redoxometry, complexometry, physical and chemical analysis, photometry, chromatography.

Biophysics. Physical and physico-chemical processes occurring in biological systems, the fundamental phenomena that form the basis of nature. Physical characteristics and physical properties of farm animals body.

Latin language (terminology). Latin grammar, spelling and special terms for Veterinary Medicine.

Organic Chemistry. The structure, preparation methods, physical and chemical properties, and the use of main organic compounds classes - carbohydrates, alcohols, aldehydes, ketones, amines, acids, heterocyclic compounds. Properties of amino acids, carbohydrates, lipids, nucleic acids and proteins.

Medicinal plants. The flora of planet and Ukraine, medicinal and poisonous flora; Collecting and harvesting of medicinal plant raw materials, elaboration technology and processing, chemical composition, pharmacological action, purpose, dosage forms, dosage, indications and contraindications for use.

Genetics. Explore basis of heredity and variation of organisms, reveals principles of storage, transmission and realization of genetic information, including cytological and molecular basis of heredity, inheritance patterns of sex characteristics (defects, diseases), linked inheritance, foundations genetic engineering, population and clean lines, the foundations of immunogenetics.

Ecology in veterinary medicine. Fundamental properties (functions) of life. The body and the environment. Patterns of development, and the existence of the biosphere. Circulation of matter and energy in the biosphere. The structure of modern ecology.

Animal anatomy. The structure of the domestic animals organism in close connection with its functions. The locomotor apparatus. Osteology. Syndesmology. Myology. Integument. Splanchnology. The digestive apparatus. Breathing apparatus. Urogenital apparatus. Angiology. Endocrine glands. The nervous system. Senses. Features poultry anatomy.

Cytology, histology, embryology. The doctrine of cell. General embryology. The doctrine of tissue. Histology of organs and systems.

Basics of breeding. Breeding of farm animals. Husbandry. Pig. Sheep. Poultry. Horse breeding.

Veterinary Microbiology. Systematics, morphology and physiology of microorganisms spread in nature, their role in transformation of matter in nature. Impact of environmental factors on microorganisms. Infection. Immunology. Types and features of pathogens: bacteria, bacilli, fusobacterium and actinomycetes, mycobacteria, vibrio, spirochetes, mycoplasmas, rickettsia and chlamydia, microscopic fungi.

Biochemistry of animails with basics of physical and colloid chemistry. .Physical and chemical properties of organic compounds, solutions. The structure, function and metabolism of proteins, fats, carbohydrates, amino acids, nucleic acids, vitamins, enzymes, macro- and micronutrients that are foundation of body tissues biochemical processes structure, underlying functional activity of individual organs and body systems.

Physiology of animals. Physiological processes in animals, icl. Physiology of blood, lymph, heart and circulatory, physiology of respiration, digestion, metabolism and energy, thermoregulation, excretion, endocrine physiology, reproduction, lactation, muscular and nervous systems, higher nervous activity analyzers.

Animal alimentation. Scientific bases of farm animals feeding, nurture and nutritional assessment needs of animals in full feeding factors. The physiological significance of individual nutrients of food and concept of food usefulness, alimentation and nutritional assessment of diet.

Informatics and computer engineering. The main goal of discipline is to master modern information computer technologies used in veterinary medicine to highlight the research results with sufficient validity and clarity.

Veterinary Immunology. Examines the central and peripheral organs of the immune system, mechanisms of immune responses, antibodies and antigens. Immunological diagnosis of infectious diseases. Serological diagnosis of disease response.

Veterinary virology. Physical structure and chemical composition of vibrios and viruses. Taxonomy, reproduction and cultivation of viruses. Effects on viruses of physical and chemical factors. Ecology of viruses. Genetics of viruses. Pathogenesis of viral

diseases of animals. Features of antiviral immunity. Specific diagnosis and prevention of viral diseases of animals.

Hygiene of animals. Studies hygienic and veterinary-sanitary requirements for environmental factors, livestock buildings, nutrition, water, soil, air, rules and hygienic requirements for housing, feeding and maintenance of different species and age-sex groups of animals.

Biotechnology in veterinary medicine. The genetic and cellular engineering, Immunobiotechnology, applied biochemistry, enzymology engineering, industrial engineering or microbiology. Transplantation of embryos, early sex determination and regulation of animal cloning and transgenic reception, monozygotic and bizarre animals. Hybridoma technology for monoclonal antibodies and their use.

Pathological physiology. General patterns of emergence, development and completion of the disease. Nosology. Role of reactivity in pathology. Classification characteristics, of typical pathological processes; inflammation, disorders of tissue growth, typical regional blood flow, metabolism, acid-base balance, thermoregulation; hypoxia, starvation. Adaptive-compensatory reactions in animals aimed at eliminating violations. Pathological physiology of organs and systems.

Operative surgery, topographic anatomy and anesthesiology. Study of surgical operations due to the topographic anatomical features of animals' specific body parts. Anesthesiology; fixing, overthrow and medical reassurance. Technology and organization of mass operations. Prevention of infection in the doctor of veterinary medicine work. Injection and puncture. Desmurgy. Surgical operations on parts of animal bodies.

Clinical diagnostic of internal diseases of animals. Methods and clinical research of various animals, their application in the study of individual organs and systems; symptoms, syndromes and main stages of disease recognition. Special methods of individual organs and systems investigation, Detection of diseases in animals.

Pharmacology. Pharmacodynamics of drugs. Conditions affecting the action of drugs. Key features and pharmacokinetic characteristics of different groups of drugs, their dosage. Recipe and technology of dosage forms.

Pathological anatomy, autopsy and forensics. General patanatomy. Death and posthumous changes. Compensatory and recovery processes. Inflammation. Immunomorphology and Immunopathology. Special pathological anatomy, diseases of the respiratory, digestive, cardiovascular, genitourinary and nervous systems. Diseases of skin. Pathomorphology of infectious diseases. Sectional course. Forensic veterinary examination. Processual part. Special part.

Parasitology and invasive disease. The emergence, development and extinction of invasive animal diseases. General parasitology. Veterinary Helminthology, Entomology, Arachnology, protozoology.

Veterinary radiobiology. Biological effects of ionizing radiation. Radial lesion of animals. Radioecology and toxicology of radioactive substances. Radiological and veterinary-sanitary examination of veterinary supervision objects. The use of ionizing radiation in animal husbandry and veterinary medicine.

Clinical Biochemistry. Use of various biochemical research methods of animal clinical status, especially their use in study of individual organs and systems in order to establish an accurate diagnosis and develop treatment and prevention of diseases. Biochemical tests and symptoms (syndromes), metabolic disorders and other animal diseases.

Obstetrics, gynecology and animal reproduction biotechnology. Physiological basis and technology of obtaining sperm. Physiology and biochemistry of sperm. The technology of artificial insemination of females and embryos transplantation. Andrology.

Physiology and pathology of pregnancy, inception and the postpartum period. Operative Obstetrics. Obstetrical and gynecological check-ups. Disease of the newborn. Diseases of udder. Gynecology. Infertility in females and males.

Veterinary toxicology. Toxicology of mineral poisons, phosphorus and organochlorine compounds. Organic derivatives of mercury. Toxicology of phenoxy acid and phenol. Toxicology of toxic substances (plant and animal origin). Poisoning of animals with poor quality food. Chemical and toxicological analysis.

General and special surgery. Veterinary traumatology. Surgical infection. Diseases of skin, muscles, tendons, tendon sheaths and bursa, blood vessels, joints. Damage to nerves and brain. Tumors. Diseases in the area of head, neck, withers, back and chest wall, abdomen, pelvis and tail. Andrological disease. Veterinary orthopedics .

Veterinary-sanitary examination. Rules and methods of veterinary-sanitary assessment of animal origin products and basis of technology and standardization of production. Examination of slaughter products from healthy and sick animals, food poisoning and toxicity. Fundamentals of technology and health preservation; production hygiene, veterinary-sanitary inspection of eggs, milk and milk products, meat, wild industrial animals, birds, fish and meat of marine mammals. Veterinary-sanitary inspection of food in the markets.

Domestic animal diseases. Internal diseases of farm animals, their etiology, pathogenesis, symptoms, course, diagnosis, treatment and prevention; laboratory studies. Diseases of young animals. Diseases of poultry. Diseases of fur-bearing animals, rabbits and dogs.

Epizootology and infectious diseases. Infection and Immunity. Evolution and classification of infectious animal diseases. Treatment and prevention of infectious diseases of ruminants, pigs, horses, birds, calves, dogs and fur animals, bees and fish. Veterinary Health. Diseases, common to several species of animals and people.

Organization and economy of veterinary affairs. Legislation on veterinary medicine in Ukraine. Organization and logistics of veterinary services and veterinary control in districts, cities and farms. Planning, organization and economy of veterinary measures. Veterinary accounting, reporting and record keeping. International veterinary organizations and veterinary services in some foreign countries.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

History of Ukrainian nationhood. The study of the objective laws of the development of the Ukrainian state. The adoption of the Constitution of Ukraine, analysis of common problems of Ukraine's transition to a social market economy and integration into the world community.

Etnocultorology. Ukrainian spiritual culture as part of world cultural process. The role of culture in shaping the personality and life of the Ukrainian people. Objective and subjective factors increase standards of culture at the present stage of Ukraine

Ukrainian language (for professional purposes). Scientific terminology, terms and their use, specific for veterinary specialty and restitution of previously acquired knowledge.

Philosophy. The system of philosophical knowledge of the main philosophy parts, developing the type of consciousness that is based on constructive and critical approaches to the ideals of humanism.

Foreign language. Integrated learning of language (reading, listening, speaking). Study of communication and translation.

Physical Education. Basics of maintaining a healthy lifestyle and the benefits of

physical activity, perform basic elements of popular sports game, maintaining the level of physical skill and physical health.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Life Safety. The theoretical basis of labor. The legal basis for the protection of animal husbandry and veterinary services workers. Fundamentals of industrial hygiene. Safety in livestock and poultry. Fire safety in livestock and poultry.

Methodology and organization of scientific research on the basics of intellectual property. The course examines main stages of Ukrainian science and higher education, their current state, especially degreeal reform of higher education with a focus on masters training, as well as candidates and doctors of sciences. Methods of research (historical, biological, zootechnical, veterinary, special) used in veterinary medicine, bioethics of doctor, conduct, researcher and scientist, selection of topic and forming tasks of research, invention and patent.

Business foreign language. Integrated learning of language professional activity. Types of language activity: reading, listening, speaking. Formation of dialogue and monologue speech skills preparation of students for professional communication in speech and writing in a foreign language. Study how to translate special texts as a way of presentation of adequate scientific information content. Formation of knowledge, necessary skills and abilities which ensure masters communicative ability in the field of professional communication: in particular, the ability to organize and hold a scientific conference in the specialty, to participate in the conference and make a scientific report, a business meeting or negotiations with foreign colleagues, partners.

Personal legal culture. One of the features of a legal state is the high level of legal culture of the citizens characterized by the common respect to the law, sufficient awareness of its norms and the ability to apply them in all life situations. The discipline «Legal culture of a personality» will permit students to develop legal thinking and cultural style of legitimate behavior in everyday life in interpersonal relations as well as in communication with representatives of court and law enforcing authorities.

2.2. Disciplines offered by students

Educational and professional programs of master's training

2.2.1. Master's program "Methods of biochemical research"

Quality management of the laboratory. Discipline examines national and international standards for the organization of chemical analytical laboratories, evaluation of fitness techniques, traceability and uncertainty of the results. The knowledge gained will enable professionals already sufficiently understood in the laboratory and safely perform analytical measurement techniques.

Modern methods and instruments biomedical research. Discipline is studying advanced electrochemical, spectrometric and chromatographic techniques and instrumentation laboratory tests used to monitor the quality and safety of agricultural products, food products and environmental objects. It provides basic knowledge for laboratory professionals.

Special biochemistry. There is a basic discipline within which we study in depth knowledge of the biochemical processes occurring in living organisms, the pathological changes poisoning chemicals and manufacturing techniques and keeping livestock production. Deepening knowledge of biochemistry play a special role in the formation of professional biology and contribute to better learning of sciences master's program.

2.2.2. Master's program "Microbiological diagnostic methods in animal husbandry and Veterinary Medicine"

Quality management of the laboratory. Discipline examines national and international standards for the organization of chemical analytical laboratories, evaluation of fitness techniques, traceability and uncertainty of the results. The knowledge gained will enable professionals already sufficiently understood in the laboratory and safely perform analytical measurement techniques.

Biology of microorganisms. Discipline provides for the formation of future professionals in environmental and biological thinking, knowing their possible effect phenomena caused by microorganisms (viruses) in animals, raw foods and various environmental objects.

Methods for microbiological testing. The basic goal of discipline is to master modern methods of detecting microorganisms and viruses. Diagnosis of bacterial and viral infections in animals. Modern immunological (serological) methods for diagnosis of infectious diseases, determine the tension immunity.

2.2.3. Master's program "Pathological diagnostics of animals diseases"

Quality management of the laboratory. Discipline examines national and international standards for the organization of chemical analytical laboratories, evaluation of fitness techniques, traceability and uncertainty of the results. The knowledge gained will enable professionals already sufficiently understood in the laboratory and safely perform analytical measurement techniques.

Pathomorphology animal diseases by type. In the discipline of data considered pathomorphological changes in diseases of different etiology (bacterial, viral, parasitic etc.) in different species of animals, large and small ruminants, horses, pigs, dogs, cats, exotic animals and birds. We study the method of organizing and conducting postmortem autopsy of animals of different species on the basis of the current legislation of Ukraine. Methodological and methodical features performances postmortem diagnosis and formulating a conclusion about the cause of death of the animal performed based preventive and therapeutic measures.

Fundamentals of histological techniques and histological research methods. In the discipline of data examined histological laboratory equipment, preparation utensils, tools, devices, fixing agents, dyes and reagents for histological studies and data about the stages of making histological preparations (selection of material, its fixation, washing, drying, packing, production cuts and coloring different methods), the creation of the painted sections in balsam or other medium. In addition, students are introduced to the safety at work in histological laboratory microscopy technique made histopreparations and documentation of research results.

2.2.4. Master's program "Preventive Veterinary Technology of Animal Health Providing"

Preventive technologies to ensure the health of productive animals. Discipline studies preventive veterinary measures for the emergence of non-contagious and contagious diseases in productive livestock and poultry farms of different ownership,

planning epidemic measures, diagnosis of diseases of different etiology, clinical and laboratory studies of biological material, modern technology of growing animals and birds, monitoring the conditions of detention and animal feed and poultry.

Preventive technologies to ensure the health of horses. Mastering the disciplines will give the opportunity to acquire knowledge on feeding, housing, breeding, use and maintenance of horses, modern methods of reproduction, including the prevention of non-contagious obstetric and surgical pathology. Modern methods of diagnosis of infectious and parasitic diseases of horses and their means of prevention.

Preventive technologies to ensure the health of small animals. Discipline studies preventive veterinary measures for the emergence of non-contagious and contagious diseases in small domestic and exotic animals including their feeding and maintenance. Contemporary instrumental and laboratory methods for diagnosis of infectious and noninfectious diseases. Tools and schemes specific prevention of infectious and parasitic diseases. Providing professional assistance and medicines used for the treatment of small domestic and exotic animals.

2.2.5. Master's program "Veterinary welfare of cattle, sheep and goats"

Innovative technologies of nutrition, genetics and breeding of cattle, sheep and goats. Discipline is aimed at in-depth study of the properties of feed nutrients absorption and conversion in the body of ruminants. The nutrient requirements depending on the direction and production technology, innovative technologies of feeding ruminants.

Preventive veterinary technology non-communicable diseases of ruminants. Discipline studies preventive veterinary measures for the emergence of diseases related with metabolic disorders, hormonal disorders, vitamin and mineral nutrition. Prevention of infertility and obstetric pathology in cows, sheep and goats, modern methods of reproduction of ruminants. Prevention of surgical pathology and modern technology in veterinary surgery.

Preventive veterinary technologies of communicable diseases of ruminants. Discipline is studying advanced technological schemes of diagnostic tests and prevention of infectious and parasitic diseases of ruminants. Vaccine prophylaxis of infectious diseases of ruminants, the use of serum, immunoglobulin, preparations which have interferonogens action. Prevention of helminthoses and diseases caused by protozoa.

2.2.6. Master's program "Providing of pig breeding"

Innovative technologies nutrition, genetics and breeding pig. Discipline is aimed at in-depth study of the properties of feed nutrients absorption and conversion in the body of pigs. The nutrient requirements according to age-sex groups of pigs and production technology, innovative technology feeding pigs. Genetics and breeding in pigs. The theoretical basis of breeding pigs. The task of selection due to the intensification of the industry. Features karyotypes, hereditary anomalies interbreed gene polymorphism, quantitative and qualitative features. Modern genetic database in the pig and their use. Veterinary Genetics.

Preventive veterinary technology non-communicable diseases of pigs. Discipline studies preventive veterinary measures for the emergence of diseases associated with metabolic disorders, hormonal disorders, vitamin and mineral nutrition. Preventive measures for prevention of non-communicable diseases calves. Prevention of obstetric pathology in pigs, modern methods of pig reproduction. Prevention of surgical pathology and modern technology in veterinary surgery.

Preventive Veterinary Technology contagious disease of pigs. Discipline focused on the study of modern technological schemes diagnostic tests and preventive

measures for infectious and parasitic diseases of pigs. Vaccine Infectious Diseases adult pigs and calves, the use of biological products that enhance the natural resistance of the body (serum immunoglobulins preparations possessing interferonogens action). Prevention of helminthoses and entomoses, acaroses, diseases caused by protozoa.

2.2.7. Master's program "Equine veterinary welfare"

Innovative technologies nutrition, genetics and horses breeding. Discipline aims to provide future professionals in-depth knowledge about the properties of an innovative nature nutrient feed control full feeding horses. The nutrient requirements depending on the direction of the industry (breeding horse breeding, stud, sport horse breeding, horse jobs). Modern technologies of breeding horses. Genetic database breeding and their use. Veterinary Genetics.

Preventive veterinary technology non-communicable diseases of horses. Discipline studies prevebtive veterinary measures for the emergence of diseases associated with metabolic disorders, hormonal disorders, vitamin and mineral nutrition. Prevention of infertility and obstetric pathology in mares, modern methods of breeding horses. Features surgical pathology horses and their prevention. Modern Veterinary Surgery and Anesthesiology especially horses.

Preventive veterinary technology contagious diseases of horses. Discipline focused on the study of modern technological schemes diagnostic tests and preventive measures for infectious and parasitic diseases of horses. In the course of study students will learn morphological features and life cycle of pathogens and their systematic position, epizootology, pathogenesis and formation of immunity in horses. Prevention helminthoses, acaroses, entomoses and diseases caused by protozoa.

2.2.8. Master's program "Providing poultry farming"

Innovative technologies nutrition, genetics and poultry breeding. The discipline studying poultry need the nutrient feed, modern technology feeding of different species (chickens, ducks, geese, turkeys, pheasants, guinea fowl, quail), depending on the direction of production (meat or poultry egg) control full feeding. Features of breeding birds. Methods for determining the performance and value of poultry breeding, Creating lines and crosses. Veterinary Genetics. Methods for genetic studies, chromosomal and genomic mutations determining mutagenic environment.

Preventive veterinary technology non-contagious diseases of poultry. Discipline is studying advanced circuit techniques and means of preventing non-communicable diseases during the growing broiler poultry and egg productivity directly (prevention of metabolic disorders, vitamin and mineral nutrients). Poisoning prevention of poultry from harmful air substances (ammonia, hydrogen sulfide, carbon dioxide) and feed components of natural and anthropogenic approval (mycotoxins, heavy metals, sodium chloride, urea).

Preventive Veterinary Technology contagious diseases of poultry. Discipline focused on the study of modern technological schemes diagnostic tests and preventive measures for infectious and parasitic diseases. Vaccine Infectious Diseases parent flock birds, chickens and egg productivity when growing broilers. Application of biological products that enhance natural resistance and resistance (immunoglobulins preparations possessing interferonogens action). Prevention of helminthoses, acaroses, entomoses, diseases caused by protozoa.

2.2.9. Master's program "Veterinary welfare of dogs and cats"

Innovative technologies nutrition, genetics and dogs and cats breeding. Discipline aims to provide future professionals in-depth knowledge of innovative character of the need for nutrient feed composition feed control full feeding dogs and cats. Dog breeds, Dog breeding business and domestic breeds of cats. Application of inbreeding in the breeding of small animals, methods preserve the gene pool of dogs and cats. Veterinary Genetics.

Preventive veterinary technology non-communicable diseases of dogs and cats. Discipline studies preventive veterinary measures for the emergence of diseases associated with metabolic disorders, hormonal disorders, vitamin and mineral nutrition in dogs and cats. Prevention of obstetric pathology in dogs and cats, methods of hormonal regulation of the sexual cycle in dogs and cats. Traumatology, dentistry, orthopedics, microsurgery. Prevention of surgical pathology and modern technology in veterinary surgery.

Preventive veterinary technology contagious diseases of dogs and cats. Discipline aims to study modern methods of diagnostic tests and preventive measures for infectious and parasitic diseases of dogs and cats. In the course of study students will learn morphological features and life cycle of pathogens and their systematic position, etiology, pathogenesis and formation of immunity in dogs and cats. Prevention helminthoses, acaroses, entomoses, diseases caused by protozoa.

2.2.10. Master's program "Veterinary care of exotic and wild animals"

Housing, feeding and reproduction of exotic and wild animals. The discipline studying the characteristics of a place in the animal world and the importance for humanity and environment at all major species of exotic and wild animals (wild Artiodactyles and odd-toed, primates, animals, rodents, reptiles birds). Features of housing, feeding, reproduction in captivity.

Modern diagnosis and treatment of non-communicable diseases exotic and wild animals in the non-contagious diseases. Learn the latest methods of research animals, such as endoscopy (laparoscopy, gastroscopy, esophagogastroduodenoscopy, cystoscopy, renoskopy, uteroskopy, laryxbronchoskopy, thoracoscopy, rectokolonoskopy, visual biopsy), ultrasound (U.S.), magnetic resonance imaging (MRI) features cardiography, phonocardiography and radiological studies. Peculiarities of non-communicable diseases of organs and body systems and general principles of surgery in different species of exotic and wild animals.

Infectious diseases of exotic and wild animals. The discipline studies the most common dangerous general and specific for each type of animal diseases of viral, bacterial, and fungal origin and neglected diseases that threaten livestock in general.

Parasitic diseases of wild and exotic animals. Discipline introduces undergraduates from diseases that are caused by worms, mites, insects, especially their distribution, clinical manifestation in different species of exotic and wild animals, and measures to combat them.

2.2.11. Master's program "Veterinary support of pisciculture"

Hygiene and Sanitation in fish farming. The study involves the development of students' discipline of modern techniques, methods and techniques of veterinary and sanitary requirements for breeding, cultivating, maintaining and gain that fish in ponds, lakes, rivers, reservoirs and estuaries, as well as artificial water bodies, the organization of veterinary reliable quality control water, feed and feed additives and protection of water bodies from toxic pollutants, the use of modern means of disinfection and decontamination

and desinvasion of fishery ponds, compliance with veterinary and sanitary measures to protect public health against diseases common to man and animals.

Diseases of fish. Discipline shaping students' knowledge of complex etiology, pathogenesis and methods of prevention and treatment of infectious and parasitic diseases of freshwater and marine fish and other aquaculture facilities through the use of various drugs, disinfectants, improve water quality, aquatic immune prophylaxis and acclimatization. Special attention is paid to the diagnosis and prevention of non-communicable diseases freshwater fish related to changes in gas composition and hydrochemical regime of water, metabolic disorders, negative impact on the body of xenobiotics, heavy metals, radionuclides, sewage livestock enterprises.

Hygiene and Sanitation fish processing companies. Discipline provides knowledge to provide veterinary hygiene and sanitation requirements for basic technological processes of fish and other aquatic organisms and aquatic plants in fish processing plants for frozen fish and seafood, canning, smoked, dried, drying and pickling fish, making preparations. The questions on the use of different disinfectants, schemes and methods of disinfection for storage and processing of fish and seafood, as specified risks reducing the quality of aquaculture products processing facilities, discusses how to prevent poisoning of people substandard food processing.

Aquaculture. Discipline examines organizational structure pnds and industrial farms use biological basis of complex measures of intensification of aquaculture aimed at increasing biological productivity and fish productivity of ponds and technology for seed cultivation facilities, production of planting material and commercial fish in the warm-water and cold-water ponds and industrial aquaculture with regard systems, forms and cycles of fisheries management.

2.2.12. Master's program "Veterinary Pharmacy"

Pharmacognosy, Pharmaceutical Chemistry and Toxicological Chemistry. Pharmacognosy provides the knowledge, skills and working knowledge of medicinal raw materials of plant origin, the composition of biologically active compounds and methods for their identification, the establishment of high quality and purity of practical use as a source of modern effective drugs for the treatment of animals in various pathologies. Pharmaceutical Chemistry occupies a leading position in the sector of pharmaceutical sciences, as trains professionals to address the twin problems: the creation of new medicines and quality control of drugs. Its main aim is to create a methodology and quality assessment of drugs based on general and specific patterns of pharmaceutical chemistry as an applied discipline to perform professional tasks of Veterinary Medicine degree. Toxicological Chemistry provides the basic knowledge, skills, skills for working in the field of chemical toxicology, forensic toxicology, hygiene research, forms the basis of knowledge of the biotransformation of xenobiotics, toxicodynamics toxicokinetics and toxic substances, mechanisms of toxic action of poisons, the differential diagnosis of poisoning animal natural and artificial methods of detoxification and specific antidote therapy.

Pharmacy and pharmaceutical technology. Pharmacy, a discipline that aims to deepen the theoretical knowledge, familiarity with regulatory and legislative documents regulating the development, production, sale and use of veterinary drugs, get practical skills and prepare graduates to work independently. The subject of discipline is the system of veterinary pharmaceutical drugs, particularly Licensing Terms pharmacy business, retail sales rules, regulations, governing state control and supervision over the quality veterinary preparations and substances regulations transportation and storage of veterinary drugs. Pharmaceutical technology – the science of the theoretical foundations and production processes of processing medicinal products prepared medication storage and dispensing.

The objectives of the discipline is the study of the theoretical foundations and practical issues of making drugs in pharmacy and industrial production; familiarization with equipment and instrumentation used in pharmacies and pharmaceutical companies, identifying the right kind of packaging, exploring the normative documentation in the finished product.

Clinical Veterinary Pharmacology and clinical veterinary pharmacy. Clinical Pharmacology and Pharmacy – integrated applied science that combines pharmaceutical and clinical aspects knowledge about medicines. Its main task is to establish the theoretical foundations and methodological approaches of rational use of medicines. In studying the discipline, students will be acquainted with the basic principles of medical and veterinary ethics, basic types of documentation, mastering the basic techniques of laboratory and instrumental examination of patients, total absorption syndromology and clinical sympatology of most common internal diseases, learning general methodology and principles of selection of drugs for effective drug therapy, the study of clinical manifestations of drug side effects.

Preclinical and clinical studies of drugs. Purpose of nonclinical studies is to determine the toxicity and therapeutic efficacy of future drug, its effects on major body systems, and installation of the possible adverse effects on laboratory animals and test facilities. Implementation of Good Laboratory Practice (GLP), which guarantees the quality of the emerging drugs of high therapeutic effectiveness; GLP - a system of rules that cover the organizational process and the conditions under which non-clinical studies are planned, performed, provided their monitoring, a registration and storage provided a report on the test results. Clinical studies conducted to identify or confirm the clinical pharmacodynamic effects of the investigational drug or detect all adverse reactions to it, and to study absorption, distribution, biotransformation and excretion of the drug. Such studies should be conducted in compliance with Good Clinical Practice (GCP), which are governed by the rules of the advanced clinical trials.

Educational and research programs of master's training

2.2.1. Master's program "Physiology of higher nervous activity of animals"

Physiology of higher nervous activity and zoopsychology. Discipline provides an in-depth study on the functioning of the cerebral hemispheres and subcortical masses basic cortical processes, congenital and acquired forms of individual, integrative brain activity, research methodology of higher nervous activity, methods of testing conditioned reflex activity in animals of different species, and mechanism of localization called temporary bonds, inhibition of conditioned reflexes, neural mechanisms of information processing in sensory systems, analytical and synthetic brain activity, genetics and typology of higher nervous activity, types and properties instincts categories of perception analyzers.

The pathophysiology of higher nervous activity. Discipline studying disorders of the nervous activity at different levels, pathological changes of mobility of nervous processes, forms of abuse of higher nervous activity, the initial functional state of the cerebral cortex of the brain that leads to neurosis, changes in the functional state of higher central nervous system effects of certain biological factors (starvation, age-related changes), endocrine-autonomic (hyper-, hypo thyroid, gonads, the impact of "pituitary-adrenal"), environmental factors (poisoning, toxicity, infection), induction inhibition of pathological processes, the role of the brain in systemic change orientation pathological processes.

Pharmacodynamics and pharmacokinetics of drugs. Discipline considering the mechanism of action of drugs on the central and peripheral nervous system of animals

based on typological characteristics of higher nervous activity in order to regulate basic cortical processes in the intact organism.

Histology of the nervous and endocrine systems. Discipline is studying the development, structure and histophysiology nerve fibers, micro-and ultra microstructure and myelin free fibers, the general characteristics of endocrine organs and their classification, division into central and peripheral endocrine organs, development, structure and function of neurosecretory nuclei of the hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal glands, and interrenal, suprarenal system dissociated endocrine system, the relationship of the endocrine and nervous systems.

2.2.2. Master's program "Cellular technology in veterinary medicine and biology"

Clinical animal pathophysiology. Discipline provides in-depth knowledge of the pathogenesis of common pathological processes and morphological disorders of organs and systems. Clinical aspects of treatment of pathogenic changes and their significance in the diagnosis of disease and strategies pathogenetic treatment of animals.

Molecular biology of the cell. Discipline provides training for master-researcher who has knowledge of the evolution and ontogeny of cells, its molecular organization; role of subcellular structures and structural mechanisms of regulation of cell activity in intact mammal organism.

Theory and practice of using stem cells in veterinary medicine. Discipline is examining the biological characteristics of stem cells (SC), methods of their production, identification, cultivation, storage and application of SC to restore damaged structure abnormal tissue of animals; features directed differentiation SC compatibility mechanisms of cell body animal-recipient.

Oncology and transplantology in veterinary medicine. Discipline studies basic patterns of occurrence and development of tumor; main provisions of Experimental Oncology; strategy for the treatment of cancer of animals; basic rules of transplantation of tissues and cells; requirements for graft and recipient animals.

Molecular mechanisms of cellular and humoral immunity in animals. It studies the molecular mechanisms of immune responses based on the latest achievements of molecular biology and immunochemistry methods assess the immune status of the body; factors and mechanisms of cell (transplant) and humoral immunity in animals; the theoretical aspects of the formation, regulation and implementation of the immune responses in animals and practice of immunoassay in the laboratory diagnosis of diseases and major disturbances of the immune system of animals with the evaluation of the results based on modern achievements of domestic and foreign immunology; application for research and to produce genetically engineered immune recombinant DNA, monoclonal antibodies; biological properties of the preparation and use in the practice of alpha, beta and gamma interferons, synthetic antigens, various modern vaccine preparations.

2.2.3. Master's program "Biomorfology and plastynation of vertebrates"

Anatomical museum appliances. The purpose of discipline is to develop future researchers deep theoretical knowledge and practical skills of making and preserving anatomical specimens with systems of vertebrates and to create educational and scientific base, as well as making original aesthetic museum exhibits.

Evolutionary biomorfology of vertebrates. The purpose of discipline is to develop deep theoretical knowledge and practical skills in preparation of various systems and organs of different classes of vertebrates, as well as methods of comparative anatomical and functional studies, making it possible to find general relations of the

organization by examining the similarities, analogies and transformation of bodies and their systems.

Methods of scientific and morphological studies. Discipline studies and analyzes various macro-, micro- and ultramicroscopic methods and techniques of research body structure of domestic animals and poultry. It has a shape research and scientific approach to the selection of complex methods and techniques of research of various materials of animal origin depending on the goal and expectations of future veterinarians and scientists training lays the foundation of a scientific specialty - pathology, oncology, animal morphology.

Training of masters of sciences in educational program "VETERINARY HYGIENE, SANITARY AND EXPERTISE" in specialty 212 "VETERINARY HYGIENE, SANITARY AND EXPERTISE" branch of knowledge "VETERINARY MEDICINE"

Form of training:	Licensed number of persons:
– full-time	75
Duration of training:	
– full-time educational and professional programs	6 years
Credits ECTS:	
– educational and professional programs	360
Language of teaching	Ukrainian
Qualification	doctor of veterinary medicine on safety and quality of agricultural and food products

The concept of training

Provides training of highly qualified specialists in the field of veterinary hygiene, sanitary and expertise; formulation of ability by veterinary and sanitary doctor to apply learning outcomes (knowledge, skills, experience) to control sanitation facilities at all stages of animals' breeding, rearing, exploitation, and the production, processing, transportation, inspection, storage and retail of food, feed, feed additives, premixes, reproductive material, veterinary pharmaceuticals, veterinary medication and by-products; apply legal monitoring, including safety and some quality indicators, maintaining good production practices and auditing of food safety management.

Educational and professional programs of master's training

Master's program "State control of objects of sanitary measures"

Program provides training professionals capable of planning and organization of the long-term and annual plans for inspections, assessment the performance through planning measures to address identified deficiencies. Apply monitoring procedures and understand their importance in ensuring the safety and quality of particular food and feed. Master the principles and procedures of legal control, risk-based approach, including the characteristics and structure of risk analysis, methods of risk assessment and management.

Master's program "Animal health and welfare"

Provides training of specialists, that are able to monitor measures of animal diseases prevention, assess the efficacy of the introduction of new technologies in production of food of animal origin and processing animal by-products and disposal of animal waste and their impact on animal health, quality and biological value of products, environmental ecology. Apply methods for evaluating the efficiency of implementation in practice of livestock husbandry new feed and feed additives, use techniques for products of animal origin production, quality and safety management.

Areas of employment for graduates

According to the National Classifications of Occupations and obtained knowledge and skills veterinary and sanitary doctors may be employed as: Chief veterinarian (1237.1); veterinarian hygiene and sanitation doctor (CO code - 2223.2); doctor of veterinary medicine on safety and quality of agricultural products and food (CO

code - 2223.2); veterinarian of meat processing plants (CO code - 2223.2) Head (deputy) of State Service of Ukraine on Food Safety and Consumers Protection territorial bodies (city, district) (1229.3), Chief State Control Inspector (1229.1); Chief State Auditor (1229.1); Research assIstant (Veterinary Medicine) (2223.1); Researcher (Veterinary Medicine) (2223.1); Head of Laboratory (1229.4) and others in Ministries and Departments of Ukraine, the Structural units of Government, national and foreign companies and representative offices, businesses that operate in the field of veterinary hygiene, sanitary and examination; institutions of public and private veterinary services engaged in state and internal control of sanitary measures objects in conditions of farms (livestock facilities) during production, processing, transportation, storage and retail of food and feed; apply risk-based approach in all stages of production, processing, transport, acceptance, storage and retail of food, feed additives, premixes, strains of microorganisms, reproductive and pathological material, pharmaceutical and biological preparations, veterinary medicine remedies, animal-care products and by-products, to prevent pollution due to sanitation facilities, compliance with health and sanitary legislation, implementation of phytosanitary measures, handling pesticides, biological and agrochemical compounds, control organisms and state control on agricultural markets, commercial networks at the state border and transport, fishing and hunting areas.

Practical training

The main places of practical training of students is educational, scientific and industrial laboratories of University Basic Institution (Kiev), its Separated Subdivisions, Educational and Research Farms of the University (“Velykosnytinske Education and Research Farm named after O. Muzychenka”, "Agronomic Research Station", Education and Research Farm “Vorzel", Nemishaevo Agricultural College), where there are held laboratory and practical classes, educational practice and internship of students. In addition, the faculty has bilateral agreements with establishments of State Service of Ukraine on Food Safety and Consumers Protection, scientific and research institutions of Ukraine, laboratories of veterinary medicine, processing facilities (slaughter houses, milk-, meat-, poultry-, fish- processing enterprises).

Proposed Topics for Master Theses

1. Sanitary measures and specific quality characteristics of milk supplied to dairy plants.
2. Monitoring of Salmonella genus bacteria in poultry meat and feed.
3. Terms of use and risk management of meat hygiene at the meat-processing enterprise.
4. Basic principles of state control planning (by the example of State Service of Ukraine on Food Safety and Consumers Protection territorial bodies).
5. Analysis of safe cheese production of good quality.
6. Criteria for safety and quality of eggs.
7. Sanitary and hygienic assessment of farming conditions (pigs, cattle, poultry, laboratory, wild, decorative animals, the example of farms of different ownership)
8. Evaluating the effectiveness of disinfectants at the facilities (example of different farms, processing facilities).
9. Efficacy of mineral premixes based on chelate compounds of trace elements (for poultry, pigs, cattle)
10. Sanitary and hygienic assessment of products based on silver nanocompounds on animal development (poultry, pigs, cattle).

11. Biologically active substances biotechnological synthesis and their hygienic assessment.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (without additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2016;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2, 3);

5) by concurrent full time study (see items 2, 3) and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Veterinary hygiene, sanitary and expertise" (educational and professional programs of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	Credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Veterinary Deontology	1	90	3
2	Inorganic Chemistry	1	120	4
3	Physics with the Basics Qualimetry	1	120	4
4	Latin Language	1	120	4
5	Organic Chemistry	2	120	4
6	Animal Genetics and Breeding	2	120	4
7	Zoology	1	90	3
8	Ecological Sanitation	2	120	4
9	Anatomy of animals	1,2,3	240	8
10	Cytology, Histology, Embryology	2,3	210	7
11	Ecotrophology	3	120	4
12	Biochemistry of Animals with the Fundamentals of Physical and Colloidal Chemistry	3,4	180	6
13	Animal Physiology	3,4	180	6
14	Animal Nutrition	4	120	4
15	Veterinary Immunology	4	120	4
16	Sanitary Microbiology	3	150	5
17	Sanitary Virology	4	150	5
18	Animal Hygiene	5,6	210	7
19	Veterinary Sanitary	6,7	150	5
20	Pathological Physiology	5,6	180	6
21	Animal Ethology and Welfare	5,6	180	6
22	Veterinary Clinical Diagnostic	5,6	180	6
23	Veterinary Pharmacology	5	120	4
24	Pathological Morphology	7,8	270	9
25	Parasitology and Invasive Diseases	7,8	180	6
26	Veterinary Radiology	3	120	4
27	Food Safety and Quality	6,7	240	8
28	Veterinary Obstetrics, Gynecology and Andrology	7,8	180	6
29	Veterinary Toxicology	9	120	4
30	General and Special Surgery	5,6	240	8
31	Food Hygiene	8,9,10	330	11

№	Name of Academic Discipline	Semester	Number	
			hours	Credits ECTS
32	Animal Internal Diseases	9,10	240	8
33	Epizootology and Infectious Diseases	7,8	270	9
34	Veterinary and Sanitary Inspection	10	180	6
35	Commodity Science and Standardization	4	150	5
36	Methods of Sanitary Investigation	9	150	5
Total for standard part			**6060**	**202**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	History of Ukrainian nationhood	1	120	4
2	Etnoculturology	3	120	4
3	Ukrainian Language for Professional Purposes	1	120	4
4	Philosophy	2	120	4
5	Foreign Language	1,2	150	5
6	Physical Education	1,2,3,4		
7	Agricultural policy	4	120	4
8	Basics of Life Safety	5	90	3
9	Methodology and organization of scientific research on the basics of intellectual property	10	120	4
10	Business Foreign Language	10	120	4
11	Personal legal culture	10	90	3
Total (Disciplines offered by University)			**1170**	**39**
2.2. Disciplines offered by students				
1	Hygiene of Animal's Transport	5	120	4
2	Food Laboratory Analysis	5	120	4
3	Feed Nutricevtics	6	120	4
4	Biosafety and Biosecurity	6	120	4
5	Food Safety	7	120	4
6	Water Hygiene and Supply	7	120	4
7	Veterinary and Sanitary Forensic	8	120	4
8	Hygiene of Processing Enterprises	8	120	4
9	Animal By-Products Sanitary	9	120	4
10	Game Hygiene	9	120	4
11	Official Audit	10	120	4
12	Hygiene of the Facilities Design	10	120	4
2.2.1. Master's program "State control of objects of sanitary measures"				
1	State Control of Foodstuffs	11,12	420	14
2	Food Monitoring	11,12	360	12
3	Food Risk Analysis	12	360	12
4	Animal Performance Management	12	360	12
Total			**1500**	**50**
2.2.2. Master's program "Animal health and welfare"				
1	Animal Performance Management	11,12	360	12
2	International Standards of Animal Maintenance and Exploitation	11,12	360	12
3	BAS Technology	12	360	12
4	State Control of Foodstuffs	12	420	14
Total			**1500**	**50**
3. OTHER TYPES OF STUDIES				
1	Educational practice	2,4,6,8,10	570	19
2	Production practice	10,12	420	14
3	Preparation and defense of master's work	12	90	3
Total (Disciplines offered by students)			**2220**	**74**
Total for educational program			**10800**	**360**

Annotations educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES

Veterinary Deontology. The main categories and concepts specialty "Veterinary hygiene, Sanitary and Expertise" system-position, its history, role in the functioning of the animal production and processing system, quality assurance and food safety, the State Veterinary Hygiene, Sanitation and Expertise in Ukraine and Inspection Service and State Veterinary and Sanitary Control in Ukraine and worldwide.

Inorganic Chemistry. Classification of chemical elements and generated chemical compounds by respective groups, sub-groups and periods of the periodic system of Mendeleev; basic laws of chemical kinetics and chemical equilibrium; the current understanding of the structure of atoms and molecules; changing patterns of chemical activity of simple and complex matter in terms of the structure, nature and characteristics of chemical bonds; Nature of main types of chemical compounds solutions; the nature of oxidation processes; the essence of electrochemical processes and phenomena of metals corrosion; nature, structure, chemical properties of coordination (complex) compounds; methods of producing, distributing in nature, the use of human activity, in particular in the production, storage and processing of agricultural and food products, pharmaceutical and household compounds.

Physics with the Basics Qualimetry. The basic phenomena and laws of physics and biophysics, principles and mechanisms underlying the functioning of living organisms; modern physical and biophysical methods, measuring devices and equipment used in veterinary hygiene and sanitary

Latin Language. The basic set of common terms and professional concepts in Latin, rules of grammar and style.

Organic Chemistry. The theoretical basis of organic chemistry and practical application of organic substances in the practice of veterinary hygiene and sanitary, peculiarities of chemical reactions involving organic compounds.

Animal Genetics and Breeding. Cytological and molecular basis of heredity and variation, the essence of the chromosome theory of inheritance, the structure of genes and their functions, the essence of heredity genetic code, laws of inheritance, the essence of inbreeding and heterosis, genetic basis of individual animals, biological characteristics of different species, patterns of growth and development at different ages, the constitution and the exterior, interior, methods of breeding, selection, selection, assess the quality sires offspring, the impact of selection on the livelihoods and health, the effects of inbreeding and heterosis.

Zoology. Species composition, distribution, individual growth, body structure, reproduction, habits and distribution of protozoa, coelenterates, flat, round worms, mollusks, arthropods and chordates.

Ecological Sanitation. Basic methods of environmental investigation; interrelationships between living organisms and the living and non-living components and processes in an environment; the influence of abiotic, biotic and anthropogenic factors on living organisms, the characteristics of ecosystems and livestock farms and complexes as artificial ecological systems and the principles of environmental management and prospects for the ecological balance of the environment, environmental and sanitary measures in the production of safe food of good quality.

Anatomy of animals. The structure and topography of the cardiovascular, digestion, respiration, excretion and reproduction system; characteristics of different species and sex; the structure of the central and peripheral; somatic and autonomic nervous system; structure and topography of the sense organs: sight, hearing and

balance, smell, taste and touch, its relationship with the nervous system; structural features of the body and apparatus of the birds, support and movement apparatus, digestive, respiratory and urogenital, general skin and its derivatives.

Cytology, Histology, Embryology. Tissue preparation and light microscopy technics, basic histological structure and function of the eukaryotic cell, structure and function of epithelial, connective, muscle and nervous tissues microstructure and function of animals organs and apparatuses; structure and function of sex cells, histophysiology of fertilization, the early stages of embryogenesis of vertebrates, the differentiation of germ layers and development of axial organs

Ecotrophology. Food chain and interaction of food with the environment, society, economy, human health; approaches to solving the problems of human nutrition, impact of food on human health.

Biochemistry of Animals with the Fundamentals of Physical and Colloidal Chemistry. The chemical fundamentals of life organisms, including chemical structure and properties of natural compounds and their complexes, major pathways and mechanisms of regulation of metabolism, biochemical mechanisms of realization of genetic information; the latest achievements of biochemistry and prospects for their use in various sectors of the national economy, especially in veterinary hygiene and sanitary.

Animal Physiology. Priciples of life processes (metabolism, respiration, circulation, digestion, etc.). at different structural levels; mechanisms of interaction between the individual systems and organs with the environment; qualitative differences in physiological functions in animals of different species, sex and age groups, peculiarities of physiological functions formation at different stages of individual development.

Animal Nutrition. Classification of feed and feed additives, nutritional value of its chemical composition, digestible nutrients and biologically active substances, productive action, exchange energy, principles of nutrition for various kinds and groups of industrial of animals. Methods of detection the chemical composition of the feed.

Veterinary Immunology. The principles and features of humoral and cellular immune factors, characteristic of nonspecific and specific factors of animals immunity.

Sanitary Microbiology. The morphological, physiological, biochemical and genetic characteristics of microorganisms; the impact of physical, chemical and biological factors to microorganisms; bacterial animal diseases; stages and methods of laboratory diagnostics of bacterial diseases, techniques bacteriological examination; identification of bacterial pathogens of animals; analysis of the results of bacteriological research.

Sanitary Virology. Viruses systematics and structure; methods of reproduction and cultivation of viruses; pathogenesis of viral diseases of animals; peculiarities of antiviral immunity, means and methods of diagnostics and prevention of viral diseases of animals.

Animal Hygiene. The theoretical basis of the mechanism of environmental factors influence on animals, rules and regulations of zoohygienic maintenance, feeding, breeding of animals of various species, sex, age and production groups, methods of the investigation of objects of the environment and ways of its correction.

Veterinary Sanitary. Means and methods of facilities sanitation, methods of monitoring its effectiveness, how to prevent the spread of infectious and parasitic diseases, the development strategy of safe, sanitary safe animal management.

Pathological Physiology. Basic common pathological processes in animals, their etiology, mechanisms of development and resolution; certain types of dysfunction of organs and body systems and mechanisms of its development; mechanisms of adaptation and compensation to damages and pathological processes of animals.

Animal Ethology and Welfare. The main forms of animals' behavioral responses, methods of control, methods and means of influence the behavior of animals of various

species, gender and age in natural and artificial conditions, assessment and forecast the impact on animals of maintenance, transportation technologies, exploitation, feed and care.

Veterinary Clinical Diagnostic. Methods of animals' treatment; methods of clinical investigation of animals, including physical, instrumental and laboratory; plan and sequence of clinical animals' research; Methods of clinical examination of farm animals; Methods of fixing animals; professional ethics and deontology.

Veterinary Pharmacology. Terminology, chemical structure and composition of drug forms, its' physical and chemical properties, ways of absorption, distribution, biotransformation, excretion; mechanism of action at all levels, from the molecule to the cell to the organ to the whole animal, infectious agent; recommended prescriptions and limitations of use; therapeutic doses for different animal species; most rational drug forms; methods of writing prescriptions, toxicity and adverse negative effect; treatments for poisoning in case of overdose.

Pathological Morphology. Fundamentals of pathological processes (disorders of blood circulation and lymph flow, tissue fluid metabolition, degeneration, necrosis, atrophy, hypertrophy, hyperplasia, inflammation, tumors, immunopathological processes), pathology of various organs, nosology, pathomorphological changes and differential signs of major transmissible and non- transmissible diseases, identification and description of the nature of pathological processes in organs and tissues, its macro- and microscopic changes, provision of pathological-anatomical diagnosis, histological technics and its analyses.

Parasitology and Invasive Diseases. Parasitic diseases pathogens, their distribution, cycles of development, pathogenesis, symptoms, pathological changes in the body, diagnosis, treatment, prevention and recovery measures in the farms and teritories.

Veterinary Radiology. Classification of ionizing radiation and its effect on the animals, feed, water and soil, food quality and safety, assessment of its impact on animals and food safety.

Food Safety and Quality. The criteria of food quality and safety. Ways and sources of harmful substances intake, mechanism of its destructive influences and means of resistance. Theoretical and methodological principles of food safety. Overview of selected quality and safety indicators.

Veterinary Obstetrics, Gynecology and Andrology. Morphological and physiological basis of animal reproduction, methods of semen analyses and evaluation, preservation and transportation of semen; specifics of the estrous cycle in farm and companion animals, the technique of artificial insemination of females; physiological characteristics and pathology of pregnancy, parturition and the post-partum period; obstetrical procedures and criteria for diagnosis, the basic principles of animal care during gestation and around parturition; disease, breast cancer, male genital diseases. disease of the newborn; characteristics of gynecological and andrological animals' examination.

Veterinary Toxicology. The main parameters of toxic substances measuring; Classification of pesticides by the function and toxicity parameters; physical and chemical properties of toxic substances and ways of their intake by animals and toxicokinetics; mechanism of toxic effects of toxic substances on animals; clinical signs and typical pathological and anatomical changes poisoned animals; rules of feed and pathological material sampling for chemical and toxicological studies; basic principles of diagnosis of animals poisoning; general and special treatment (antidote); rules of veterinary expertise in the case of animals' poisoning.

General and Special Surgery. Surgical diseases, their causes, methods of diagnosis, surgical and physician treatment, prevention of diseases, anesthesia, aseptic and antiseptic during surgery, rehabilitation of animals after surgery.

Food Hygiene. The system of sanitary measures and hygiene conditions designed to preserve quality, ensure safety and suitability of food, risk-based approach at all stages of production, processing, transportation, accepting, storage and retail of food of animal and plant origin, feed, feed additives, premixes, strains of microorganisms, reproductive and pathological material, pharmaceutical and biological drugs, veterinary drugs, animal-care products s and by-products, to prevent pollution due to objects of sanitary measures, Compliance with health legislation, implementation of phytosanitary measures, handling pesticides and agrochemicals, control of biological organisms and the system of state control of the agricultural markets, commercial networks at the state border and transport, hunting and fishing areas.

Animal Internal Diseases. Methods of clinical, laboratory, functional, instrumental and other animals' investigation; peculiarities of etiology, pathogenesis, symptoms, and treatment guidelines and prevention of noncontagious diseases of domestic animals.

Epizootology and Infectious Diseases. Epizootic process and its driving force, the laws of epizootic process and stages epizootic, epizootic survey methodology of suspected or infected establishments. Principles for defining and establishing a zone or compartment, including protection and containment zones, methods of analysis of the epizootic situation of antiepizootic principles, epizootic forecasting, specific prevention of infectious animal diseases.

Veterinary and Sanitary Inspection. Fundamentals of veterinary and sanitary in Ukraine; legislation on veterinary sanitary; organizational structure of the inspection service in the country and abroad, planning of veterinary and sanitary measures and their control on facilities, transport, border, processing plants, markets, the calculation of expenditure on veterinary and sanitary measures, record keeping.

Commodity Science and Standardization. Physical, chemical and biochemical characteristics of products and its' changes at all stages of retail - from production to consumer. The objective and basic principles of state policy in the field of standardization. The role of standardization in food production.

Methods of Sanitary Investigation. Methods of sanitary investigation of animal facilities, processing enterprises, water, feed, soil; order for conduct, analysis and data processing requirements for scientific, industrial production investigation and record keeping.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

History of Ukrainian nationhood. The study of the objective laws of the development of the Ukrainian state. The adoption of the Constitution of Ukraine, analysis of common problems of Ukraine's transition to a social market economy and integration into the world community.

Etnocultorology. Ukrainian spiritual culture as part of world cultural process. The role of culture in shaping the personality and life of the Ukrainian people. Objective and subjective factors increase standards of culture at the present stage of Ukraine

Ukrainian language (for professional purposes). Scientific terminology, terms and their use, specific for veterinary specialty and restitution of previously acquired knowledge.

Philosophy. The system of philosophical knowledge of the main philosophy parts, developing the type of consciousness that is based on constructive and critical approaches to the ideals of humanism.

Foreign Language. The set of concepts and terms that make extensive language vocabulary, grammar rules and syntax.

Physical Education. Basics of maintaining a healthy lifestyle and the benefits of physical activity, perform basic elements of popular sports game, maintaining the level of physical skill and physical health.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Basics of Life Safety. Key rules of safety for the organization of production environment, its assessment for personal and collective security, monitoring of hazardous situations.

Methodology and organization of scientific research on the basics of intellectual property. The course examines main stages of Ukrainian science and higher education, their current state, especially degreeal reform of higher education with a focus on masters training, as well as candidates and doctors of sciences. Methods of research (historical, biological, zootechnical, veterinary, special) used in veterinary medicine, bioethics of doctor, conduct, researcher and scientist, selection of topic and forming tasks of research, invention and patent.

Business foreign language. Integrated learning of language professional activity. Types of language activity: reading, listening, speaking. Formation of dialogue and monologue speech skills preparation of students for professional communication in speech and writing in a foreign language. Study how to translate special texts as a way of presentation of adequate scientific information content. Formation of knowledge, necessary skills and abilities which ensure masters communicative ability in the field of professional communication: in particular, the ability to organize and hold a scientific conference in the specialty, to participate in the conference and make a scientific report, a business meeting or negotiations with foreign colleagues, partners.

Personal legal culture. One of the features of a legal state is the high level of legal culture of the citizens characterized by the common respect to the law, sufficient awareness of its norms and the ability to apply them in all life situations. The discipline «Legal culture of a personality» will permit students to develop legal thinking and cultural style of legitimate behavior in everyday life in interpersonal relations as well as in communication with representatives of court and law enforcing authorities.

2.2. Disciplines offered by students

Hygiene of Animal's Transport. Peculiarities of small and large animals transporting by rail, road, water and air transport, types of documents depending on the purpose of animals use, customs requirements, hygiene requirements to the equipment of vehicles, their preparation and use.

Food Laboratory Analysis. Requirements of current regulation of Ukraine, Codex Alimentarius and EU to ensure laboratory studies of food and feed, modern methods of

sampling and investigation of food and assessment.

Feed Nutricevtics. Types, methods of production, storage and purpose of application nutriecevtics used as feed and feed additives in animal nutrition, mechanism of its action on the body, the quality and safety of products of animal, methods of control in food and animals, the consequences of their impact on animals and humans.

Biosafety and Biosecurity. The definition of "biosafety", "biosecurity", "biorisk" and "bioproducts management system" Important components of the control of bioproducts and biorisk management systems, including assessment and ensuring the proper functioning of the systems.

Food Safety. Migration routes of harmful and foreign substances to the human body. Hazards characteristics, its classification and the impact to the human body, rating food hygiene by safety indexes.

Water Hygiene and Supply. Classification of water sources, methods of disinfection and water quality, health and safety requirements for water supply, water quality control methods, regulations governing the operation of water sources and water quality and safety.

Veterinary and Sanitary Forensic. Classification of sources veterinary law and their characteristics. Legislation on the safety and quality of food and the main tasks in this area.

Hygiene of Processing Enterprises. Types and sanitary-hygienic characteristics of processing plants, exploitation pecularities, hygienic requirements for equipment, water supply, waste disposal.

Animal By-Products Sanitary. General characteristics of the process of waste accumulation at livestock farms, physical and chemical properties and chemical composition of wastes at the different systems of feeding and keeping of farm animals and poultry; modern means and technological methods of removal, transportation of various cattle, pigs and poultry waste and its hygienic assessment; characteristics of recycling technology.

Game Hygiene. Hygienic requirements for hunting and processing and recycling of game, state post-mortem control and inspection of game, assessment of hygiene requirements compliance within the game production.

Official Audit. HACCP principles, stages of constructing a system safety ensurance; methods of procedures development, types of audits, especially the official (state) audit, improving the organizational structure of the competent authorities, good practices (GMP, GHP) control.

Hygiene of the Facilities Design. The structure of the existing rules of technological design of livestock enterprises and state building codes for industrial construction; the order of construction documents development; peculiarities of exploitation of buildings and facilities for livestock production; zoohygienic basic standards of construction of buildings.

2.2.1. Master's program "State control of objects of sanitary measures"

State Control of Foodstuffs. Requirements of current regulations regarding the principles and procedure of state control, risk analysis, associated with an object of sanitary measures, facilities and technology of processing; planning and application of state control of food and other ojects of sanitary measures.

Food Monitoring. Key factors and principles of ensuring safety and quality of food. Principles and criteria for quality and safety monitoring of food and feed according to the

Food Risk Analysis. Specificity and structure of risk analysis, the basic elements of risk management and measures of risk assessment and management, modeling risk;

risk assessment and development of control (elimination) measures etc.

Animal Performance Management. Effect of exogenous and endogenous factors, including biologically active substances and growth factors on the mechanisms of proteins, fats, carbohydrates, amino acids, macro and micronutrients hydrolysis and transport in the gastrointestinal tract, way of converting feed nutrients in the components of milk meat, eggs, wool; control methods and ways to improve animal productivity; the basic principles of the technology of production of milk, beef, pork, lamb, wool, eggs, poultry meat and other products; ways to improve the production of basic livestock products depending on the conditions of breeding, feeding and maintenance.

2.2.2. Master's program "Animal health and welfare"

Animal Performance Management. Effect of exogenous and endogenous factors, including biologically active substances and growth factors on the mechanisms of proteins, fats, carbohydrates, amino acids, macro and micronutrients hydrolysis and transport in the gastrointestinal tract, way of converting feed nutrients in the components of milk meat, eggs, wool; control methods and ways to improve animal productivity; the basic principles of the technology of production of milk, beef, pork, lamb, wool, eggs, poultry meat and other products; ways to improve the production of basic livestock products depending on the conditions of breeding, feeding and maintenance.

International Standards of Animal Maintenance and Exploitation. Legislation on animal health and welfare of livestock at farms, regulatory framework of the European Union and other countries to the maintenance, care, feeding, animal hygiene requirements for livestock buildings and facilities.

BAS Technology. Methods of production of biologically active substances used for the prevention of disease and the production of functional foods, its destination, mode of use, storage and sanitary control of safety and quality.

State Control of Foodstuffs. Requirements of current regulations regarding the principles and procedure of state control, risk analysis, associated with an object of sanitary measures, facilities and technology of processing; planning and application of state control of food and other ojects of sanitary measures.

FACULTY OF ALIMENTARY TECHNOLOGIES AND MANAGING OF QUALITY OF PRODUCTES OF AGRICULTURAL COMPLEX

Dean – doctor of technical sciences, professor Bal'-Prylypko Larissa Vatslavivna
Phone: (044) 527-89-50
E-mail: bold@mail.ru
Location: training housing № 12, rooms 305 and 306

Faculty organizes and controls educational process of preparation for the Masters educational program to the specialties:

Specialty 181 "Alimentary technologies"

Educational program "Technologies of storage, preserving and reprocessing of meat"
The chair responsible for training of bachelors by specialty:
Chair of technologies of meat, fish and seafood
phone: (044) 527- 88-85
E-mail: slob2210@ukr.net
Chief of the chair – doctor of biological sciences, professor Derevianko Liudmila Petrivna

Educational program "Technologies of storage and reprocessing of aquatic bioresources"
The chair responsible for training of bachelors by specialty:
Chair of technologies of meat, fish and seafood
phone: (044) 527- 88-85
E-mail: slob2210@ukr.net
Chief of the chair – doctor of biological sciences, professor Derevianko Liudmila Petrivna

Specialty 152 "Metrology and Information and measuring technique"

Educational program "Quality, standardization and certification"
The chair responsible for training of masters of sciences by specialty
Chair of standardization and certification of agricultural production
Phone: (044) 527-82-78
E-mail: standardization@ukr.net
Chief of the chair – doctor of technical sciences, professor Sykhenko Vladyslav Yuriyovych

Training of masters of sciences by educational program "TECHNOLOGIES OF STORAGE, *PRESERVING* AND REPROCESSING OF MEAT" of specialty of 181 "FOOD TECHNOLOGIES" of sphere of knowledge of "Manufacturing and related technologies"

Form of Training:	Licensed number of persons:
– daytime	30
– extramural	30
Term of training:	
– daytime educational and professional program	1,5 years
– extramural	1,5 years
Credits ESTS:	
– educational and professional program	90
Language of training	Ukrainian, English
Qualification of graduates	Masters of sciences (technologies of storage, preservation and reprocessing of meat)

Concept of training

To solve the problem of rising of quality of work in storage, preservation and reprocessing of meat raw materials, it's necessary to expand the net of training and rising of qualification of experts who work in this sphere. Its actuality is stressed by need of the steady rising of effectiveness of introduction of advanced technologies, and the way to realize the task of improvement of quality of operation in this sphere of public economy especially actual for Ukraine is training of engineers-technologists by educational program of "Technology of storage, preserving and reprocessing of meat" who have the qualification of "Master of science".

The factor that induces the problem of training of specialists of this qualification is the continuous rise of needs of consumers in production of high-quality foodstuffs of traditional and novel composition and to satisfy their demands, it's necessary to develop the intensive technologies based on results of advanced research in spheres of biotechnology. Therefore there arises the need of liquidation of deficit of qualified specialists who would be capable to solve the tasks of guaranteeing of satisfying of existing demands of market of meat products not only in solving of problems of their storage, preservation and reprocessing by traditional technologies, but to raise their technical level. This problem is especially actual because the modern tendencies of progress of meat industry seen in Ukraine and abroad require the active introduction of advances in biotechnological industry character by high efficiency and the closed cycle of manufacturing, i.e. the purposeful converting of raw materials of zoic origin in concrete foodstuffs at technological lines character by use of specific technological equipment, systems of control and operation and the only way to ensure the stable operation of such complexes is to train specialists of such profile of professional orientation.

Magister's program of "Technology of meat and meat products"

The program is directed on giving magisters the knowledge on theory and practical skill in solving of problems that arise in realization of advanced technologies of storage, preservation and reprocessing of meat, as well as adaptation of norms of quality of raw materials and finished products used in modern manufactures to those that are obligatory in global and European practice.

Spheres of employment of graduates

The principal purpose of the educational program is training of students by technologies of storage, preservation and reprocessing of meat, who would be capable at meat-processing enterprises and factories of adjoining spheres of economy, organizations and firms specialized in organizational, managing, pedagogical, projecting and R&D works in refinement of existing and development of novel technologies of producing of meat finished and semi-finished products.

Magister's program of "Technology of foodstuffs"

This is the leading master's program of training by educational program of "Technologies of storage, preserving and reprocessing of meat". Being taught by this program, specialists obtain the basic professional knowledge and skill of work in spheres of manufacturing, development of technologies, organization and management of operation of the enterprise, commercial and marketing problems of manufacture, carrying out of R&D works, as well as in accomplishing of other type activities of enterprises of catering services of various forms of property.

Spheres of employment of graduates

The graduates of this specialty have to work at positions of professional specialists (of lower, median and upper rank) in trade enterprises, restaurants, servicing shops (including their structural departments) of various size, forms of property, and organizational and legal forms of business operation, as well as in organizations engaged in external economic relations etc. the graduates may work also in marketing firms, information and computing centers, projecting organizations, occupancy centers, consulting firms, trusts, investing and insurance companies.

Practical training

The practical training is the integral constituent of process of training of specialists who would be graduated as Masters of sciences by educational program of "Technologies of storage, preserving and reprocessing of meat".

The students obtain in process of practical training the basic information on practice of operation in the profile sphere, necessary skill, and professional knowledge necessary for their work in category of specialists in work in the meat-processing industry.

In period of training in the University future masters of sciences do two practical works. All practices differ among themselves by their purpose, content and terms of holding.

Students practice at the advanced enterprises of meat-processing industry after they would have studied the fundamental engineering, social and economical training disciplines.

Students practice at reprocessing enterprises of all forms of property. The places of practical work are chosen dependently of specialization, technical and technological providing of the enterprise and inquiries for specialists.

The dominant bases of practices are the NULES of Ukraine separated enterprise of "O. Muzychenko Velykosnityns'ke" (slaughtering shop, training R&D laboratory of technology of meat and meat products) "Nemishayevskyi agrotechnical college" (fish-processing shop located in Nemishayevo), TOV "Polis", PP "Marshalok", PP "Drygalo" located in city of Bila Tserkva, Kyiv region; TOV "Globynskii meat-processing complex, Poltava region, TOV "Cheras'ka food-producing copany" Cherkasy region, ZAT "Koziatynskii meat-processing complex", TOV "Gaisynskii meat-processing complex", Vinnitsa region, TOV "Chernihivskii meat-processing complex".

Tentative themes of master's diplomas

1. Optimization of technology of products made of meat of poultry in use of multicomponent brines at TOV "Cherkas'ka food-producing company", city of Cherkasy.
2. Development of technology of meat products enriched by vegetable masses at TOV "Globynskii meat-processing complex", Poltava region.
3. Use of zoic albuminous preparations in technology of meat products at TOV "Polis", Kyiv region.
4. Optimization of technology of boiled and smoked porcine products at TOV "Agrotekhspilka", Kyiv region.
5. Investigation of influence of enzyme preparations on structural characteristics of semi-finished natural products at PAT "Koziatyns'kii meat-processing complex", Vinnitsa province.
6. Optimization of technology of porcine products made in use of multicomponent brines at PAT "Koziatyns'kii meat-processing complex", Vinnitsa province.
7. Effectiveness of use of vegetative extracts in technology of pastes at PAT "Koziatyns'kii meat-processing complex", Vinnitsa province.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Technologies of storage, preserving and reprocessing of meat" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. OBLIGATORY TRAUINING DISCIPLINES				
1	Modern methods of investigation used in the branch-industry	2	120	4
2	Protection of labor in the branch-industry	1	180	6
3	Actual problems of the branch-industry	1	300	10
4	Technology of preservation and reprocessing of meat	2	300	10
5	Biologically active substances produced of raw materials of zoic origin	3	120	4
6	Exploitation of technological equipment	2	150	5
7	Technologies character by economic spending of resources	3	120	4
Total for standard part			**1290**	**43**
2. SELECTIVE TRAINING DISCIPLINES				
2.1. ***Disciplines studied by choose of the University***				
1	Businesslike foreign language	1	150	5
2	Agricultural policy	3	90	3
3	Philosophy of science and innovation development	1	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines studied by choose of students*				
2.2.1. Master's program "Technology of meat and meat products"				
1	Psychology of management	3	90	3
2	Optimization of processes of manufacturing	2	90	3
3	Technology of forages for domestic animals	3	150	5
4	Microstructural analysis of meat and meat products	1	120	4
5	International and regional standardization and certification	1	90	3
6	Supply of the branch-industry enterprises by heat	3	90	3
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**990**	**33**
3. OTHER TYPES OF TRAINING				
1	Practical training		180	6
2	Preparation of diploma and protection of the master's degree		240	8
Total			**420**	**14**
Total by educational program			**2700**	**90**

Annotations of training disciplines

1. OBLIGATORY TRAINING DISCIPLINES

Modern methods of investigation used in the branch-industry. The program of training presumes studying of basic principles of methodology of carrying out of investigations in the industry by producing of foods, modern norms of classification of experiments, methods of choose, systematization and analysis of scientific information and results of R&D works, as well as acquainting with rules of drawing up of results of research and protection of rights on intellectual property.

Protection of labor in the branch-industry. Methods and means used in protection and strengthening of health, prophylactics of sicknesses and ensuring of capability to work by norms legalized in the branch-industry. Principles of choose of procedures of physical training, putting of them in special complexes and sequence of use by destination. Healthy mode of life. Methods and means of development of important psychophysical characters. Methods of psychophysical training. Rules of work in avoiding of physical overfatigue, stale, overstressing and other crisis manifestations. Methods of self-control of state of health, grade of physical development and normality of functioning of systems of organism.

Actual problems of the branch-industry. The program of training presumes studying of problems, which arise in operation by norms of modern theory and practice of operation of businesspersons by procedures of actual, economical and environmentally friendly technologies of producing and prolongation of term of safe storage of new types of meat and combined products based on its use.

Technology of preservation and reprocessing of meat. The principal task stated in learning of this discipline is the advanced study of technologies of preservation of meat and meat products, obtaining of knowledge on novel methods of preservation and storage of finished products, methods of decreasing of losses of mass and preserving of quality of raw materials and finished products, forming of knowledge and practical skill in perfecting of basic technological processes and scientific trends in choose of technologies of storage and preservation of meat.

Biologically active substances produced of raw materials of zoic origin. It's presumed to learn the generalized data on composition and basic properties of biologically

active substances of various nature, which are the components of raw materials of zoic origin and use of such substances in producing of preparations used in meat industry. Studying this course, students acquaint with characteristics of endocrine, enzyme and other type raw materials used in production of meat preparations, as well as rules of collecting and norms of their initial treatment, preservation and transporting. The students acquaint also with the fundamental principles of fabrication of biologically active substances of zoic origin.

Exploitation of technological equipment. The program of training presumes studying by students of theoretical and practical problems, which arise in realization of typical processes of exploitation of technological equipment used in meat industry, rules of its repair and assembling.

Technologies character by economic spending of resources. The program of training presumes learning of fundamentals of theory, directions of progress and innovative technologies of reprocessing of secondary raw materials and wastes of alimentary and reprocessing enterprises, which operate in the agricultural sector of economy, into the energy resource materials, forages, fertilizers, food additives, construction materials and other goods of mass use, what assists in creation of conditions of the full use of natural resources.

2. SELECTIVE TRAINING DISCIPLINES

2.1. Disciplines studied by choose of the University

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Philosophy of science and innovation development. Philosophical and scientific approaches to the study of science and innovation. Philosophy of science: ontological, gnoseological, epistemological dimension. Forms of organization of science. Classical, non-classical and postnonclassical ideals of scientism. Methodology of perception of scientific and innovative activity. Study of basic scientific forms. Value of basic and applied research strategies. Philosophical foundations of classification of sciences. Philosophy of technology: theoretical and methodological aspects. Philosophical understanding of scientific worldview. Logic of scientific research in the context of contemporary global issues (environmental, technological and social). Axiological dimension of science: the problem of responsibility of the scientist.

2.2. Disciplines studied by choose of students

2.2.1. Magister's program of "Techniology of meat and meat products"

Psychology of management. Learning of theory and practice of conditions and factors, moving forces and determinants of development of individuality as managers, specificity of motivation of the administrative person, adaptive processes in microsocium, types of managers and styles of management.

Optimization of processes of manufacturing. The training program of this course presumes studying of theoretical and practical problems of optimization of typical situations occurred in the branch-industry. The principal goal to reach is identification of optimum conditions of doing of this work in choosing of suitable criteria of quality of accomplishing of technological process to optimize. the students would obtain in process of training the basic knowledge on methods of optimization of typical stages of producing of foods, choose the most influential of these operations and learn to develop the optimum parameters of technological processes and apparatus to use in their realization.

Technology of forages for domestic animals. The program of training presumes studying of theoretical and practical problems that arise in development and introduction of modern technologies of producing of forages and fodders. The students would explore the optimum variants of technologies of increasing of volumes of production and betterment of quality of forages produced in concrete natural and economic conditions, as well as to rise the effectiveness of their use.

Microstructural analysis of meat and meat products. The constituent components of meat. microstructure of muscular tissue and peculiarities of structure of its forms: skeletal, cordial and non-striated muscles. Constitution of skeletal muscle.

International and regional standardization and certification. standardization is the most effective means of rising of effectiveness of manufacture and betterment of quality of production at the modern stage of development of human community and its productive capacities. Certification, in turn, is the important means of rising of demand for the consumables both in Ukraine and abroad. Use of procedures of certification permits to rise the competitiveness of production, stimulate efforts in development of new non-traditional products, especially the agricultural ones, that would have the unique properties and satisfy demands of consumers to quality and reliability of production they bought. Use of practice of certification of quality systems permits also to augment volumes of international barter by goods and services.

Supply of the branch-industry enterprises by heat. The program of training presumes studying of theoretical fundamentals of thermodynamics, theory of thermoexchange, rational use of resources of heat and energy in observance of norms of protection of surrounding nature.

Training of masters of sciences by educational program "TECHNOLOGIES OF STORAGE AND REPROCESSING OF AQUATIC BIORESOURCES" of specialty of 181 "FOOD TECHNOLOGIES" of sphere of knowledge of "Manufacturing and related technologies"

Form of Training:	Licensed number of persons:
– daytime	30
– extramural	30
Term of training:	
– daytime educational and professional program	1,5 years
– extramural	1,5 years
Credits ESTS:	
– educational and professional program	90
Language of training	Ukrainian, English
Qualification of graduates	Masters of sciences (technologies of storage and reprocessing of aquatic bioresources)

Concept of training

Last time processes of reprocessing of fish and seafood became the topics of steadfast attention of operators of market. It was augmented sufficiently the net of enterprises that produce foods made of fish and seafood and technologists introduce the numerous effective technologies of their production. The following progress in this segment of the branch-industry is possible only on condition of refining of training programs and graduating of skilled specialists-technologists qualified as masters of sciences that are specialized by direction of training of "Technologies of storage and reprocessing of aquatic bioresources ".

The competence of specialist who has the degree of “Master of sciences” by educational program of "Technologies of storage and reprocessing of aquatic bioresources” is character by his high professional potential and fundamental knowledge, which permit them to operate effectively both in sphere of modern agricultural manufacture and in the sphere of material production in whole.

Magister’s program of “Technology of storage, preservation and reprocessing of fish and seafood”

The program is directed on giving magisters the knowledge on theory and practical skill in solving of problems that arise in realization of advanced technologies of storage, preservation and reprocessing of fish and seafood, as well as adaptation of norms of quality of raw materials and finished products used in modern manufactures to those that are obligatory in global and European practice.

Spheres of employment of graduates

The principal purpose of the educational program is training of students by technologies of storage, preservation and reprocessing of fish and seafood, who would be capable at R&D organizations, which develop technologies of reprocessing of fish and seafood, agencies of the Ministry of agricultural policy and foods of Ukraine and the State agency of fish economy of Ukraine, especially in the Southern R&D institute of marine, fish economy and oceanography, fish-processing enterprises and ships.

Practical training

The practical training is the integral constituent of process of training of specialists who would be graduated as Masters of sciences by educational program of “Technologies of storage and preservation of aquatic bioresources”.

The students obtain in process of practical training the basic information on practice of operation in the profile sphere, necessary skill, and professional knowledge necessary for their work in category of specialists in work in the fish-processing industry.

In period of training in the University future masters of sciences do two practical works. All practices differ among themselves by their purpose, content and terms of holding.

Students practice at the advanced enterprises of fish-processing industry after they would have studied the fundamental engineering, social and economical training disciplines.

Students practice at reprocessing enterprises of all forms of property. The places of practical work are chosen dependently of specialization, technical and technological providing of the enterprise and inquiries for specialists.

The dominant bases of practices are TOV “Rybna manufaktura” Kyiv region, TOV “Aliaska” Kyiv region, TOV “Rybkoopprodukt” Kyiv region, TOV “Berdianskii rybipererobnyi kombinat” Zaporizhzhia region, VAT “Ochakivskii rybokonservnyi kombinat” Mykolaiv region, ZAT “Chernigivs’ke pidpryjemstvo po pererobtsi ta realizatsii rybnykh tovariv “Chernigivryba” Chernigiv region, TOV “Rybni promyslovi tekhnologii” Zhitomir region and other.

Tentative themes of master’s diplomas

1. Optimization of technology of salting of fish raw materials in use of method of injecting at the fish-processing plant of “Rybkoopproduct”, Kyiv region.
2. Technology of structured paste products realized in use of pikowave treatment.
3. Optimization of technology of preserves of aquatic backboneless organisms in use of method of preliminary thermal treatment at TOV “Olvana”, Kyiv region.
4. Optimization of technology of canned fish for childrens nutrition at VAT “Odes’kii konservnyi zavod dytiachogo kharchuvannia”, city of Odesa.
5. Use of untraditional raw materials of smoking of fish in technology of pastes produced of fish raw materials.
6. Optimization of technology of smoking of fish in use of extracts of medicinal plants.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Technologies of storage and reprocessing of aquatic bioresources" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. OBLIGATORY TRAUINING DISCIPLINES				
1	Modern methods of investigation used in the branch-industry	2	120	4
2	Protection of labor in the branch-industry	3	180	6
3	Actual problems of the branch-industry	1	300	10
4	Modern technologies of storage and preservation of fish products	2	300	10
5	Technology of albuminous products produced of fish and seafood	3	120	4
6	Exploitation of technological equipment	2	150	5
7	Technologies character by economic spending of resources	3	120	4
Total for standard part			**1290**	**43**
2. SELECTIVE TRAINING DISCIPLINES				
2.1. *Disciplines studied by choose of the University*				
1	Businesslike foreign language	1	150	5
2	Agricultural policy	3	90	3
3	Philosophy of science and innovative development	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines studied by choose of students*				
2.2.1. Master's program "Technology of storage, preservation and reprocessing of fish and seafoods"				
1	Microstructural analysis of fish and seafoods	3	90	3
2	Optimization of processes of manufacturing	2	90	3
3	Psychology of management	1	90	3
4	Biologically active substances produced of fish and seafood	1	120	4
5	International and regional standardization and certification	1	90	3
6	Technology of fabrication of fish powder	3	150	5
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**1020**	**34**
3. OTHER TYPES OF TRAINING				
1	Practical training		150	5
2	Preparation of diploma and protection of the master's degree		240	8
Total			**390**	**13**
Total by educational program			**2700**	**90**

Annotation of training disciplines

1. OBLIGATORY TRAINING DISCIPLINES

Modern methods of investigation used in the branch-industry. The program of training presumes studying of basic principles of methodology of carrying out of investigations in the industry by producing of foods, modern norms of classification of experiments, methods of choose, systematization and analysis of scientific information and results of R&D works, as well as acquainting with rules of drawing up of results of research and protection of rights on intellectual property.

Protection of labor in the branch-industry. Methods and means used in protection and strengthening of health, prophylactics of sicknesses and ensuring of capability to work by norms legalized in the branch-industry. Principles of choose of procedures of physical training, putting of them in special complexes and sequence of use by destination. Healthy mode of life. Methods and means of development of important psychophysical characters. Methods of psychophysical training. Rules of work in avoiding of physical overfatigue, stale, overstressing and other crisis manifestations. Methods of self-control of state of health, grade of physical development and normality of functioning of systems of organism.

Actual problems of the branch-industry. The program of training presumes acquainting with the state and perspectives of development of the base of raw materials in freshwater basins of Ukraine and in the world ocean; basic parameters of quality of fish raw materials and methods of preservation of quality of live, cooled and salted fish; procedures of smoking, drying and other methods of preservation of fish and hydrobionts; types of semi-manufactured fish products, culinary fabrics etc.

Modern technologies of storage and preservation of fish products. The program of training presumes acquainting with the modern state and perspectives of development of technologies of storage and preservation of fish and seafood; principles of preservation; characteristic of principal methods of saving of quality of live fish; modern methods of cooling of fish and seafood; methods of preservation of quality of frozen semi-manufactured products and culinary fabrics; procedures of sterilization and pasteurization of fish products.

Technology of albuminous products produced of fish and seafood. The program of training presumes studying of theoretical and practical problems of modern technologies of fabrication of albuminous masses, pastes, concentrates, hydrolizates, structured, emulsified and multicomponent products of regulated composition and structure, choose of optimum variants of operation in concrete natural and economic conditions done in purposes of widening of assortment of production and expanding of its output, as well as methods of rising of effectiveness of use of raw materials.

Exploitation of technological equipment. The program of training presumes studying by students of theoretical and practical problems, which arise in realization of typical processes of exploitation of technological equipment used in meat industry, rules of its repair and assembling.

Technologies character by economic spending of resources. The program of training presumes learning of fundamentals of theory, directions of progress and innovative technologies of reprocessing of secondary raw materials and wastes of alimentary and reprocessing enterprises, which operate in the agricultural sector of economy, into the energy resource materials, forages, fertilizers, food additives, construction materials and other goods of mass use, what assists in creation of conditions of the full use of natural resources.

2. SELECTIVE TRAINING DISCIPLINES

2.1. Disciplines studied by choose of the University

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their

lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Philosophy of science and innovation development. Philosophical and scientific approaches to the study of science and innovation. Philosophy of science: ontological, gnoseological, epistemological dimension. Forms of organization of science. Classical, non-classical and postnonclassical ideals of scientism. Methodology of perception of scientific and innovative activity. Study of basic scientific forms. Value of basic and applied research strategies. Philosophical foundations of classification of sciences. Philosophy of technology: theoretical and methodological aspects. Philosophical understanding of scientific worldview. Logic of scientific research in the context of contemporary global issues (environmental, technological and social). Axiological dimension of science: the problem of responsibility of the scientist.

2.2. Disciplines studied by choose of students

2.2.1. Master's program "Technology of storage, preservation and reprocessing of fish and seafoods"

Microstructural analysis of fish and seafoods. Program of training is centered on learning by students of fundamentals of microstructural methods of analysis of fish and seafoods, what has to give them the capability to evaluate their quality at any technology of their storage.

Optimization of processes of manufacturing. The training program of this course presumes studying of theoretical and practical problems of optimization of typical situations occurred in the branch-industry. The principal goal to reach is identification of optimum conditions of doing of this work in choosing of suitable criteria of quality of accomplishing of technological process to optimize. the students would obtain in process of training the basic knowledge on methods of optimization of typical stages of producing of foods, choose the most influential of these operations and learn to develop the optimum parameters of technological processes and apparatus to use in their realization.

Biologically active substances produced of fish and seafood. The training program of this course presumes studying of characteristics of biologically active substances contained in various hydrobionts, theoretical substantiation and technological base of processes of extraction of biologically active substances from fish and hydrobionts, and acquainting with general methods of control of their quality.

Psychology of management. Learning of theory and practice of conditions and factors, moving forces and determinants of development of individuality as managers, specificity of motivation of the administrative person, adaptive processes in microsocium, types of managers and styles of management.

International and regional standardization and certification. Standardization is the most effective means of rising of effectiveness of manufacture and betterment of quality of production at the modern stage of development of human community and its

productive capacities. Certification, in turn, is the important means of rising of demand for the consumables both in Ukraine and abroad. Use of procedures of certification permits to rise the competitiveness of production, stimulate efforts in development of new non-traditional products, especially the agricultural ones, that would have the unique properties and satisfy demands of consumers to quality and reliability of production they bought. Use of practice of certification of quality systems permits also to augment volumes of international barter by goods and services.

Technology of fabrication of fish powder. The discipline presumes studying of methods of producing, storage, use and evaluation of quality of forages produced out of hydrobionts; studying of modern technologies of production used in fish industry domestically and in the world, methods of producing of fish powder, its energetic and biological values, as well as variation of its composition in processes of manufacturing and storage.

Training of masters of sciences by educational program "QUALITY, STANDARDIZATION AND CERTIFICATION " specialty 152 "METROLOGY AND INFORMATION AND MEASURING TECHNIQUE " of sphere of knowledge of "Automation and fabrication of instrumenrts"

Form of Training:	Licensed number of persons:
– daytime	50
– extramural	50
Term of training:	
– daytime educational and professional program	1,5 years
– extramural	1,5 years
Credits ESTS:	
– educational and professional program	90
Language of training	Ukrainian, English
Qualification of graduates	Specialist by quality, standardization and certification

Concept of training

The character peculiarity of process of training of specialists by quality, standardization and certification is those that this program may study graduates of various directions of education. It is open for bachelors of any educational program, has the multivectorial and multivariant character. At the same time there exist the numerous differences in the lists of disciplines studied by choose of bachelors who has the economic degree, and by bachelors who finished training in spheres of technology, engineering and biology.

The principal goal set forth in training by this specialty is obtaining by students of knowledge on principal constituents of the system of technical regulation: basic legal deeds of Ukraine in sphere of technical regulation; principal tasks, principles, scientific and practical approaches used in spheres of standardization, certification, metrology and quality; influence of system of technical regulation on effectiveness of functioning of economy; fundamental normative documents used in spheres of standardization, certification, metrology and quality management; international and European normative base and practice of operation in these spheres.

Master's program "Management of safety and quality of alimentary products"

The program has the purpose of training of specialists who would have the fundamental knowledge in spheres of managing of safety and quality of foodstuffs, especially by documents of technical and legal character that regulate norms of safety and quality of foods in Ukraine, European Union and internationally; systems of managing of safety of foodstuffs; systems of managing of quality of foodstuffs; system of monitoring of indices of quality and safety of foods.

Spheres of employment of graduates

The diploma of master of sciences by educational program of “Quality, standardization and certification” gives graduates to take the wide number of positions: specialist by quality, engineer by quality, official of department of quality management, its validation, technical control, employee of metrological services, specialist by standardization and certification, auditor and so on. such level of education is necessary for specialists who work in sphere of standardization of new types of production, certification of products and services, drawing up and directing of technical documentation,

carrying out of inner audits and self-inspections, validation of technological processes, attestation of personnel, equipment and premises etc.

Practical training

The practical training of students who would graduate with the degree of Master of sciences" by educational program of "Quality, standardization and certification" is carried out by two stages – the acquainting practice accomplished just after their enrolment, and the fore-diploma one. Being in practical training, students obtain the basic knowledge on their practical activities in future, obtain the practical skill and professional knowledge necessary for future specialist in standardization, certification and quality management. Said practices has the character of training and obtaining of practical skill and differ by their purposes, content and terms of training

The dominant bases of practices are: State enterprise Ukrainian scientific and research institute of problems of standardization, certification and quality"; VAT "MZVKK" separated department of "Myronivskii miasopererobnyi zavod "LEGKO"; "Ukrajins'ka asociatsiji yakosti"; Bureau"Veritas"; TOV "TYuF rheinland Ukraina"; Ukrainian R&D institute of agricultural radiology; Leonid Pogorelov Ukrainian R&D institute of forecasting and testing of technique and technologies of agricultural manufacturing; State center of certification and expertise of agricultural products, city of Kyiv; PAT "Zhashkivskii masolzavod" Cherkasy region; DP "Malyns'ke lisove gospodarstvo" Zhitomir region.; STOV "Staryns'ka ptakhofabryka"; VP NULES of Ukraine "O. Muzychenko Velykosnityns'ke NDG", Kyiv region.; Bila Tserkva' milk-processing plant, Kyiv region; TOV "Galakton" Kyiv region; bakery industrial comples # 10, city of Kyiv; TOV "Oboon'", city of Kyiv; TOV "Rosynka", city of Kyiv; VAT "Farmak", city of Kyiv; TOV "Zavod shampan'skykh vin", city of Kyiv; TOV "Olkom", city of Kyiv; ZAT "Koziatyns'kii miasokombinat", Vinnitsa region; TOV "Gaisyns'kii viasokombinat" Vinnitsa region and others.

Tentative themes of master's diplomas

1. Development of the program of interlaboratory testing of soils on their conformity to norms of ISO/IEC Guide 43-1:1997 at PRAT "Myronivskii khliboprodukt".
2. Development of the program of management of aspects of manufacturing at the reprocessing enterprise of VAT "Farmak".
3. Introduction of system of statistical control of processes realized in the laboratory of testing of agricultural technique.
4. Studying of demands of consumers to quality of wood used in producing of furniture.
5. Development of proposals on optimization of system of monitoring of processes of producing of condensed milk at PAT "Bershad'-moloko".
6. Development of standard on technology of planting of gladiolus and substantiation of standardized indices of their quality at DP "UkrNDNTs".
7. Development of model of calculation of optimal ration of fattening of heavy beasts.
8. Development of standard on technology of breeding of ostrich and substantiation off its standardized indices of quality.
9. Development of elements of system of control of safety and quality of berries planted at private farms.
10. Appraisal of requirements of the EU countries to procedures of validation of testing of foodstuffs and development of recommendations on their introduction in practice of operation of Ukrainian laboratory of quality and safety of products of agricultural complex.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in specialization "Quality, standardization and certification" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. OBLIGATORY TRAUINING DISCIPLINES				
1	Economical aspects of entrepreneurship	3	90	3
2	Research and innovative processes	2	120	4
3	Systemic approach and methods of taking of decisions	3	120	4
4	International and regional standardization and certification	3	120	4
5	Quality management	1	180	6
6	Standardization	1	120	4
7	Audit and certification	1	120	4
8	Managing of quality and safety of foodstuffs	1,2	300	10
9	Standardization and certification of products of agriculture	2	180	6
Total for standard part			**1350**	**45**
2. SELECTIVE TRAINING DISCIPLINES				
2.1. *Disciplines studied by choose of the University*				
1	Businesslike foreign language	1	150	5
2	Agricultural policy	3	90	3
3	Philosophy of science and innovation development	2	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines studied by choose of students*				
2.2.1. Master's program "Management of safety and quality of alimentary products"				
1	Mathematical modeling of systems and processes	3	120	4
2	Methods of ensuring and managing by quality of foodstuffs	3	210	7
3	Management by conditions of environment	2	120	4
4	Management of personnel	2	120	4
5	Psychology of management	1	90	3
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**990**	**33**
3. OTHER TYPES OF TRAINING				
1	Practical training		180	6
2	Preparation of diploma and protection of the master's degree		180	6
Total			**360**	**12**
Total by educational program			**2700**	**90**

Annotation of training disciplines

1. OBLIGATORY TRAINING DISCIPLINES

Economical aspects of entrepreneurship. The training program of the discipline presumes studying of theoretical concepts and acquiring of practical skill in work in finding of concrete methods of taking of substantiated methods of management, carrying out of economical calculations, accomplishing of analytical and research works by identification of inner resources in economical operation of the enterprise.

Research and innovative processes. Methods of scientific investigations. Methods of exploration of processes of forming of quality (given services). Types and potential of material means of manufacturing (equipment, auxiliaries, resources) necessary for producing of products (giving of services) of proper quality. Stream of data used in forming of set quality of production (given services). Acquisition and processing of information. analysis and systematization of information. Modeling of processes. Cause-and-effect relations in spheres of quality, standardization and certification. Forecasting of ways of development of system of manufacturing. Analysis of processes of development of system of manufacturing. Analysis of constituents of interest of [personnel. Methods of scientific research.

Systemic approach and methods of tasking of decisions. The training program of the discipline presumes acquisition by experience in finding of systemic regularities, discriminate the basic stages of work in solving of problems, identify technologies of operation by the system, what is the rational index of reaching of set purposes and use of resources, use the most known methods of taking of decisions. Studying of principles of systemic approach, technologies of typical methods of management in systems, algorithm of method of multicriterial scales.

International and regional standardization and certification. The training program of the discipline presumes studies of principles of international standardization, accreditation and attestation of conformity, norms of basal international and European legal and normative documents used in spheres of standardization, certification and accreditation and protection of environment in the agricultural branch of public economy, methods of ensuring of quality and safety of foods and activity in this sphere of international and regional organizations by standardization, accreditation and attestation of conformity.

Quality management. Systems of managing by quality of products and/or services. Structure of organization (enterprise, institution). Standards of system of quality management DSTU ISO of 9000 series. Special functions of systems of management by quality of production and/or services. Development, introduction and managing in structure of quality systems. Documentation used in systems of managing by quality of products and/or services. Technological documentation. Plan of carrying out of works by managing by quality of products and/or services. Identification of demands and requirements of consumers of production at stage of its marketing. Evaluation of level of quality of production and/or services. Identification of capability of the organization (enterprise, institution) to reach the set indices of quality of production and/or services. Work in prevention of origination of drawbacks to be done by results of inner audits of system of quality management. Methods of measurement, analysis and optimization used in sphere of quality management. Corrective actions carried put by elimination of unconformities found in process of inner and outer audits of the system of quality management.

Standardization. Standards of the organization (enterprise, institution). Identification of conformity of norms of standard to modern level of development of. Identification of existing level of development of science and technique in the sphere of

validity of certain standard. Procedures of amendment of clauses of normative documents. technical regulations. Lows used in sphere of standardization. Procedures of abolition of normative documents. information on amending of provisions of normative documents. unification of products and/or services. Standardization of products and/or services. State system of standardization. Control of correctness of norms set by normative documents of the organization (enterprise, institution). Methods of supply of departments of the organization (enterprise, institution) by necessary documentation by standardization, quality management and certification. reports on introduction of norms of standards and activities of all departments of the organization (enterprise, institution) by problems of quality management and certification.

Audit and certification. Procedures of ordering for certification of products and/or services, and/or quality systems. Objects of certification, schemes of certification. Rules of use of schemes of certification. rules of choose of schemes of certification. schemes of testing of products and/or services, and/or quality systems. Certificates of conformity. Systems of certification and accreditation used in some foreign countries. Self-appraisal and inner audit of quality systems. Outer audit in sphere of quality. Certification of products by procedures of system of UkrSEPRO.

Management by quality and safety of products of agriculture and alimentary products. The training program of the discipline presumes studying of requirements of Ukrainian laws and normative documents related to normalization of parameters of quality and safety of products of agriculture and raw materials used in producing of foods; acquainting with values of maximum permissible levels of content of various products of agriculture normalized by national, European and international normative documents; standards of ISO 14000 series related to norms of protection of environment in functioning of enterprises that work in sphere of agriculture. Taking over by practical experience in development by norms of standards of ISO 9000 series and principles of HACCP of systems of managing of quality and safety of forages and agricultural products at all stages of their manufacturing.

Standardization and certification of products of agriculture. The training program of the discipline presumes studying of principles of international standardization and national standardization of agricultural production, requirements of principal international, European and national legal and normative documents by standardization and certification of agricultural production, ensuring of its safety and proper quality, acquainting with practice of development of normative documents.

2. SELECTIVE TRAINING DISCIPLINES

2.1. Disciplines studied by choose of the University

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in

national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Philosophy of science and innovation development. Philosophical and scientific approaches to the study of science and innovation. Philosophy of science: ontological, gnoseological, epistemological dimension. Forms of organization of science. Classical, non-classical and postnonclassical ideals of scientism. Methodology of perception of scientific and innovative activity. Study of basic scientific forms. Value of basic and applied research strategies. Philosophical foundations of classification of sciences. Philosophy of technology: theoretical and methodological aspects. Philosophical understanding of scientific worldview. Logic of scientific research in the context of contemporary global issues (environmental, technological and social). Axiological dimension of science: the problem of responsibility of the scientist.

2.2. Disciplines studied by choose of students

2.2.1. Master's program "Management of safety and quality of alimentary products"

Mathematical modeling of systems and processes. This discipline gives students the knowledge, which permits to understand the essence of use of systems of modeling in selection of parameters of carrying out of technological processes and possible methods of calculation of equipment used in the branch-industry and make the deliberate choose of procedures of organization of technological process of fabrication of the foodstuff in question. Studying of this discipline gives future specialists the possibility to substantiate from the scientific viewpoint the correct procedures of operation in guaranteed producing of products of proper quality.

Methods of ensuring and managing by quality of foodstuffs. Organization of good hygienic, manufacturing and laboratory practices at enterprises that produce foodstuffs, which conform to established international norms concerned of management of safety and quality of foodstuffs, development and introduction of systems of managing of quality safety of foods based on norms of system of HACCP. Certification of foodstuffs and systems of management used in practice of fabrication of foodstuffs.

Management by conditions of environment. Procedures of management by conditions of environment by norms of standards of DSTU ISO 14000 series. Documentation by methods of management of environment drawn up by norms of standards of DSTU ISO 14000 series. Methods of quantitative evaluation of environmental and social consequences of occurred accidents and incidents. Extraordinary situations. Documents on rules of prevention harm for natural conditions (material, informative etc.) or identification of level of such harm for men in occurrence of extraordinary situations. Regulations by examination and accounting of accidents, professional diseases and emergencies in organizations, enterprises and institutions. Methods of direct and indirect evaluation of harm inflicted for men and environment. Modeling of schemes of origination of extraordinary situations. Immediate causes of occurrence of accidents. Systems of centralized and local warning of population. Procedures of giving of information related to rules of protection of population and territories. Basic procedures of protection of population and territories in occurrence of extraordinary situations. Means of individual protective devices. Criteria and basic principles of carrying out of evacuative actions. bodies responsible for evacuation, their tasks and functions.

Management of personnel. System of calculable characters of qualification of personnel. General principle of social distribution of labor in Ukraine. System of normative

documents used in sphere of labor, distribution of labor by its types in the society. Positioning of specialists in social distribution of labor. Corporal culture of the organization (enterprise, institution). Social and economical state of the society and prognosis of tendencies of its progress. Modeling of professional activity (model of the specialist). Modeling of social activity (model of personality). Classification of structural elements of professional activity.

Psychology of management. Theoretical and practical training of students by problems of cognition of conditions, factors, driving forces and determinants of development of personality as the managing person. Specificity of motivation of managers and their adaptive processes in social medium, types of managers and styles of managing.

FACULTY CONSTRUCTION AND DESIGN

Dean – Ph.D. (Technical Sciences), Associate Professor Zynoviy Ruzhylo
Tel.: (044) 527-81-29
E-mail: dekanat_kd@ukr.net
Location: building № 11, room 305

Faculty organizes and coordinates educational process of master training in educational programs within specialties:

Specialty 133 "Industrial Mechanical Engineering"

Educational program "Machinery and equipment of agricultural production"
Diploma Departments:
Constructing of Machines and equipment
Tel.: (044) 527-87-34,
E-mail: machinebuild_centre@twin.nauu.kiev.ua
Head of department – Doctor of Technical Sciences, Professor Vyacheslav Loveykin
Reliability of machinery
Tel.: (044) 527-87-71
E-mail: relability_chair@twin.nauu.kiev.ua
Head of department – Doctor of Technical Sciences, professor Anatoliy Boyko
Tractors, cars and bio energy systems
Tel.: (044) 527-88-95
E-mail: gagolub@ukr.net
Head of department – Doctor of Technical Sciences, professor Gennady Golub

Educational program "Equipment of forest complex"
Diploma Departments:
Constructing of Machines and Equipment
Tel.: (044) 527-87-34
E-mail: machinebuild_centre@twin.nauu.kiev.ua
Head of department – Doctor of Technical Sciences, Professor Vyacheslav Loveykin
Reliability of machinery
Tel.: (044) 527-87-71
E-mail: relability_chair@twin.nauu.kiev.ua
Head of department – Doctor of Technical Sciences, Professor Anatoliy Boyko

Specialty 192 "Construction and Civil Engineering"

Educational program "Construction and Civil Engineering"
Diploma Departments:
Construction
Tel.: (044) 527-83-92
E-mail: a.david@ukr.net
Head of department - Dr. Sc., Professor Olexander Davydenko
Mechanics
Tel.: (044) 527-83-25
E-mail: berezovyi@nubip.edu.ua
Head of department – Ph.D. (Technical Sciences), associate professor Mykola Berezovyi

Training of masters of sciences in educational program "MACHINERY AND EQUIPMENT OF AGRICULTURAL PRODUCTION" in specialty 133 "INDUSTRIAL MECHANICAL ENGINEERING" branch of knowledge "Mechanical engineering "

Form of training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of training:	
– full-time educational and professional program	1,5 years
– full-time educational and research program	2 years
– part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of training:	Ukrainian, English, German
Qualification of graduates	Engineer-Designer

Concept of training

Training of Master's course students in the field "Machinery and equipment of agricultural production" is based on a systematic approach to obtain specific skills and knowledge that are sufficient for realization of professional tasks and responsibilities in the field of constructing, designing, testing, certification, maintenance and utilization of machines and equipment for agricultural production.

Educational and professional program of master's training

Master's program "Constructing machines, designing and testing of agricultural machines"

A specialist obtains a deep knowledge of design, engineering and testing of machines for agricultural production, based on the theory of technical systems, comprehension of system evaluation methods and methods of equipment testing for agricultural machinery by industrial, national and international standards. Engineering of agricultural machines is implemented through formation, structuring and solution to optimization problems of analysis and synthesis.

Area of alumnus employment

Alumnus with diploma of Engineer-Mechanic are able to implement professional tasks and responsibilities provided in the form of engineering activity of positions in various groups of profession related to engineering, organization of production and management, teaching and researching in engineering departments of research institutions.

Educational and research program of master's training

Master's program "Mechatronic Systems of Machines for Agricultural Production"

A specialist obtains a deep knowledge about newest construction and designing of mechatronic systems in machines for agricultural production, based on classical and modern concepts of mechatronics, mechanical motion control with programmable software support and digital control theory.

It is assumed a clear understanding of the stages in construction of hydro-mechanical and electro-mechanical systems; the use of technical elements and aesthetics for industrial design to the modern production of agricultural machines.

Area of alumnus employment

Alumnus with diploma of Engineer-Mechanic are able to implement professional tasks and responsibilities provided in the form of engineering activity of positions in various groups of profession related to engineering, organization of production and management, teaching and researching in engineering departments of research institutions.

Practical training

During practical training the faculty is oriented on close co-operation and collaboration with educational-experimental enterprises of university, such as: Separated subdivision of NULES of Ukraine “Velykosnytinske Education and Research Farm named after O. Muzychenka”, Separated subdivision of NULES of Ukraine “Agronomic Research Station”, Separated subdivision of NULES of Ukraine “Education and Research Farm “Vorzel”, Separated subdivision of NULES of Ukraine “Boyarka Forestry Research Station”.

Practical training is also carried out at the advanced research institutions and enterprises of agricultural and forestry such as: National Scientific Centre "Institute of Mechanization and Electrification of Agriculture," L.Pogorelyi’s Ukrainian Research Institute of Forecasting and testing of equipment and technologies for agricultural production; Companies “TAN”, “John Deere”, “Amaco”, “Astra”; State Forestry Agencies of forest resources of Ukraine.

Examples of Master’s Thesis Subjects

1. Adjustment to constructional and technological parameters of the biogas reactors of the rotary type.
2. Investigation to efficiency of nutrition for plants cultivated in greenhouses by the use of mediator adapter.
3. Adjustment to constructional and technological parameters of the belt conveyor to move vegetable seeds.
4. Improving of potato harvesting machine with designing of separating device.
5. Investigation to the process and the rationale structural parameters in order to improve machine for the fuel pellets produce.
6. Adjustment to parameters and operating modes for milking machine of pair-wise type at the maternity section for 25 animals.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES of Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training
in educational program "Machinery and equipment of agricultural production"
(educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Automation of technical systems	1	90	3
2	Applied computer technologies	2	90	3
3	Mechanics of technical systems constructions	1	90	3
4	Measuring devices and methods of measurement	2	90	3
5	Reliability of technical systems	2	90	3
6	Computer aided design systems	2	210	7
7	Theory of designing of agricultural machines	1	180	6
8	Mechatronic systems of agricultural technique	2	90	3
9	Testing of agricultural technique	2	90	3
10	Theory of mechatronic systems of agricultural machines	2	120	4
Total			**1020**	**34**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Business foreign language	1	150	5
2	Philosophy of science	1	90	3
3	Fundamentals of scientific research	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. *Disciplines offered by students*				
2.2.1. Master's program "Constructing, designing and testing of machines of agricultural production"				
1	Design of vibration machines	2	90	3
2	Designing of machines and equipment in animal husbandry	2	90	3
3	Design of machines and equipment in bioenergetics	2	90	3
4	Reliability of agricultural machines	1	120	4
5	Mechanics of environments	2	90	3
6	Methods of construction of agricultural workers machines	1	90	3
7	Mechatronics	1	120	4
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**1020**	**34**
3. OTHER TYPES OF TRAINING				
Practical trainings			480	16
Preparation and defense of master's work			180	6
Total for educational program			**2700**	**90**

Curriculum of Master training
in educational program "Machinery and equipment of agricultural production"
(educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Automation of technical systems	1	90	3
2	Applied computer technologies	2	90	3
3	Mechanics of technical systems constructions	1	90	3
4	Measuring devices and methods of measurement	2	90	3
5	Reliability of technical systems	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
6	Computer aided design systems	2	210	7
7	Theory of designing of agricultural machines	1	180	6
8	Mechatronic systems of agricultural technique	2	90	3
9	Testing of agricultural technique	2	90	3
10	Theory of mechatronic systems of agricultural machines	2	120	4
11	Mechanics of contact interaction of operational devices with agricultural materials	4	90	3
12	Dynamics and optimization of machines	4	210	7
13	Mathematical modelling of technical systems	4	90	3
Total			**1410**	**47**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Business foreign language	1	150	5
2	Philosophy of science	1	90	3
3	Fundamentals of scientific research	1	90	3
4	Technical support biotechnological processes	4	90	3
Total (Disciplines offered by University)			**420**	**14**
2.2. *Disciplines offered by students*				
2.2.1. Master's program "Mechatronic systems of machines of agricultural production"				
1	Designing of machines and equipment in animal husbandry	2	90	3
2	Designing machines vibrating action	2	90	3
3	Design of machines and equipment in bioenergetics	2	90	3
4	Reliability of agricultural machines	1	120	4
5	Mechanics of environments	2	90	3
6	Methods of construction of agricultural workers machines	1	90	3
7	Mechatronics	1	120	4
8	Experimental research methods and design agricultural machinery	4	90	3
9	Theoretical and experimental modeling of machine units	4	90	3
10	Biomechanics	4	90	3
Total (Disciplines offered by students)			**960**	**32**
Total for elective part			**1290**	**45**
3. OTHER TYPES OF TRAINING				
1	Practical training		630	21
2	Preparation and defense of master's work		180	6
Total			**820**	**27**
Total by educational program			**3600**	**120**

Abstract Disciplines curriculum

1. STANDARD ACADEMIC DISCIPLINES

Automation of technical systems. Discipline course allows preparing Master's course students for deciding of issues of process automation systems for fixed and mobile technical equipment in the modern scientific and technological level and improving the efficiency of operation of automatic and automated systems.

Applied computer technologies. The study of this discipline can improve the applied theoretical and practical professional skills of future Master's engineers by their knowledge of modern computer technology in various technological systems, learning features and methods of use, mastering the necessary techniques and practical skills with computer applications for production purposes of Agricultural Engineering.

Mechanics of technical systems constructions. The discipline studies the phenomena that affect the operability of technical systems considering the constructive and technological methods of improving structures machines, in terms of energy intensity, metal, etc.; provides a theoretical justification for the required accuracy of elements of structures of technical systems and methods for achieving it.

Measuring devices and methods of measurement. This discipline reveals the future design engineers basics of theoretical knowledge on measurement, evaluation and processing of measurement results, introduces the principles of the modern electronic and electric measuring devices, display products, measuring information systems, as well as the prospects of measuring instruments.

Reliability of technical systems. It is a complex discipline that studies: the concept of technical systems and their classification; schemes of reliability of technical systems and their analysis; methodology for optimization of the number of backup systems elements; graph theory; tools of the logical-simulation modelling for the research of reliability of technical systems; methods of ensuring reliability of agricultural machinery, as technical systems.

Computer aided design systems. Discipline involves raising a comprehensive theoretical and practical professional skills of future engineers-designers by familiarizing them with contemporary CAD various classes, the mastery of the necessary techniques and skills of implementation of development activities using major CAD systems.

Theory of designing of agricultural machines. This discipline studies methods of calculation and design at all stages of development of technical means, schemes of construction and operation of objects of modern new equipment for agriculture.

Mechatronic system of agricultural technique. The course of this discipline reveals the principles of the structure and General algorithms of functioning of mechatronic systems, which are used in agriculture, their calculation, design and features of use in practice.

Testing of agricultural technique. Course in the discipline aimed to study engineering test methods for agricultural technology, which allows getting an objective assessment of the design, technological and service properties of equipment and determining their compliance with technical requirements and current technological requirements on workflows.

Theory of mechatronic systems of agricultural machines. The discipline studies the theoretical basics of construction of mechatronic systems, methods of their control and automatic means of implementation of mechatronic systems in agricultural machines.

Mechanics of contact interaction of operational devices with agricultural materials. The course of this discipline focuses on introducing the foundations of theoretical knowledge and practical skills related to the interaction of working bodies of machines and equipment, aimed at the change of properties and fracture of materials and environments, which are the basis of most processes in agriculture.

Dynamics and optimization of machines. It is focused on the development of dynamic models of specific systems of machines and equipment for agricultural production, their mathematical description, calculation of current dynamic loads, which are determined on base of the initial conditions for the subsequent calculations on durability, performance, and reliability of machines.

Mathematical modelling of technical systems. It is a complex discipline that studies the methods and ways of reception, processing, presentation and use of information about the objects that interact with each other and external environment in order to predict the reaction of the object on control actions, its analysis of sensitivity to

various factors when saving in the mathematical description of the physical adequacy of the real object.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Business foreign language. The study of this discipline allows learning the knowledge and skills that will provide the necessary to master communicative ability in the field of professional communication at scientific conferences by specialty, research reports, business meetings and negotiations in a foreign language.

Philosophy of science. Course provides to students a complete list of the basic problems of philosophy of science at the objective, ideologically unbiased contemporary vision of modern science, the synthesis of the knowledge gained in professional and humanities disciplines to a holistic worldview for creating of foundations of methodological and humanitarian components of the Master.

Fundamentals of scientific research. Discipline studying the General situation of scientific activity, in particular the concept of method and methodology and their role in scientific cognition, stages of research work, organization of experiment, the fundamentals of inventive work, in particular the preparation of the application for the invention, and methods of statistical processing of experimental data.

Technical support biotechnological processes. The discipline the technical production entomological and microbiological products that will be useful in the creation of new or improvement of existing machinery and equipment.

2.2. Disciplines offered by students

Educational and professional program of master's training

2.2.1. Master's program "Constructing, designing and testing of machines of agricultural production"

Design of vibration machines. The discipline studies the basics of methods of analytical description and calculation of fluctuations and motion of mechanical systems and general design principles of vibrating machines, in particular, the main types of calculations of their parameters and generation tools of mechanical vibrations and pulses and structural features of machinery vibration of agriculture.

Designing of machines and equipment in animal husbandry. This discipline allows mastering the methods of design and development work items of machinery, equipment, production of mechanized production lines in animal husbandry, systematization and consolidation of knowledge on technology, mechanization, ecology and safety of livestock production.

Designing of machines and equipment in bioenergy. The course includes the fundamentals of designing machines and equipment for bioenergy production in agroindustrial complex, and peculiarities of their choice of rational constructive-technological parameters of optimization of technological processes of bioenergy.

Reliability of agricultural machines. It is a complex discipline that studies the regularities of change of a technical condition of machines and their elements in the process of exploitation, studies the implementation of methods and ways of elimination of defects and damages, discloses the methods of making surfaces of the parts necessary physical-mechanical properties by: surfacing, spraying, use of polymers, electroplating, plastic deformation, electrical methods of processing and restore the health of agricultural machinery.

Mechanics of environments. This discipline allows you to learn the basics of theoretical knowledge and practical skills related to the interaction of working bodies of

machines and equipment, aimed at the change of properties and fracture of materials and environments, which are the basis of most processes in agriculture.

Methods of construction of agricultural workers machines. The discipline course is aimed to study of existing methods of constructing of agricultural workers machines, mastering of functionality and their usage patterns, mastering the essential techniques and practical skills of performance of works with application of methods for designing of industrial purpose agricultural machinery.

Mechatronics. Course of this subject aims to familiarize with the basic provisions and directions of use of mechatronics, which studies patterns, computer-controlled machine and functions and structures equipment and software management.

Educational and research program of master's training

2.2.1. Master's program "Mechatronic systems of machines of agricultural production"

Designing of machines and equipment in animal husbandry. This discipline allows mastering the methods of design and development work items of machinery, equipment, production of mechanized production lines in animal husbandry, systematization and consolidation of knowledge on technology, mechanization, ecology and safety of livestock production.

Designing machines vibrating action. The course examines the fundamentals of analytical methods of calculation and description of vibrations and motion of mechanical systems and general design principles vibrating machines, including basic types of calculation parameters and the means for generating mechanical vibrations and pulses and design features machine vibration actions in agriculture.

Design of vibration machines. The discipline studies the basics of methods of analytical description and calculation of fluctuations and motion of mechanical systems and general design principles of vibrating machines, in particular, the main types of calculations of their parameters and generation tools of mechanical vibrations and pulses and structural features of machinery vibration of agriculture.

Designing of machines and equipment in bioenergy. The course includes the fundamentals of designing machines and equipment for bioenergy production in agroindustrial complex, and peculiarities of their choice of rational constructive-technological parameters of optimization of technological processes of bioenergy.

Reliability of agricultural machines. It is a complex discipline that studies the regularities of change of a technical condition of machines and their elements in the process of exploitation, studies the implementation of methods and ways of elimination of defects and damages, discloses the methods of making surfaces of the parts necessary physical-mechanical properties by: surfacing, spraying, use of polymers, electroplating, plastic deformation, electrical methods of processing and restore the health of agricultural machinery.

Mechanics of environments. This discipline allows you to learn the basics of theoretical knowledge and practical skills related to the interaction of working bodies of machines and equipment, aimed at the change of properties and fracture of materials and environments, which are the basis of most processes in agriculture.

Methods of construction of agricultural workers machines. The discipline course is aimed to study of existing methods of constructing of agricultural workers machines, mastering of functionality and their usage patterns, mastering the essential techniques and practical skills of performance of works with application of methods for designing of industrial purpose agricultural machinery.

Mechatronics. Course of this subject aims to familiarize with the basic provisions and directions of use of mechatronics, which studies patterns, computer-controlled machine and functions and structures equipment and software management.

Experimental research methods and design agricultural machinery. The discipline studies the analytical and experimental methods for the development of mathematical models of technological facilities of the agrarian industry, methods of formalization of object and algorithmic of the process of functioning of systems of automation equipment, methods of identification of technological objects by their frequency, pulse and transient, statistical methods for the identification of elements of the correlation and spectral analysis.

Theoretical and experimental modeling of machine units. This is a complex discipline that studies the methods and ways to model objects that interact with each other and the environment to predict the response object to control the impacts analysis of its sensitivity to various factors while maintaining adequate mathematical description of the physical real object.

Biomechanics. The course of this discipline is aimed at familiarization with the basic provisions and uses biomechanics as the prototype structure of the machine unit.

Training of masters of sciences in educational program "EQUIPMENT OF FOREST COMPLEX" in specialty 133 "INDUSTRIAL MECHANICAL ENGINEERING" branch of knowledge "Mechanical engineering"

Form of training:	Licensed number of students:
– Full-time	50
Duration of training:	
–Full-time educational and professional program	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of training:	Ukrainian, English, German
Qualification of graduates	M.Sc. Mechanical engineering

Concept of training

Training of Master-students within the specialization "Equipment of forest complex" is based on a systematic approach to obtain specific skills and knowledge that are sufficient for realization of professional tasks and responsibilities in the area of machine constructing, designing, testing, certification, maintenance and utilization of machines and equipment for forestry.

The expert receives in-depth knowledge of design, engineering and testing equipment forest complex, based on the theory of technical systems, a clear understanding of the stages of system evaluation methods and testing equipment forest complex according to industry, national and international standards.

Assumed a clear understanding of construction equipment Forestry - a complex mechanical system. It is assessed as repairable and not repairable systems and ensure their reliability.

Educational and professional program of master's training

Master's program "Constructing machines, designing and testing of techniques for forest complex"

A specialist obtains a deep knowledge of design, engineering and testing of machines for forest complex, based on the theory of technical systems, comprehension of system evaluation methods and methods of equipment testing for the forest complex by industrial, national and international standards.

It is assumed a clear comprehension to constructing machines for forestry as a part of the mechanical system. It is assessed as repairable and non-repairable systems and ensuring their reliability.

Area of alumnus employment

Alumnus with diploma of Engineer-Mechanic are able to implement professional tasks and responsibilities provided in the form of engineering activity of positions in various groups of profession related to engineering, organization of production and management, teaching and researching in engineering departments of research institutions.

Practical training

During practical training the faculty is oriented on close co-operation and collaboration with educational-experimental enterprises of university, such as: Separated

subdivision of NULES of Ukraine “Velykosnytinske Education and Research Farm named after O. Muzychenka”, Separated subdivision of NULES of Ukraine “Agronomic Research Station”, Separated subdivision of NULES of Ukraine “Education and Research Farm “Vorzel”, Separated subdivision of NULES of Ukraine “Boyarka Forestry Research Station”.

Practical training is also carried out at the advanced research institutions and enterprises of agricultural and forestry such as: National Scientific Centre "Institute of Mechanization and Electrification of Agriculture," L.Pogorelyi’s Ukrainian Research Institute of Forecasting and testing of equipment and technologies for agricultural production; Companies “TAN”, “John Deere”, “Amaco”, “Astra”; State Forestry Agencies of forest resources of Ukraine.

Examples of Master’s Thesis Subjects

1. Adjustment to construction parameters of the wood-materials cutter at the equipment line to produce solid bio-fuels.
2. Investigation to the drying process of wood raw-materials and adjustment of parameters of dryers at the equipment line to produce solid bio-fuels.
3. Adjustment to parameters of hydraulic mechanism for trimming wood.
4. Optimizing to rotation mode of crane for transporting of timber.
5. Adjustment to constructional and technological parameters of granulators.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES of Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Equipment of forest complex" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Applied computer technologies of machines for forestry	2	90	3
2	Measuring devices and methods of measurement	2	90	3
3	Computer design of equipment for forestry	2	120	4
4	Reliability of technical systems for forestry machines	2	90	3
5	Theory and designing of machines for forestry	1	120	4
6	Mechatronic systems of machines for forestry	2	150	5
7	Automation of technical systems of machines for forestry	1	90	3
8	Reliability of machines for forestry	1	120	4
9	Dynamics of machines for forestry	2	150	5
Total for standard part			**1020**	**34**
2. ELECTIVE ACADEMIC DISCIPLINES				

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
2.1. Disciplines offered by University				
1	Business foreign language	1	150	5
2	Philosophy of science	1	90	3
3	Fundamentals of scientific research	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Constructing machines, designing and testing of techniques for forest complex"				
1	Methods of designing of machines for forestry	2	120	4
2	Mechanics of materials and timbers	2	90	3
3	Designing of technical systems for forestry	1	90	3
4	Theory and designing of vehicles for forestry	1	120	4
5	Testing of machines for forestry	2	90	3
6	Design of vibration machines for forestry	2	90	3
7	Design woodworking machinery	1	90	3
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**1020**	**34**
3. OTHER TYPES OF TRAINING				
1	Practical trainings		480	16
2	Preparation and defense of master's work		180	6
Total			**660**	**22**
Total for educational program			**2700**	**90**

Abstracts of curriculum disciplines

1. STANDARD ACADEMIC DISCIPLINES

Applied computer technologies of machines for forestry. The study of this discipline can improve applied theoretical and practical professional skills of future engineers through the study of newest computerized technologies of various technological systems; learning its functional potential and methods of use; obtain the necessary techniques and practical skills to work with applied computer programs.

Measuring devices and methods of measurement. This discipline reveals the basis of theoretical knowledge about measurements, evaluation and processing of measured results; introduces the main principles of work and construction of the electronic measuring devices, equipment to display information, measuring informational systems; and describes the perspectives of development of measuring instruments.

Computer design of equipment for forestry. Discipline involves the raise of comprehensive theoretical and practical professional skills by familiarizing students with CAD-programs of various classes, learning its functional possibilities and methods of use, adoption of techniques and skills that are necessary for designing of machines for forestry.

Reliability of technical systems for forestry machines. Discipline is complex it includes: concepts of technical systems and their classification; schemes of reliability to technical systems and their analysis; method to optimize the quantity of reserved elements of systems; theory of graphs; logically-imitative design to research the reliability of technical systems; methods to provide the reliability of technical systems and equipment for forest complex.

Theory and designing of machines for forestry. This discipline studies the methods and techniques of calculation and designing at all stages of projecting; schemes, structure, and functions of machines and equipment for forestry.

Mechatronic systems of machines for forestry. Course of this discipline provides principles of constructing and common functioning algorithm for mechatronic systems used in forestry; its calculations, design and characteristics put into practice.

Automation of technical systems of machines for forestry. Course of this discipline prepares Masters to solve the issues of automation processing systems for fixed and mobile machinery of forestry complex stand at high scientific and technological level; to improve the effectiveness of usage of automatic and automated systems.

Reliability of machines for forestry. This is a complex discipline that studies: patterns of changes in the technical state of machines and their details during functioning; methods and techniques to remove defects and damages; giving to the surface of details the required physical and mechanical characteristics; recovery technological processes for typical parts of equipment used for forestry and wood processing.

Dynamics of machines for forestry. Discipline is directed on studying the dynamic models of concrete machines and equipment for forest complex; its mathematical descriptions; calculation of dynamic loadings and recommendations and ways to reduce these loadings during work.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Business foreign language. The study of this discipline allows learning the knowledge and skills that will provide the necessary to master communicative ability in the field of professional communication at scientific conferences by specialty, research reports, business meetings and negotiations in a foreign language.

Philosophy of science. Course provides to students a complete list of the basic problems of philosophy of science at the objective, ideologically unbiased contemporary vision of modern science, the synthesis of the knowledge gained in professional and humanities disciplines to a holistic worldview for creating of foundations of methodological and humanitarian components of the Master.

Fundamentals of scientific research. Discipline studying the General situation of scientific activity, in particular the concept of method and methodology and their role in scientific cognition, stages of research work, organization of experiment, the fundamentals of inventive work, in particular the preparation of the application for the invention, and methods of statistical processing of experimental data.

Educational and professional program of master's training

2.2. Disciplines offered by students

2.2.1. Master's program "Constructing machines, designing and testing of techniques for forest complex"

Methods of designing machines for forestry. Course of this discipline is directed at the existing knowledge about design techniques of forestry equipment; to learn the functional possibilities to use them; to get the necessary techniques and practical skills to implement design methods for production purposes in machines for forestry.

Mechanics of materials and timbers. This discipline can help to learn the basic theoretical knowledge and practical skills about the interaction of working organs of machines and equipment for forestry. The aim is to change properties and break characteristics of materials and media, which is the base of the most processes.

Designing of technical systems for forestry. Courses in this discipline aims to explore the theoretical approaches and principles of optimization timber production and logging works; the basis to calculate the productivity and technological coordination of the work to the single machines and the whole production lines; the rational plan-schemes and

methods to design and optimize the technological processes of the timber storage and sawmill enterprises.

Theory and designing of vehicles for forestry. This discipline studies existed theoretical methods to develop and plan the constructional and technological parameters of vehicles for forestry.

Testing of machines for forestry. A course of this discipline is directed to study the engineering methods to tests the machines for forest complex. That allows obtaining an objective judgment about structural, technological, and operating characteristics of machines; to define its accordance to the requirements of specifications, tasks, requirements, and valid standards to working processes.

Design of vibration machines for forestry. The discipline studies principles and methods of calculation and analytical description of vibration and motion at mechanical systems; general principles to design of machine with vibration; evaluation of their parameters, means to generate mechanical vibrations and pulses; and structural features of vibration machines for forestry.

Design woodworking machinery. The course examines the existing design methods woodworking equipment, patterns of elementary and complex machining cutting design features wood cutting tools and woodworking machines.

Training of masters of sciences in educational program "CONSTRUCTION AND CIVIL ENGINEERING" in specialty 192 "CONSTRUCTION AND CIVIL ENGINEERING" branch of knowledge " Architecture and Construction "

Form of training:	Licensed number of students:
– Full-time	25
Duration of training:	
–Full-time educational and professional program	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of training:	Ukrainian, English, German
Qualification of graduates	research engineer in construction

Concept of training

Providing knowledge and skills specialist new generation of innovation in the field of industrial and civil construction of agriculture and environmental systems based on modern standards of education adapted to the requirements of the world's best educational programs for the public and private sectors in Ukraine.

The program includes works commissioned strategic partners to develop innovative projects of industrial and civil construction of agricultural and environmental systems.

Master's program "Innovative projects of industrial and civil construction of agricultural and environmental systems"

The program includes works commissioned strategic partners to develop innovative projects of industrial and civil construction of agricultural and environmental systems.

Area of alumnus employment

Graduates receive a higher education and can work in positions that correspond to the 4th level of qualification under the State classifier of professions: assistant; teacher of the university, engineer (civil engineering); Engineer construction supervision; engineer design and estimate work; design engineers (civil engineering); Engineer training; Researcher (field engineering); Safety Engineer; Patent engineer and inventive work; Engineer preproduction; engineer quality; engineer with the introduction of new technology; Engineer standardization; design engineer; research engineer.

Practical training

Practical training is carried out in GP Ukraine Knauf Marketing, RI "Ukrahrobudivnytstvo" SRI "Ukrahropromproduktyvnist" Research Institute of construction, design office Ukrainian Research Institute of Forecasting and test equipment and technologies for agricultural production to them. Leonid Pogorelogo "Design Bureau National Scientific Center" Institute of Mechanization and Electrification of Agriculture ", LLC" Ahrobidivelnyy Alliance "Astra", LLC "John Deere Ukraine" PE "NovitniAhrobudivelniTehnolohiyi" Research Institute building structures and other framework practical training students (trainees) the university from among leading institutions, enterprises and organizations in Ukraine and abroad, with appropriate conditions for the practice of students according to the educational and professional requirements s training programs.

Examples of Master's Thesis Subjects

1. Office building state farms using effective reinforced concrete floors.
2. Steel frame welded frame with variable section beams with flexible wall.
3. Without much ribbed beams and steel reinforced concrete floors.
4. Technology elevation / relegation automobile overpass agricultural grain terminal.
5. Fire resistance a steel reinforced concrete beams.
6. Reconstruction of the building "Ahrolizynh" of the superstructure.
7. Metal structures, reinforced carbon fiber, the static load.
8. Steady-concrete beam design with external reinforcement.
9. The fiber concretes elements reinforced with steel fiber.
10. Many hollow slabs reinforced with steel profiled decking.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES of Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Construction and civil engineering" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Building codes Ukraine (OiF, MC, JBK)	1	150	5
2	Business Foreign Language	1	120	4
3	Reconstruction of buildings	2	90	3
4	System Analysis	1	150	5
5	Theory and Methodology of Research	1	120	4
6	Mechatronic systems in construction	1	120	4
7	Budget and contract documents	2	180	6
8	Engineering protection and training area (OiF, TBV)	1	150	5
9	CAD in construction	2	150	5
Total for standard part			**1230**	**41**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Tests of Building Constructions (OiF)	1	120	4
2	Tests of Building Constructions (JBK)	2	90	3
3	Tests of Building Constructions (MC)	2	120	4
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Innovative projects of industrial and civil construction of agricultural and environmental systems"				
1	Innovative engineering and construction technologies in the agricultural construction	2	120	4
2	Development of efficient building designs (JBK, MC, OiF)	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3	Planning agricultural buildings purpose (JBK, MC, OiF)	1,2	180	6
4	Environmental safety processes	2	90	3
5	Occupational safety in the industry	1	90	3
6	Legal support construction	2	90	3
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**2250**	**75**
3. OTHER TYPES OF TRAINING				
1	Practical trainings		210	7
2	Preparation and defense of master's work		240	8
Total			**450**	**15**
Total for educational program			**2700**	**90**

Abstracts of curriculum disciplines

1. STANDARD ACADEMIC DISCIPLINES

Building codes Ukraine (OiF, MC, JBK). Consolidate and deepen students' knowledge of theory, and acquire skills to make independent technological and organizational solutions in terms of building codes Ukraine, design technology and comprehensive mechanization of assembly processes.

Business Foreign Language. Acquiring knowledge, skills and abilities that will provide the necessary communicative ability for masters in vocational communication.

Reconstruction of buildings. Obtaining theoretical knowledge and practical skills that will be needed in practice. Interconnected system of training to perform certain types of work, installation and maintenance of general order, the order and timing of works, supplies all kinds of resources to ensure the effectiveness and quality of certain types of work or in the process of reconstruction of buildings.

System Analysis. To form the students scientific knowledge about the basics of system analysis as a science, its goals and objectives, main categories; the ability to form on the organization of training and research for the further implementation of future professionals in the professional activities of research, teaching and administrative functions.

Theory and methods of research. Raising the general theoretical and practical engineering of future masters builders by mastering the fundamentals of theoretical knowledge and practical skills for the general concept of experimental methods.

Mechatronic systems in construction. Teaching theoretical foundations and principles of mechatronic systems in the building. The theoretical bases of mechatronic systems, methods for their control and automatic means of implementing mechatronic systems in agricultural construction.

Budget and contract documentation. Forming students knowledge about the selection of effective methods and techniques: a feasibility study reconstruction of buildings and structures; estimates and pricing in the reconstruction; business plan of the project; forming master plans.

Engineering protection and training area (OiF, TBV). City building assessment area by natural factors. Vertical planning of urban areas. Quantitative and qualitative assessment of relief. Vertical planning methods. Storm sewage system drainage of surface water. The theoretical basis of design areas where there are dangerous physical and geological processes. Engineering improvement of rural areas for different purposes. Theoretical Foundations means of dealing with transport and industrial noise, air pollution. Lighting rural areas. Sanitary improvement. Organization drainage runoff.

CAD construction. General information about the composition of the working draft. A main working drawings of the project. Composition of the drawings a main brand GP, AR. Using a computer program "ArchiCAD" to perform architectural and engineering drawings, plans for improvement, building plan, sections, facades, advanced photorealistic images. Use textures library "InteAr" to cover the surfaces of walls, floors, roofs and objects. The program Corel Draw: create new and edit existing textures; picture editing JPEG and BMP format to improve quality. Reproduction and recruitment kit drawings.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Tests of Building Constructions (OiF). To acquaint students with the basics, methods and test innovative approaches building structures (foundations and foundations), with individual products and design elements that are part of the buildings; the appointment and structural relationships between them; with the basic requirements that apply to structural elements of buildings and buildings made taking into account the specific conditions of use.

Tests of Building Constructions (JBK). To acquaint students with the basics, methods and test innovative approaches building structures (reinforced concrete structures), with individual products and design elements that are part of the buildings; the appointment and structural relationships between them; with the basic requirements that apply to structural elements of buildings and buildings made taking into account the specific conditions of use.

Tests of Building Constructions (MC). Provide scientific principles and train future engineers (professional master) with bases, methods and test innovative approaches building structures (metal structures) when used in production processes in the construction industry.

2.2. Disciplines offered by students

2.2.1. Master's program "Innovative projects of industrial and civil construction of agricultural and environmental systems"

Environmental safety processes. Raising the general theoretical and practical engineering of future engineers by mastering the fundamentals of theoretical knowledge and practical skills on environmental safety and environmental processes in terms of resource saving natural resources.

Innovative engineering and construction technologies in the agricultural construction. To give knowledge of legal, organizational and methodological foundations definitions of innovation and engineering study of innovative technologies in agriculture building.

Development of efficient building designs (JBK, MC, OiF). The theoretical basis of teaching theoretical foundations and principles of developing efficient building designs (JBK, MC, OiF). methods for their control and automatic means of implementation in the agricultural building.

Planning agricultural buildings purpose (JBK, MC, OiF). Theoretical Foundations of buildings for agricultural purposes (JBK, MC, OiF), methods for their control and automatic means of implementation in the agricultural building.

Occupational Health in. Acquiring the skills to develop innovative organizational measures to prevent accidents, injuries and illness in the construction industry.

Legal support construction. Raising the general theoretical and practical legal level of future engineers by mastering the fundamentals of theoretical knowledge and practical skills on legal activities building industry.

FACULTY MECHANIZATION OF AGRICULTURAL

Dean – Associate Professor Yaroslav Mykhaylovich

Tel.: (044) 527-85-34
E-mail: mtf11k@ukr.net
Location: educational building № 11, room 309

Mechanical Engineering Department organizes and coordinates educational process of master training in educational programs within specialties:

Specialty 275.03 "Transport Technologies (Road transport)"

Educational program "Transport Technologies in Road transport"
The graduating department:
Transport technology and tools in agriculture
Tel.: (044) 527-86-32
E-mail: kozypytsya@mail.ru
Head – PhD, Associate Professor Sergey I. Kozupytsya

Tractors and cars
Tel.: (044) 527-88-95
E-mail: avto@ukr.net
Head of Department –PhD, Professor Golub Gennady Anatolievich

Technical service and engineering management of them. MP Momotenka
Tel.: (044) 527-88-53
E-mail: vdv-tsim@ukr.net
Head – PhD, professor Valery D. Voytyuk

Specialty 208 "Aagricultural Engeneering"

Educational program "Aagricultural Engeneering"
The graduating department:
Mechanization of livestock
Tel.: (044) 527-85-35
E-mail: mechaniz_chair@twin.nauu.kiev.ua
Head – Ph.D., Associate Professor V. Khmelyovskiy

Technical service and engineering management of them M.P. Momotenka
Tel.: (044) 527-88-53
E-mail: vdv-tsim@ukr.net
Head – PhD, professor Valery D. Voytyuk

Occupational Health and environment engineering
Tel.: (044) 527-82-99
E-mail: voynaiov@bigmir.net
Head of Department – Ph.D., associate professor Alexander Voinalovych Volodymytrovych

Agricultural machinery and systems engineering them. Acad. P.N. Vasilenko
Tel.: (044) 527-85-37
E-mail: _sgms@ukr.net
Head of Department – PhD, Gumenyuk Yuriy Olegovych
Tractors and cars
Tel.: (044) 527-88-95
E-mail: avto@ukr.net
Head of Department – PhD, Professor Golub Gennady Anatolievich

Training of masters of sciences in educational program "TRANSPORT TECHNOLOGIES IN ROAD TRANSPORT" in specialty 275.03 "TRANSPORT TECHNOLOGIES (ROAD TRANSPORT)" branch of knowledge "Transport"

Form of Training:	Licensed number of persons:
– Full-time	30
– Part-time	30
Duration of training	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits:	
– educational and professional program	90 ECTS
Language of training	Ukrainian, English, German
Qualification of graduates:	Researcher in the transport sector

The concept of training

Providing knowledge and skills specialist new generation of innovation in the organization of traffic and transport management (road transport) and environmental facilities agroindustrial complexes based on modern standards of education adapted to the requirements of the world's best educational programs for the public and private sectors Ukraine.

Educational program "Motor transport"

Design freight motor means and loading and unloading operations in the production of agricultural products. The objects of research are the specificity and diversity of agricultural goods, the terms and conditions of carriage of cargo flows on short, medium and long distances.

Areas of employment for graduates

Receives higher education and can work in positions that correspond to the fourth qualification level according to the State classifier professions: dispatchers, engineers traffic service and logistic department managers trucking companies; transport department managers of large corporations; Specialist of road transport and infrastructure; engineers control department of the State Automobile Inspectorate; research staff research and design institutes transport profile; teachers in driving schools, secondary professional and higher education.

Practical training

Through laboratory and practical classes, training, technology, research, and other pre-diploma practice areas: crops, livestock, technical service, conservation, processing and storage of plant products, technology, biodiesel, animal breeding, the legal value, economy, accounting marketing and management in the field of agricultural production and so on. These databases are: John Deere Ukraine, Amaco Ukraine, Myronivsky ZVVK, Astra; Department district traffic police Internal Affairs of Ukraine MoU in (Kiev, Crimea, Cherkasy, Khmelnytsky, Chernihiv, Zhytomyr, Rivne, Volyn, Poltava, etc.) and the Office of Research Affairs of Ukraine traffic police in the regions; other bases of practical training of students (students) University from among leading institutions, enterprises, organizations of any ownership in Ukraine and abroad, with adequate conditions for

practice of students in accordance with the requirements of education and professional training programs.

Proposed Topics for Master Theses

1. Study of technical and economic parameters of an automobile by an effective implementation of logistic approaches.
2. Improve handling for transportation of vegetable-fruit groups transport system in the agricultural company.
3. Improvement of transport and production process of grain at harvest using variables bodies.
4. Justification transport and production process at harvesting corn.
5. Improvement of transport and traffic during the production process of dairy products in the Kiev region.
6. Justification transport and production process in making organic fertilizers.
7. Study of the main indicators of road transport and their improvement Ltd. "Ray" Kyiv region
8. Improving transport and process the transport of sugar beet in agricultural farm.
9. Improving transport and production process at transportation fertilizers in LLC "Torch" Vinnitsa region.
10. Improving transport and logistics processes during transportation of fruits and berries in agricultural farm.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Transport Technologies in road transport" (educational and professional program of master's training)

№	The name of the course	Semester	Volume	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Roads farm appointment	1	90	3
2	Loads agriculture	1	90	3
3	Sanitation and hygiene vehicles	1	120	4
4	Occupational Health	2	90	3
5	Quality Management Technology	2	120	4
6	Transport Economics	2	150	5
7	Navigation systems in transport	1	120	4
8	Testing and certification of vehicles	2	120	4
Total for standard part			**900**	**30**
2. ELECTIVE ACADEMIC DISCIPLINES				

№	The name of the course	Semester	Volume	
			hours	credits ECTS
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business Foreign Language	1	150	5
3	Agrarian policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master program "Organization and regulation of traffic"				
1	Special methods of traffic	1	90	3
2	Transport planning of large and major cities	2	120	4
3	Supervision and examination of vehicles	2	120	4
4	Traffic Systems	2	120	4
5	Transport planning of rural areas	1	120	4
Total (Disciplines offered by students)			**570**	**19**
Total for elective part			**900**	**30**
2.2.2. Master program "Organization of traffic and transport management"				
1	Transportation of perishable goods	2	90	3
2	Freight forwarding activity	2	120	4
3	Recycling vehicles	1	120	4
4	Supply chain management	2	150	5
5	Technical service vehicles	2	90	3
Total (Disciplines offered by students)			**570**	**19**
Total for elective part			**900**	**30**
3.OTHER TYPES OF TRAINING				
1	Internship	2,3	630	21
2	Preparation and defense of master's work	3	270	9
Total			**570**	**30**
Total for educational program			**2700**	**90**

Annotations educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES

Roads farm purposes. Acquiring the skills to develop innovative arrangements for operational efficiency and road design farm supplies, prevention of accidents, injuries and illness in the organization of transportations and management on motor manufacture.

Loads agriculture. Disclosure of development and methods of using the full set of rules potential vehicles for the transport of specific characteristics of agriculture and natural production conditions, determine the need for these funds to achieve programmed outcomes and compliance.

Sanitation and hygiene vehicles. Formation of theoretical knowledge of students about the kinds of transportation for animals and their products, modern techniques and methods of sanitization transport, packaging machinery and equipment. The course combines technological expertise with the student mastered sanitary norms and processes that are needed in growing animals, livestock production, transportation and sales.

Occupational Health. Acquiring the skills to develop innovative organizational measures to prevent accidents, injuries and illness in the organization of transportations and management on motor manufacture.

Quality management technology. Getting knowledge corresponding to the current level in quality management vehicles, review of major developments in the theory and practice of quality management in different countries, the need to use advances in quality management, its organizational system, the need to switch to production management

product "because of the quality" of using international standards ISO 9000, adopted in Ukraine as national.

Transport Economics Is to explore relations in the middle of technological systems, skills planning, pricing and investment, determine the efficiency of traffic organization and management in motor manufacturing.

Navigation systems in transport. Obtaining knowledge and skills aimed at creating and using road transport navigation subsystems, parts and systems of vehicles. Learning the basics of analysis and synthesis of information navigation systems on vehicles with a computer system at various levels and purposes.

Testing and certification of vehicles. Examines legislation concerning the system of testing and certification of vehicles, specific features of their use in agricultural production, technology and the test conditions for certification and issuing of certificates certifying quality of production vehicles.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of scientific research on the basics of intellectual property. Raising general theoretical and practical engineering of future masters-Transport by mastering the basics of theoretical knowledge and practical skills on the general concept of experimental research methods of organization and management of transportation in motor manufacturing.

Business Foreign Language. Acquiring knowledge, skills and abilities necessary to ensure that masters communicative ability in the fields of professional communication in the organization of transportations and management on motor manufacture.

Agrarian policy. This discipline acquaints future professionals with the basics of policy in the agricultural sector, makes it possible to master methodical and methodological basis for development and implementation of measures to support and ensure the development of agriculture in the system of linkages in the national economy, and assess from the perspective of the theory of practical action government agencies on regulation of the agricultural production of the country.

We study both domestic and foreign experience. As a result of learning students get the opportunity on a professional basis to form their own opinion about the processes and phenomena occurring in the agricultural sector of the state.

2.2. Disciplines offered by students

2.2.1. Master's program "Organization and regulation of traffic"

Special methods of traffic. Providing knowledge on road safety with the use of special methods of traffic using state standards, state building codes, regulations and standard solutions engineering planning and organizational measures in the operation of public roads, streets, railroad crossings, using techniques described in professional literature, raise the level of road safety.

Transport planning of large and major cities. Analysis of the selection area for transport planning, construction, landscaping, planting systems large and major cities, networking of cultural and community services, protection and use of territories and objects of natural reserve fund.

Supervision and examination of vehicles. Disclosure nature and methods of developing a set of rules complete control and examination of vehicles by the specific properties of agriculture and natural production conditions, determine the need for control and expertise to achieve programmed outcomes and compliance.

Transport planning of large and major cities. Formation of system knowledge and practical skills in transport planning cities: principles and metodyratsionalnoho planning and reconstruction of transport networks taznachnyh large cities that increase the efficiency of freight and passenger transportation, safety in modern cities.

Traffic Systems. Formation of system of theoretical knowledge and skills and understanding the basics of system analysis of the functioning of the complex road conditions, component engineering, information telekomunitsiynoyi component, professionally-emotional component of the driver, the acquisition of practical skills in developing and designing rational regulation of traffic.

Transport planning of rural areas. Analysis of the selection area for transport planning, construction, landscaping, planting systems of rural areas, networking of cultural and community services, protection and use of territories and objects of natural reserve fund.

2.2.2. Master's program "Organization of traffic and transport management"

Transportation of perishable goods. To teach future professionals technologies freight with a short shelf life for use. To prevent spoilage of goods and identify means to protect them. Carry out works to eliminate the consequences of damage to cargo.

Freight forwarding activity. Formation of system knowledge and practical skills of forwarding activities by type and forms, especially the processes of forwarding service. In accordance with the methods of freight forwarding service, determine the parameters of forwarding services; perspective directions of further development of forwarding services and determine its effectiveness.

Recycling vehicles. Disclosure retsyklinhovyh design methodology of different levels, the concept of recycling mechanism organizational coordination, forms of cooperation organizations; able: to draft retsyklinhovoyi system, analyze retsyklinhove environment, paint algorithm "problem" formation retsyklinhovyh systems, develop organizational structure retsyklinhovoyi system, allocate and analyze business processes organizations use to optimize the principles recycling system.

Supply chain management. Mastering the theoretical foundations of supply chain management; review of key business processes in the supply chain; acquiring skills design and planning supply chains; learning the basics of creating a single information space participants of the supply chain; familiarization with the criteria of quality and efficiency of supply chains.

Technical service vehicles. Providing knowledge on methods and means of promoting technical condition of the car, its units, systems and mechanisms, maintenance organizations and maintenance vehicles.

Training of masters of sciences in educational program "AGRICULTURAL ENGINEERING" in specialty 208 "AGRICULTURAL ENGINEERING" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	200
– Part-time	125
Duration of training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits:	
– educational and professional program	90 ECTS
Language of training	Ukrainian, English, German
Qualification of graduates:	Engineer-Research of Mechanization's Agriculture

The concept of training

Providing knowledge and skills specialist new generation of innovation in the field of agricultural mechanization and agro-industrial facilities conservation systems based on modern standards of education adapted to the requirements of the world's best educational programs for the public and private sectors of Ukraine's economy.

Master's program "Technologies and techniques in crop"

Optimization of complex machinery and equipment for modern technology of growing crops in crop mechanization. Design and organization processes, safety and reliability study designs of machines and equipment.

Areas of employment of graduates

Receives higher education and can work in positions that correspond to the 4 th qualification level according to state classifications of occupations superiors and masters of manufacturing sites; Shift; managers of small businesses without administrative apparatus; mechanical engineers; Engineers diagnosis of technical condition tractor fleet; engineers; Safety Engineer.

Master's program "Technologies and techniques in animal husbandry"

Optimization of complex machinery and equipment for modern processes mechanization field of animal farming. Research and reliability of structures reliability of machines and equipment.

Areas of employment for graduates

Receives higher education and can work in positions that correspond to the fourth qualification level according to state classifications of occupations superiors and masters of manufacturing sites; Shift; managers of small businesses without administrative apparatus; mechanical engineers; Engineers diagnosis of technical condition of machinery and equipment Livestock; engineers; Safety Engineer.

Master's program "Technology and technique of processing industries"

Optimization of complex machinery and equipment with modern technology mechanized processing and storage of agricultural products. Research reliability and reliability of designs of machines and equipment in meat packing industry.

Areas of employment for graduates

Receive higher education and can work in positions that correspond to 4th level of qualification according to state classifications of occupations and heads production line supervisor, shift supervisor, managers of small businesses with administrative staff, engineers, mechanics, engineers, technical diagnostics of machinery processing industries, engineers, safety engineers.

Master's program "Technologies and equipment service companies"

Optimization of complex machines to modern technological processes for the maintenance and restoration of agricultural machinery parts. Study parameters and modes of processing equipment, design is not standardized equipment.

Areas of employment for graduates

Receives higher education and can work in positions that correspond to the 4 th qualification level according to state classifications of occupations superiors and masters of manufacturing sites; Shift; managers of small businesses without administrative apparatus; mechanical engineers; Engineers diagnostic equipment technical state service enterprises; engineers; Safety Engineer.

Master's program "Pratseohoronni principles in agrobioengineering"

Development of safety management and energy saving and engineering facilities to prevent the negative impact of production processes in agriculture on the environment, study parameters safety means to improve working conditions and eliminate injuries.

Areas of employment for graduates

Receives higher education and can work in positions that correspond to the 4 th qualification level according to state classifications of occupations superiors and masters of manufacturing sites; Shift; managers of small businesses without administrative apparatus; mechanical engineers; Safety Engineer.

Master's program "Optimization of parameters and operating modes technology APC"

Raising agricultural machinery reliability based structural analysis of its reliability and justification of rational processes, settings and modes. Research and technological design and kinematic schemes, units, assemblies, working bodies.

Areas of employment of graduates

Receives higher education and can work in positions that correspond to the 4th level of qualification according to the State classifier professions: teaching, research, organizational and administrative activities in the research departments of enterprises, research and design institutions, as well as institutions of higher education as head of production units in industry; chiefs and masters manufacturing sites; Shift; Head of Laboratory (education); leaders of student research bureau; Senior Staff, heads of research laboratories; researchers; mechanical engineers; assistants and university professors.

Practical training

Through laboratory and practical classes, training, technology, research, and other pre-diploma practice areas: crops, livestock, technical service, conservation, processing and storage of plant products, technology, biodiesel, animal breeding, the development of mechanized methods of diagnosis and prevention animal diseases, with repair technology. g technology, test with. g technology and their legal significance, economics, accounting, marketing and management in the agricultural field of production and so on. These databases are: Ukrainian Scientific Research Institute of forecasting and test equipment and technologies for agricultural production to them. Leonid burned "; National Scientific Center "Institute of Mechanization and Electrification of Agriculture"; JSC "Agriculture"; PJSC "Rayahrotehservis"; PDP AF "Concord-Agro", JV Agricultural firm "Dream"; LLC "Concern" SIMEKS-Agro "(Vinnitsa region.) Other bases of practical training of students (students) University from among leading institutions, enterprises, organizations of any ownership in Ukraine and abroad, with appropriate conditions for students according practice the requirements of education and professional training programs.

Proposed Topics for Master Theses

1. Research constructive scheme and justification count parameters group milk yield.
2. Study the basic parameters and system design of parallel driving machine and tractor units.
3. Analysis of statistical processing parameter flow refuse and improvement process of repair tractors.
4. Study process parameters and settings for processing soybean seeds rotating thermal camera type.
5. Investigation of complex machines and determine their optimal composition for growing and harvesting of winter wheat.
6. Research the operational performance of the machine with the tractor units when using fuels of vegetable origin.
7. Research and design of computer technology biodiesel production process of improvement cavitation mixing reagents.
8. Research Feeds major damage to the development process of their elimination.
9. Research damaged parts wheel gearboxes combine harvesters and development process of recovery.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Agricultural engineering" (educational and professional program of master's training)

№	The name of the course	Semester	Volume	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Legislation and Law in agriculture	1	120	4
2	Mechatronic system engineering APC	1	180	6
3	Logistics in mechanization of agriculture	2	180	6
4	Innovative engineering technologies	1	150	5
5	Ecological security processes	2	90	3
6	Economy of technological systems	2	120	4
7	Precision Agriculture	2	120	4
Total for standard part			**960**	**32**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business Foreign Language	1	150	5
3	Agrarian policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Technologies and techniques in crop"				
1	Design and calculation systems in crop tehnolohchnyh	1	180	6
2	Designing processes in plant	2	180	6
3	Process control in crop	2	150	5
Total (Disciplines offered by students)			**510**	**17**
2.2.2. Master's program "Technologies and techniques in animal husbandry"				
1	Design and calculation of technological systems in animal husbandry	1	180	6
2	Designing processes in livestock	2	180	6
3	Process control in livestock	2	150	5
Total (Disciplines offered by students)			**510**	**17**
2.2.3. Master's program "Technologies and equipment service companies"				
1	Design and calculation of service of process systems	1	180	6
2	Design processes service machines	2	180	6
3	Corporate Governance Technical Service	2	150	5
Total (Disciplines offered by students)			**510**	**17**
2.2.4. Master's program "Pratseohoronni principles in agroengineering"				
1	Organization of safety in the agro bioengineering	1	180	6
2	Theory of safety of agro engineering	2	180	6
3	Safety productions of agro bioengineering	3	150	5
Total (Disciplines offered by students)			**510**	**17**
2.2.5. Master's program "Optimization of parameters and modes of technology AIC"				
1	Designing processes and modes of technology APC	1	180	6
2	Modeling business processes and machines	2	180	6
3	Testing of agriculture technology	3	150	5
Total (Disciplines offered by students)			**510**	**17**
2.2.6. Master's program "Biotechnological processes in the AIC"				
1	Design of biotechnological processes	1	180	6
2	Bioenergy systems in agricultural production	2	180	6
3	Mechanization of the processes of composting	2	150	5
Total (Disciplines offered by students)			**510**	**17**
Total for elective part			**1800**	**60**
3. OTHER TYPES OF TRAINING				
1	Internship	3	630	21

№	The name of the course	Semester	Volume	
			hours	credits ECTS
2	Preparation and defense of master's work	3	270	9
Total			**900**	**30**
Total for educational program			**2700**	**90**

Annotations educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES

Legislation and Law in agriculture. Provide students with a complete summary of the main problems of law and law in agriculture at the objective, ideologically unbiased contemporary vision of modern science, synthesis of acquired knowledge in professional and humanities disciplines in a holistic outlook to provide a framework and methodological training masters humanitarian components.

Mechatronic system engineering agribusiness. Teaching theoretical foundations and principles of mechatronic systems agricultural machines. Theoretical bases of mechatronic systems, methods for their control and automatic means of implementing mechatronic systems with-machines.

Logistics in the mechanization of agriculture. Raising general theoretical and practical level mechanical engineer of agricultural production by mastering basic theoretical principles and practical skills of logistics concepts to ensure the movement of agricultural products to the consumer.

Innovative engineering technologies Examines theoretical and organizational bases of innovative engineering technologies. Consider their regulatory and technical support and legal laws in innovative technologies.

Environmental safety processes. Raising general theoretical and practical engineering of future mechanical engineers by mastering the basics of theoretical knowledge and practical skills on environmental safety processes ahrobioinzheneriyi and environment in terms of resource saving natural resources.

Economy of technological systems. Is to explore relations in the middle of technological systems, skills planning, pricing and investment, definition of efficiency of operation.

Precision agriculture. Discipline forms the students knowledge of the scientific basis for the development of best practices and organization of mechanized crop production based on modern information technology. Discipline reveals the ways and methods of solving pressing problems highly efficient use of agricultural machinery in the field using variable technology standards (doses) introducing technological materials based on global positioning satellite systems. There is a formation specialists with the ability to choose the best technologies of growing crops with minimal materials and energy and the preservation of soil fertility and the environment.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of scientific research on the basics of intellectual property. Raising general theoretical and practical engineering of future masters and researchers by mastering the basics of theoretical knowledge and practical skills on the general concept of experimental methods.

Business Foreign Language. Acquiring knowledge, skills and abilities necessary to ensure that masters communicative ability in the fields of professional communication.

Agrarian policy. This discipline acquaints future professionals with the basics of policy in the agricultural sector, makes it possible to master methodical and methodological basis for development and implementation of measures to support and ensure the development of agriculture in the system of linkages in the national economy, and assess from the perspective of the theory of practical action government agencies on regulation of the agricultural production of the country.

We study both domestic and foreign experience. As a result of learning students get the opportunity on a professional basis to form their own opinion about the processes and phenomena occurring in the agricultural sector of the state.

2.2. Disciplines offered by students

2.2.1. Master's program "Technologies and techniques in crop"

Design and calculation of technological systems in crop production. Provide scientific principles and train future engineers (professional master) to design and calculate crop technology system.

Designing processes in livestock. Teaching students basic provisions in the village of Gd engineering, including design process of modern engineering systems in agriculture. Providing justification for calculating and designing technological requirements for components and assemblies cars.

Process control in crop. Receive future specialists in agricultural mechanization necessary knowledge systems of advanced mechanized production lines and processes of crop production.

2.2.2. Master's program "Technologies and techniques in animal husbandry"

Design and calculation of technological systems in animal husbandry. Formation of professional knowledge of students on general and specific issues managing large technical systems on the example of operation of machines and equipment for livestock logistics system.

Design processes. Teaching students the basic provisions of c-d design, including the reconstruction of livestock enterprises and the design process of modern engineering systems in animal husbandry. Providing justification for calculating and designing technological requirements for areas of machinery and equipment.

Process control in livestock. Receive future specialists in agricultural mechanization necessary knowledge systems of advanced mechanized production lines and processes of livestock production.

2.2.3. Master's program "Technologies and equipment service companies"

Design and calculation of service of process systems. In the course curriculum provides theoretical and practical study issues relating to effective business management and technical service units of machines, their interaction with technology manufacturers and farmers, the volume of provision of services subject to seasonal agricultural production, the extensive range of machines, their technical condition for the effective use of technology, labor, social and economic resources.

Design processes service machines. Provide scientific principles and train future engineers (professional master) design processes of technical service of agricultural machinery, tractors, cars, patterns and features its organization, requirements for technical service and its products, quality technical service and how their software.

Corporate Governance of technical service. Formation of professional knowledge of students on general and specific issues managing large technical systems

on the example of operation of machines and equipment service companies, logistics system.

2.2.4. Master's program "Pratseohoronni system in agrobioengineering"

Organization of labor agrobioengeering. Discipline, which describes the organizational principles for the development and implementation of safety management in the agricultural sector and to agricultural enterprises, arrangements for monitoring of safety in agricultural production.

Theory safety. Theoretical and applied training course that explores and studies: ways and causes dangerous situations on their origin and formation to the appearance and performance of systems "man-machine-production environment"; emergency, traumatic and catastrophic situations in the workplace, prevention, modeling and risk management of their origin; evaluation criteria of industrial hazards, harmful and dangerous production factors.

Safety of production processes. It provides theoretical and practical training of students to create regulatory conditions and prevent injuries on mechanized agriculture, examines the components of security processes and equipment APC andtechnical security to mobile agricultural machinery and stationary equipment.

2.2.5. Master's program "Optimization of parameters and modes of technology AIC"

Design modes, processes and technology APC. Formation of professional knowledge of students on general and specific issues managing large technical systems on the example design modes, process and technology of agriculture.

Modeling business processes and machines. Formation of professional knowledge of models and modeling business processes and machines, types of models and key stages of modeling, theoretical and practical methodological foundations, methods and objects object modeling of technological processes of production, economic and mathematical models and simulation processes and mechanisms for agriculture machines using a personal computer.

Testing of agricultural machinery. Raising general theoretical and practical research of future professionals through the assimilation of the foundations of theoretical knowledge and practical skills on general concepts and methods for testing of agricultural machinery.

2.2.6. *Master's program "Biotechnological processes in the AIC"*

Design of biotechnological processes. Formation of professional knowledge of students on general and specific issues of managing large technical systems an example design of biotechnological processes.

Bioenergy systems in agricultural production. Formation of professional knowledge about bioenergy systems theoretical and practical methodological foundations, methods and objects bioenergy in agricultural production using a personal computer.

Mechanization of the processes of composting. Getting the future experts in the field of agricultural mechanization necessary knowledge systems of modern mechanized production lines and production processes of biocompost.

EDUCATION AND RESEARCH INSTITUTE OF ENERGETICS, AUTOMATICS AND ENERGY SAVING

Director – Doctor of Technical Sciences, Professor, Honored Worker of Science and Technique Volodymyr Kozyrskyi

Tel.: (044) 527-85-80
E-mail: epafort1@ukr.net
Location: Building № 8, Room 11

ERI organizes and coordinates educational process of master training in educational program within specialties:

Specialty 141 "Power Engineering, Electrical Engineering and Electrical Mechanics"

Educational program "Electrotechnical Systems of Power Comsumption"
Graduating department:
Power Supply named after Prof. V.M. Synkov
Tel.: (044) 527-85-80
E-mail: nditt@mail.ru
Head of department – Doctor of Technical Sciences, Professor Mykola Grebchenko

Educational program "Electrification and Automation of Agriculture"
Graduating departments:
Department of Automatics and Robototechnical Systems named after acad. I. I. Martynenko
Tel.: (044) 527-82-22, (044) 527-83-82
E-mail: avto.ea@gmail.com
Head of department – Doctor of Technical Sciences, Professor, Honored Worker of Education Vitaliy Lysenko
Department of Electric Drive and Electric Technologies named after Prof. S. P. Bondarenko
Tel.: (044) 527-87-73
E-mail: a.chmil.@mail.ru
Head of department – Doctor of Technical Sciences, Professor Anatoliy Chmil

Educational program "Energetics of Agricultural Production"
Graduating departments:
Department of Automatics and Robototechnical Systems named after acad. I. I. Martynenko
Tel.: (044) 527-82-22, (044) 527-83-82
E-mail: avto.ea@gmail.com
Head of department – Doctor of Technical Sciences, Professor, Honored Worker of Education Vitaliy Lysenko
Department of Electrical Machinery and Electrical Equipment Operation
Tel.: (044) 527-87-55; (044) 527-87-89
E-mail: elmash_nubip@ukr.net

Head of department – Doctor of Technical Sciences, Associate Professor Andrei Zhyltsov

Department of Power Supply named after Prof. V.M. Synkov

Tel.: (044) 527-85-80

E-mail: nditt@mail.ru

Head of department – Doctor of Technical Sciences, Professor Mykola Grebchenko

Department of Electric Drive and Electric Technologies named after Prof. S. P. Bondarenko

Tel.: (044) 527-87-73

E-mail: a.chmil.@mail.ru

Head of department – Doctor of Technical Sciences, Professor Anatoliy Chmil

Department of Heat and Power Engineering

Tel.: (044) 527-87-48

E-mail:gorobetsv@ukr.net

Head of department – Doctor of Technical Sciences, Associate Professor Valeryi Gorobets

Specialty 151 "Automation and Computer integrated Technologies"

Educational program "Automated Control of Technological Processes"

Graduating department:

Department of Automatics and Robototechnical Systems named after acad. I. I. Martynenko

Tel.: (044) 527-82-22, (044) 527-83-82

E-mail: avto.ea@gmail.com

Head of department – Doctor of Technical Sciences, Professor, Honored Worker of Education Vitaliy Lysenko

Training of masters of sciences in educational program "ELECTROTECHNICAL SYSTEMS OF POWER CONSUMPTION" in specialty 141 "POWER ENGINEERING, ELECTRICAL ENGINEERING AND ELECTRICAL MECHANICS" field of knowledge "Electrical Engineering"

Form of Training	Licensed number of persons:
– Full-time	20
– Part-time	20
Duration of training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
– Part-time	1,5 years
Credits:	
– educational and professional program	90
– educational and research program	120
Language	Ukrainian
Qualification of graduates:	Engineer-electrician

The concept of training

Educational activities while ensuring fulfillment of state orders and other agreements with legal entities and individuals for training specialists with higher education is carried out in accordance with state standards of higher education. Courses in the Institute of Energetics, automation and energy saving based on a systems approach between the objective and principles of learning to educate students broadmindedness non-standard thinking, overhead and ability to solve social and economic problems in their relationship and to meet the needs of modern production and con 'situation on the labor market.

An integral part of the educational activity is an educational process that involves the education of future professionals in the best traditions of national and world culture taking into account the human priorities, Recovery and development of the national economy, culture, science, spiritual unity of the nation and the people of Ukraine.

Educational and professional program of master's training

Master's program "Electrical Networks and Systems"

Research, development and introduction of energy saving technologies, electrical networks and systems. Power plants, modeling and design of power supply in Agriculture. Modeling and protection devices and automation of power supply systems.

Areas of employment for graduates

Production, distribution and use of electricity, electrical work, repair and maintenance of power lines, transformer substations and electricity equipment.

Educational and research program of master's training

Master's program "Electric Stations, Systems and Networks"

Design, installation, commissioning and maintenance of power lines, transformer substations and switchgear. Accounting and rational use of electricity. Power plants,

modeling and design of power supply in Agriculture. Modeling and protection devices and automation of power supply systems.

Areas of employment for graduates

Engineer-researcher of scientific institutions, research associate of scientific institutions. Operating engineer of electric networks and systems.

Practical training

Practical training is carried out in educational and research facilities of the university: Separated subdivision of NULES of Ukraine “Velykosnytinske Education and Research Farm named after O. Muzychenka”, Separated subdivision of NULES of Ukraine “Agronomic Research Station”, Separated subdivision of NULES of Ukraine “Education and Research Farm “Vorzel”, Separated subdivision of NULES of Ukraine “Boyarka Forestry Research Station”, LTD “Kyiv Poultry”, PC “Kombinat “Teplychniy”, State Enterprise “Puscha Vodytsia”, PC “Kyivsilelectro”, regional electricity networks.

Proposed Topics for Master Thesis

1. Optimization of parameters and operating modes of power grid.
2. The impact of autonomous power sources on the quality and reliability of power supply in agricultural sector.
3. Automated system of accounting and regulation of the energy resources and energy.
4. Power supply of livestock farms from renewable energy sources.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master’s training in educational program "Electrotechnical systems of power consumption" (educational and professional program)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	120	4
6	Energy Monitoring and Analytical Research Methods for Electric Modes	2	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
7	Energy Management and Energy Audit	2	90	3
8	Methods of Synthesis and Analysis of ACS	2	90	3
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
11	Relay Protection and Automation of Distribution Power Networks	3	120	4
Total for standard part			**1170**	**39**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	90	3
4	Philosophy of Science and Innovation Development	1	90	3
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1 Master program "Electrical networks and systems"				
1	Energy Supply of Industry	2	90	3
2	Energy Saving Methods in Power Systems	2	90	3
3	Automated Control Systems of Power Consumption	3	90	3
4	Renewable Sources of Electric Energy Generation	3	90	3
5	Design of Power Consumption Systems	3	120	4
6	Telemechanics and ACS of Power Supply Systems	3	90	3
7	Technology of Maintenance and Repair of Electrical Plants of Power Systems	3	90	3
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**1050**	**35**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	300	10
2	Writing and Defense of Master's Thesis	3	180	6
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Electrotechnical systems of power consumption" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	120	4
6	Energy Monitoring and Analytical Research Methods for Electric Modes	2	120	4
7	Energy Management and Energy Audit	2	90	3
8	Methods of Synthesis and Analysis of ACS	2	90	3
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
11	Relay Protection and Automation of Distribution Power	3	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
	Networks			
12	Mathematical and Simulation Modeling of Processes in Electrical Networks and Systems	4	240	8
13	Estimation of Electrical Systems Modes	4	180	6
Total for standard part			**1590**	**53**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	90	3
4	Philosophy of Science and Innovation Development	1	90	3
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1 Master program "Electrical networks and systems"				
1	Energy Supply of Industry	2	90	3
2	Energy Saving Methods in Power Systems	2	90	3
3	Automated Control Systems of Power Consumption	3	90	3
4	Renewable Sources of Electric Energy Generation	3	90	3
5	Design of Power Consumption Systems	3	120	4
6	Telemechanics and ACS of Power Supply Systems	3	90	3
7	Technology of Maintenance and Repair of Electrical Plants of Power Systems	3	90	3
8	Electromechanical Transients in Electrical Systems	4	240	8
9	Algorithmization of Electric Power Problems	4	240	8
Total (Disciplines offered by students)			**1140**	**38**
Total for elective part			**1530**	**51**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	300	10
2	Writing and Defense of Master's Thesis	3, 4	180	6
Total			**480**	**16**
Total for educational program			**3600**	**120**

Annotations educational plan disciplines

1. STANDART ACADEMIC DISCIPLINES
Educational and professional programs

Safety in Electrical Installations. Safety measures in normal and emergency modes of electrical installations. Safety during installation, repair and maintenance of electrical installations. Lightning agricultural facilities.

Electromagnetic Compatibility. Power quality. Quality of energy and its determination. Ensuring of sustainable functioning of normal power supply for any violations of modes. Transients in stations synchronous generator and electrical systems networks. Electromechanical transients in electrical systems for small and large disturbances.

Energy Security. Main provisions national energy security. Diversification of energy supply. Planning, organization and management of the power plants and industrial energy managemen. The main directions of formation of tariffs in the market. System Planning and preventive maintenance of equipment. Control power consumption. The energy balance. Rationing of fuel and energy resources. Energy consumption monitoring system. Energy-saving measures.

Energy Monitoring and Analytical Research Methods for Electric Modes. Main provisions of the energy control. Electrical and key measures for energy conservation at the plant. Calculations of power companies. Energy resources, ways to effectively address the problems of energy saving. Energy-saving technologies, perspectives and effective ways of using alternative and renewable energy sources. Plans and construction equipment.

Energy Management and Energy Audit. The scope of services for the preparation and provision of installation and operation of power equipment in agriculture. Energoservice in agriculture, nomenclature and implementation services. Marketing in energy services.

Information Technology. Information and controlling complexes and systems. Concept of automated electricity metering systems in terms of energy market in Ukraine. The structures and features of the construction and information control systems and systems for electricity metering.

Mathematical Modeling of Electrotechnical Systems and Their Components. Parameters of energy networks. Modelling of systems and networks parameters. Requirements for the performance of systems and networks, ways to support them. Criteria for optimizing network settings. How to optimize the network settings. Analysis of modes of power systems. Criteria for optimization of networks. Optimizing components of the cost of electricity.

Methods of Synthesis and Analysis of ACS. Intelligent systems. Tool environment intelligent systems. Technological means intelligent systems. Subsystem Automation programming tools and intelligent. The intelligent programming. Automation Programming Environment – TURBO. Systems EXSYS, GURU – ART. Hardware implementation of intelligent systems, element base. Examples of artificial intelligence.

Basics of Energy Saving. The main factors of energy savings in the industry. General questions determining the economic efficiency of capital investments in the energy sector. Fundamentals of electricity rationing. The main directions of energy saving various industries. Power saving modes in power systems industry.

Optimization Theory. Fundamentals of linear and nonlinear mathematical programming. Mathematical models. Transport problem. Fundamentals of dynamic programming. Optimization models.

Relay Protection and Automation of Distribution Power Networks. Theory and practice of automatic control modes of power supply systems using modern methods and means of automation and relay protection.

Educational and research program of master's training

Mathematical and Simulation Modeling of Processes in Electrical Networks and Systems. Parameters of energy networks. Simulation parameters and network analysis. Requirements for performance of networks and ways to support them. Criteria for optimizing network settings. How to optimize the network settings. Analysis modes of energy networks. Criteria for optimization of networks. Optimizing components of the cost of electricity.

Estimation of Electrical Systems Modes. Modes of electrical systems and their modeling. Analysis modes. Information control systems of power supply. Telecontrol systems, telemeasuring and signaling. Dispatch of command and control equipment. Means of automation control systems power supply. Techno-economic performance and automation telemechanization.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Philosophy of Science and Innovation. Ideologically and methodological training of students, formation of their philosophical culture as the theoretical basis of university level training. Coverage of philosophical knowledge of the main parts of philosophy that would develop the type of consciousness of students. The philosophical image of science. Philosophical problems of modern science.

2.2. Disciplines offered by students

Educational and professional program of master's training

2.2.1 Master program "Electrical networks and systems"

Automated Control Systems of Power Consumption. nformation in control systems power supply. Means remotely control power supply systems. Telecontrol systems, telemeasuring and signaling. Channels of communication systems in automation and remote control. Dispatch of command and control equipment. Means of automation

control systems power supply. Technical and economic performance of automation and telemechanization.

Renewable Sources of Electric Energy Generation. Renewable sources of energy. The types of small plants. Features of small power plants and their role in the power supply of AIC. Comparative characteristics of small sources of electricity. The construction of small power plants.

Energy Supply of Industry. External electrical networks, substations and rural power reserve. The equipment for power stations and substations. Relay protection and automation. Reliability of power supply. The quality of electricity.

Energy Saving Methods in Power Systems. Energy resources, ways to effective solution the problems of energy saving in agriculture. Energy-saving technologies, perspectives and effective ways of using alternative and renewable energy systems, heating and water supply. Plans and construction equipment.

Design of Power Consumption Systems. Setting the specification, calculations, graphics creation and delivery of documents using CAD company Autodesh Ins. And subsystems CAD Mathcad, Autocad, and the best computer-integrated technologies. The mathematical description of the functioning ACS. Typical dynamic link ACS. Identification of facilities management models.

Telemechanics and ACS of Power Supply Systems. Theory of telemechanical signal transmission by channels of communication. Methods of improving noise immunity of signals. Principles of telecontrol, signaling, remote metering. Features of modern telemechanics, automatic supervisory control of power networks and power supply of industrial enterprises.

Technology of Maintenance and Repair of Electrical Plants of Power Systems. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Educational and research program of master's training

2.2.1 Master's program "Electrical networks and systems"

Electromechanical Transients in Electrical Systems. Ensuring sustainable of normal functioning of supply for any violation. Transients in synchronous generators of electric stations and networks systems. Electromechanical transients in electrical systems for small and large disturbances.

Algorithmization of Electric Power Problems. Fundamentals of linear and nonlinear mathematical programming. Mathematical models. Transport problem. Fundamentals of dynamic programming. Optimization models.

Training of masters of sciences in educational program "ENERGETICS OF AGRICULTURAL PRODUCTION " in specialty 141 "ELECTROENERGETICS, ELECTROTECHNICS AND ELECTROMECHANICS" field of knowledge "Electrical Engineering"

Form of training:	Licensed number of persons
– Full-time	100
– Part-time	70
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
– Part-time	1,5 years
Credits:	
– educational and professional program	90 ECTS
– educational and research program	120 ECTS
Language of Teaching	Ukrainian
Qualification	Engineer-electrician

The concept of training

Educational activities while ensuring fulfillment of state orders and other agreements with legal entities and individuals for training specialists with higher education is carried out in accordance with state standards of higher education. Courses in the Institute of Energy, automation and energy efficiency based on a systems approach and interdisciplinary learning principles to educate students broadmindedness non-standard thinking, the ability to address overhead and socio-economic problems in their relationship and to meet the needs of modern production and con ' situation on the labor market.

An integral part of the educational activity is an educational process that involves the education of future professionals in the best traditions of national and world culture taking into account the human priorities, Recovery and development of the national economy, culture, science, spiritual unity of the nation and the people of Ukraine.

Educational and professional program of master's training

Master's program "Automation of technological processes and computer integrated systems to control information and technological resources in agriculture"

Research, development and implementation of computer-integrated control systems of information and technological resources in agriculture technology and mathematical modeling. Information technology resources of automated control systems and technological resources for agriculture.

Areas of employment for graduates

Engineer in automated control systems, engineer in automation and computer-integrated technologies, engineer in maintenance of automation systems for enterprise.

Master's program "Electrical networks and systems"

Design, installation, commissioning and operation of transmission lines, transformer substations and switchgears. Accounting and management of electrical energy. Power plants, modeling and design of power APC. Modeling and automation of security devices and power supply systems.

Areas of employment for graduates

Production, distribution and use of electricity, electrical work, repair and maintenance of power lines, transformer substations and electricity equipment.

Master's program "Power Supply for agriculture"

Installation and operation of power plants in agriculture, development and implementation of alternative and renewable energy sources. Thermal power plants and systems, alternative and renewable energy for agriculture. Energy sources and heating technologies.

Areas of employment for graduates

Electricity production from renewable sources. Production and distribution of heat. Collection, purification and distribution of water.

Master's program "Energy engineering in agriculture"

The integrated performance of the design, installation, adjustment, commissioning and maintenance of electrical current equipment. Reliability of technical systems and the quality of energy and energy resources. Technology energy engineering and operational reliability of electrical equipment.

Areas of employment for graduates

Repair and maintenance of transmission lines, transformer substations and electricity equipment. Installation works. Design work.

Educational and research program of master's training

Master's program "Electrical networks and systems"

Design, installation, commissioning and operation of transmission lines, transformer substations and switchgears. Accounting and management of electrical energy. Power plants, modeling and design of power APC. Modeling and automation of security devices and power supply systems.

Areas of employment for graduates

Engineer-researcher research institutions, research associate research institutions. Operating engineer of electric networks and systems.

Master's program "Energy efficient control of biotechnological objects"

Research and development of advanced energy efficiency control systems of biotechnical objects. Technology and mathematical modeling of processes in the areas of agriculture, automated process control system in agriculture.

Areas of employment for graduates

Engineer of automated control systems, research engineer of research institutions, research associate of research institutions

Master's program "Power Supply for agriculture"

Installation and operation of power plants in agriculture, development and implementation of alternative and renewable energy sources. Thermal power plants and systems, alternative and renewable energy for agriculture. Energy sources and heating technologies.

Areas of employment for graduates

Engineer-researcher of research institutions, scientific assistant of research institutions.

Master's program "Scientific and technical principles of electromechanical energy conversion"

Studying ways to convert electrical energy, development of new drives with improved performance properties. Basic principles of research and the modern theory of electromechanical energy conversion. Technology research of electromagnetic and electromechanical devices, power converters.

Areas of employment for graduates

Engineer-researcher of research institutions, scientist of research and design estimates institutions.

Practical training

Practical training is carried out in educational and research facilities of the university: Separated subdivision of NULES of Ukraine "Velykosnytinske Education and Research Farm named after O. Muzychenka", Separated subdivision of NULES of Ukraine "Agronomic Research Station", Separated subdivision of NULES of Ukraine "Education and Research Farm "Vorzel", Separated subdivision of NULES of Ukraine "Boyarka Forestry Research Station", LTD "Kyiv Poultry", PC "Kombinat "Teplychniy", State Enterprise "Puscha Vodytsia", PC "Kyivsilelectro", regional electricity networks.

Proposed Topics for Master's Thesis

1. Optimization of parameters and operating modes of power grid;
2. The influence of autonomous power supply into the quality and reliability of power supply in agricultural enterprise.
3. Automated system of accounting and regulation of the energy resources and energy.
4. Power supply of livestock farms from renewable energy sources.
5. Energy Service Project agricultural enterprise.
6. The system energy management of agricultural enterprises.
7. Computer-integrated SAR packaging dairy products.
8. Intelligent automated control system.
9. Automated Control System based on neuronetworks.
10. Integrated using of traditional and alternative energy sources.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master's training in educational program "Energetics of Agricultural Production" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	90	3
6	Energy Supply for Agro industrial Complex	2	120	4
7	Methods of Synthesis and Analysis of ACS	2	90	3
8	Design of Electrification, Automation and Energy Supply Systems	2	90	3
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
11	Heat and Water Supply in AIC	2	90	3
Total for standard part			**1110**	**37**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	90	3
4	Philosophy of Science and Innovation Development	1	90	3
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1 Master's program "Automation of Technological Processes and Computer-integrated Control Systems of Information and Technological Resources in Agriculture"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Automated Systems in Energetics	2	120	4
3	Engineering Activities of Automation Systems Maintenance	3	120	4
4	Methods of Modern Process and Production Control in Energetics	3	120	4
5	Software and Hardware of Control Systems in Energetics	3	120	4
6	Typical Technological Processes in Energetics and Methods of Modeling	3	90	3
Total (Disciplines offered by students)			**720**	**24**
2.2.2 Master's program "Electrical networks and systems"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Electrical Networks and Systems	2	120	4
3	Automated Control Systems of Power Consumption	3	90	3
4	Automatics and Telemechanics of Power Supply Systems	3	90	3
5	Electric Installations and Power Supply Systems	3	90	3
6	Small Electric Stations	3	90	3
7	Design of Power Consumption Systems	3	120	4
Total (Disciplines offered by students)			**720**	**24**
2.2.3. Master's program "Energy Supply in Agriculture"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Heat and Energy Installations and Systems	3	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3	Gas Supply	3	90	3
4	Energy Saving in Heating Technologies	3	120	4
5	Energy Saving and Using of Renewable Energy Resources	3	90	3
6	Account and Regulation of Energy Distribution and Costs	3	90	3
7	Heating Technologies of Production and Processing of Agricultural Product	3	90	3
Total (Disciplines offered by students)			**720**	**24**
2.2.4. Master's program "Energy Engineering in Agriculture"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Energy Management and Audit in Agriculture	3	120	4
3	Reliability of Technical Systems, Technogenic Risks	2	90	3
4	Accounting and Regulation of Energy Resources Costs	3	90	3
5	Software of Physical Researches	3	90	3
6	Technical Service of Power Equipment	3	120	4
7	Energy Engineering Technologies	3	90	3
Total (Disciplines offered by students)			**720**	**24**
Total for elective part			**1110**	**37**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	300	10
2	Writing and Defense of Master's Thesis	3	180	6
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master's training in educational program "Energetics of Agricultural Production" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	90	3
6	Energy Supply for Agro industrial Complex	2	120	4
7	Methods of Synthesis and Analysis of ACS	2	90	3
8	Design of Electrification, Automation and Energy Supply Systems	2	90	3
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
11	Heat and Water Supply in AIC	2	90	3
Total for standard part			**1110**	**37**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	90	3
4	Philosophy of Science and Innovation Development	1	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1 Master's program "Energy Efficient Control Systems of Biotechnical Objects"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Automated Systems in Energetics	2	120	4
3	Engineering Activities of Automation Systems Maintenance	3	120	4
4	Methods of Modern Process and Production Control in Energetics	3	120	4
5	Software and Hardware of Control Systems in Energetics	3	120	4
6	Typical Technological Processes in Energetics and Methods of Modeling	3	90	3
7	Biotechnological Automation Objects, Methods of Its Research and Modeling	4	240	8
8	Information Technology of Control Systems	4	180	6
9	Computer Integrated Control Systems in Agriculture	4	240	8
10	Modern Methods of Design Automation Systems of Biotechnological Objects	4	240	8
Total (Disciplines offered by students)			**1620**	**54**
2.2.2 Master's program "Electrical networks and systems"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Electrical Networks and Systems	2	120	4
3	Automated Control Systems of Power Consumption	3	90	3
4	Automatics and Telemechanics of Power Supply Systems	3	90	3
5	Electric Installations and Power Supply Systems	3	90	3
6	Small Electric Stations	3	90	3
7	Design of Power Consumption Systems	3	120	4
8	Intelligent Systems of Electroenergy	4	180	6
9	Mathematical Tasks in Optimization Problems of Power Supply	4	240	8
10	Transients in Power Supply Systems	4	240	8
11	Modes Control of Electrical Networks	4	240	8
Total (Disciplines offered by students)			**1620**	**54**
2.2.3. Master's program "Energy Supply in Agriculture"				
1	Technology of Maintenance and Repair of Electrical Equipment and Means of Automation	2	120	4
2	Heat and Energy Installations and Systems	3	120	4
3	Gas Supply	3	90	3
4	Energy Saving in Heating Technologies	3	120	4
5	Energy Saving and Using of Renewable Energy Resources	3	90	3
6	Account and Regulation of Energy Distribution and Costs	3	90	3
7	Heating Technologies of Production and Processing of Agricultural Product	3	90	3
8	Integrated Use of Alternative and Renewable Energy Sources	4	180	6
9	Modelling of Thermal and Hydrodynamic Processes	4	240	8
10	Nanotechnology of Heat and Mass Transfer Intensification	4	240	8
11	Optimization of Energy Supply Systems and Energy Efficiency	4	240	8
Total (Disciplines offered by students)			**1620**	**54**
2.2.4. Master's program "Scientific and Technical Principles of Electromechanical Energy Conversion"				
1	Technology of Maintenance and Repair of Electrical	2	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
	Equipment and Means of Automation			
2	Energy Management and Audit in Agriculture	3	120	4
3	Reliability of Technical Systems, Technogenic Risks	2	90	3
4	Accounting and Regulation of Energy Resources Costs	3	90	3
5	Software of Physical Researches	3	90	3
6	Technical Service of Power Equipment	3	120	4
7	Energy Engineering Technologies	3	90	3
8	Mathematical Modeling of Electromagnetic Devices and Electromechanical Power Converters	4	240	8
9	Reliability of Electromagnetic Devices and Electromechanical Power Converters	4	180	6
10	Special Sections of Theoretical Electrical Engineering	4	240	8
11	Modern Theory of Electromechanical Energy Conversion	4	240	8
Total (Disciplines offered by students)			**1620**	**54**
Total for elective part			**2010**	**57**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	420	14
2	Writing and Defense of Master's Thesis	3, 4	180	6
Total			**600**	**20**
Total for educational program			**3600**	**120**

Annotations educational plan disciplines

1. STANDART ACADEMIC DISCIPLINES

Safety in Electrical Installations. Safety measures in normal and emergency modes of electrical installations. Safety during installation, repair and maintenance of electrical installations. Lightning agricultural facilities.

Electromagnetic Compatibility. Power quality. Quality of energy and its determination. Ensuring of sustainable functioning of normal power supply for any violations of modes. Transients in stations synchronous generator and electrical systems networks. Electromechanical transients in electrical systems for small and large disturbances.

Energy Supply of AIC. External electric networks, substations and rural power reserve. The equipment for power stations and substations. Relay protection and automation. Reliability of power supply. The quality of electricity.

Energy Security. Main provisions national energy security. Diversification of energy supply. Planning, organization and management of the power plants and industrial energy management. The main directions of formation of tariffs in the market. System Planning and preventive maintenance of equipment. Control power consumption. The energy balance. Rationing of fuel and energy resources. Energy consumption monitoring system. Energy-saving measures.

Information Technology. Information and controlling complexes and systems. Concept of automated electricity metering systems in terms of energy market in Ukraine. The structures and features of the construction and information control systems and systems for electricity metering.

Mathematical Modeling of Electrotechnical Systems and Their Components. Parameters of energy networks. Modeling of systems and networks parameters. Requirements for the performance of systems and networks, ways to support them. Criteria for optimizing network settings. How to optimize the network settings. Analysis of modes of power systems. Criteria for optimization of networks. Optimizing components

of the cost of electricity.

Methods of Synthesis and Analysis of ACS. Intelligent systems. Tool environment intelligent systems. Technological means intelligent systems. Subsystem Automation programming tools and intelligent. The intelligent programming. Automation Programming Environment – TURBO. Systems EXSYS, GURU – ART. Hardware implementation of intelligent systems, element base. Examples of artificial intelligence.

Basics of Energy Saving. The main factors of energy savings in the industry. General questions determining the economic efficiency of capital investments in the energy sector. Fundamentals of electricity rationing. The main directions of energy saving various industries. Power saving modes in power systems industry.

Design of Electrification, Automation and Energy Supply Systems. Methodology Electrification system design, automation and energy agriculture. Computer technologies in design. Requirements for projects.

Optimization Theory. Fundamentals of linear and nonlinear mathematical programming. Mathematical models. Transport problem. Fundamentals of dynamic programming. Optimization models.

Heat and Water Supply in Agriculture. Heat power installations and heating system. Energy audit and management. Energy Efficiency of heat APC. Sources of water. Facilities for the abstraction of surface and groundwater. Distributors and internal water network.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of

mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Philosophy of Science and Innovation. Ideologically and methodological training of students, formation of their philosophical culture as the theoretical basis of university level training. Coverage of philosophical knowledge of the main parts of philosophy that would develop the type of consciousness of students. The philosophical image of science. Philosophical problems of modern science.

2.2. Disciplines offered by students
Educational and professional program of master's training
2.2.1 Master's program "Automation of Technological Processes and Computer-integrated Control Systems of Information and Technological Resources in Agriculture"

Engineering Activities of Automation Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of instrumentation and automation means an agricultural enterprise. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image - producer.

Methods of Modern Process and Production Control in Energetics. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes in energetics. Principles of the control system design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Software and Hardware of Control Systems in Energetics. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation. Architecture microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Controllability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Automated Systems in Energetics. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Typical Technological Processes in Energetics and Methods of Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes AIC branches. Physics and chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological

processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

2.2.2 Master's program "Electrical networks and systems"

Automated Control Systems of Power Consumption. Modern principles, methods and tools for monitoring and control power consumption as an important direction of energy efficiency and energy saving in agriculture.

Automation and Telemechanics of Energy Supply Systems. Information of control systems of power supply. Means of remotely control of power supply systems. Telecontrol systems, telemeasuring and signaling. Channels of communication systems in automation and remote control. Dispatch of command and control equipment. Means of automation in the control systems of power supply. Techno-economic performance and automation.

Electrical Networks and Systems. The electric part of substations and reserve power. Protection of rural electrical surge. Increasing economic efficiency and reliability of power supply systems of agriculture. Automation and control systems.

Electrical Plants and Systems of Energy Supply. The electric part of substations and reserve power. Protecting rural of electrical surge. Improving the efficiency and reliability of power supply systems of agriculture. Automation and control systems

Design of Power Supply Systems in Agriculture. Setting the specification, calculations, graphics creation and delivery of documents using CAD company Autodesh Ins. And subsystems CAD MathCad, AUTOCAD, and the best computer-integrated technologies. The mathematical description of the functioning ACS. Typical dynamic link ACS. Identification of facilities management models.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

2.2.3. Master's program "Energy Supply in Agriculture"

Gas Supply. The main characteristics of gas as an energy source. Devices of the account of gas flow. Switchgears. Consumers.

Energy Saving in Heating Technologies. Sources of heat and electricity. Losses in the transmission of energy. Losses in transformers. Losses in transmission lines. Technical measures to reduce energy losses. Arrangements reduce energy losses.

Energy Saving and Using of Renewable Energy Resources. Types of alternative and renewable energy. Features of small power plants and their role in the power supply APC. Comparative characteristics of alternative and renewable energy sources. The construction of small power plants.

Accounting and Control of Energy Resources Distribution and Costs. Devices of accounting of active and reactive power. Regulators of reactive power. Multiple-metering. Devices for control of heat consumption. Counters of water and gas.

Thermal Power Plants and Systems. Sources of heat. Burning fossil fuels. Boiler systems. Heat. Heating system. Thermal network. Gas agriculture. Alternative heating sources of agricultural production.

Heating Technologies of Production and Processing of Agricultural Product. Sources of heat. Burning fossil fuels. Boiler systems. Heat. Heating systems. Thermal networks. Gas supply of agriculture. Alternative heating sources of agricultural production.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

2.2.4. Master's program "Energy Engineering in Agriculture"

Energy Management and Audit in Agriculture. The scope of services for the preparation and provision of installation and operation of power equipment in agriculture. Energy service in agriculture, nomenclature and implementation services. Marketing in energy services.

Reliability of Technical Systems, Technogenic Risks. The main categories and standards in reliability. Categories reliability of electricity supply. The quality of electricity. Man-made risks in the energy sector. Environmental aspects electrification of agriculture.

Accounting and Regulation of Energy Resources Costs. Devices of accounting of active and reactive power. Regulators of reactive power. Multiple-metering. Devices for control of heat consumption. Counters of water and gas.

Software of Physical Researches. Computer technology visualization modes and parameters of technological facilities and manufacturing processes. Packages for processing applications and information transfer. Technical means of information technology. The global network Internet.

Technical Service of Energy Equipment. Maintenance of transformer substations and power lines. Servicing of electrical consumers. Diagnosis of electrical equipment.

Technologies of Energy Engineering. Engineering as an independent field of activity. The range of engineering services. Engineering-consulting firms. Engineer-resident in engineering activities. Service as a means of creating a system of relations between the company and client. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image-producer.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Educational and research program of master's training

2.2.1. Master's program "Energy Efficient Control Systems of Biotechnical Objects"

Engineering Activities of Automation Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of control devices and automation farmer. Net after-sale servicing power equipment. Group activities with after-sale service. Care System as part of the company image-producer.

Methods of Modern Process and Production Control in Energetics. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes

in energetics. Principles of the control system design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Software and Hardware of Control Systems in Energetics. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation. Architecture microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Controllability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Automated Systems in Energetics. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Typical Technological Processes in Energetics and Methods of Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes AIC branches. Physics and chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

Biotechnological Automation Objects, Methods of Its Research and Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes AIC branches. Physico-chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

Information Technology of Control Systems. Computer technology for visualization modes and parameters of technological facilities and production processes. Applications for processing and transmitting of information. Technical means of information technology.

Computer Integrated Control Systems in Agriculture. The architecture of the microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor-based hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Manageability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Modern Methods of Design Automation Systems of Biotechnological Objects. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes in energetics. Principles of the control system dwsign. Information channels and their

characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

2.2.2. Master's program "Electrical Networks and Systems"

Automated Control Systems of Power Consumption. Modern principles, methods and tools for monitoring and control power consumption as an important direction of energy efficiency and energy saving in agriculture.

Automation and Telemechanics of Energy Supply Systems. Information management systems power supply. Means remotely control power supply systems. Telecontrol systems, telemeasuring and signaling. Channels of communication systems in automation and remote control. Dispatch of command and control equipment. Means of automation in the control systems of power supply. Techno-economic performance and automation telemechanization.

Electrical Networks and Systems. The electric part of substations and reserve power. Protection of rural electrical surge. Increasing economic efficiency and reliability of power supply systems of agriculture. Automation and control systems.

Electrical Plants and Systems of Energy Supply. The electric part of substations and reserve power. Protecting rural of electrical surge. Improving the efficiency and reliability of power supply systems of agriculture. Automation and control systems

Design of Power Supply Systems in Agriculture. Setting the specification, calculations, graphics creation and delivery of documents using CAD company Autodesh Ins. And subsystems CAD MathCad, AUTOCAD, and the best computer-integrated technologies. The mathematical description of the functioning ACS. Typical dynamic link ACS. Identification of facilities management models.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Intelligent systems of electroenergy. Information and controlling complexes and systems. Concepts of automated electricity metering systems in terms of energy market in Ukraine. The structures and features of the existing building and information management systems and systems for metering.

Mathematical Tasks in Optimization Problems of Power Supply. Basic definitions and concepts. Model, modeling, object, subject of study. Requirements for the model with position specific goals and objectives of the study. Conditional distribution models for analytical, experimental and experimental, analytical. Main phases: setting objectives and research, construction of a mathematical model, algorithm development and application limitations of variable factors, verification of compliance and analysis of the obtained results.

Transients in Power Supply Systems. Ensuring sustainable of normal functioning of supply for any violation. Transients in synchronous generators of electric stations and networks systems. Electromechanical transients in electrical systems for small and large disturbances.

Modes Control of Electrical Networks. The concept of modes. Modern principles, methods and tools for monitoring and control power consumption. Of Electrical substations and reserve power. Protection of rural electrical surge. Improving economic efficiency and reliability of power supply systems of agriculture. Automation and control systems Telemechanization supply.

2.2.3. Master's program "Energy Supply in Agriculture"

Gas Supply. The main characteristics of gas as an energy source. Devices of the account of gas flow. Switchgears. Consumers.

Energy Saving in Heating Technologies. Sources of heat and electricity. Losses in the transmission of energy. Losses in transformers. Losses in transmission lines. Technical measures to reduce energy losses. Arrangements reduce energy losses.

Energy Saving and Using of Renewable Energy Resources. Types of alternative and renewable energy. Features of small power plants and their role in the power supply APC. Comparative characteristics of alternative and renewable energy sources. The construction of small power plants.

Accounting and Control of Energy Resources Distribution and Costs. Devices of accounting of active and reactive power. Regulators of reactive power. Multiple-metering. Devices for control of heat consumption. Counters of water and gas.

Thermal Power Plants and Systems. Sources of heat. Burning fossil fuels. Boiler systems. Heat. Heating system. Thermal network. Gas agriculture. Alternative heating sources of agricultural production.

Heating Technologies of Production and Processing of Agricultural Product. Sources of heat. Burning fossil fuels. Boiler systems. Heat. Heating systems. Thermal networks. Gas supply of agriculture. Alternative heating sources of agricultural production.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Integrated Use of Alternative and Renewable Energy Sources. Using of alternative and renewable sources of energy is an effective method of energy saving of energy resources. The principles of these energy sources, which include heat pumps, solar panels, biogas and wind installations, geothermal installations are presented. The methods of calculation and means of the integrated use of various sources of energy for different objects.

Modeling of Heat and Hydrodynamic Processes. Bases mathematical modeling of mass and energy transfer in thermal power plants and systems. The modeling is based on the development of physical models transfer, use transport equations and boundary conditions describing these processes. For the solution of transport equations using numerical methods, including software packages that allow you to get all the local thermal characteristics of the process. Simulation is an effective means for optimizing power equipment.

Nanotechnology of Intensification of Heat and Mass Transfer Processes. Nanotechnologies are an effective tool for intensification of heat and mass transfer in power plants and systems. The analysis of the main approaches that are allowed to apply nanotechnology in agriculture. The basic principles of discrete input pulse energy installations in the agricultural and food production. Using this approach makes it possible to significantly improve the efficiency of thermal power equipment.

Optimization of Energy Supply and Energy Saving Systems. The basic methods for optimization the power supply systems. Optimization methods based on the determination of thermal and hydraulic losses in power systems, such as heating and water systems, boilers, power plants and other facilities. Special attention is given to the use in energy systems and renewable energy use economic analysis.

2.2.4. Master's program "Scientific and Technical Principles of Electromechanical Energy Conversion"

Energy Management and Audit in Agriculture. The scope of services for the preparation and provision of installation and operation of power equipment in agriculture. Energy service in agriculture, nomenclature and implementation services. Marketing in energy services.

Reliability of Technical Systems, Technogenic Risks. The main categories and standards in reliability. Categories reliability of electricity supply. The quality of electricity. Man-made risks in the energy sector. Environmental aspects electrification of agriculture.

Accounting and Regulation of Energy Resources Costs. Devices of accounting of active and reactive power. Regulators of reactive power. Multiple-metering. Devices for control of heat consumption. Counters of water and gas.

Software of Physical Researches. Computer technology visualization modes and parameters of technological facilities and manufacturing processes. Packages for processing applications and information transfer. Technical means of information technology. The global network Internet.

Technical Service of Energy Equipment. Maintenance of transformer substations and power lines. Servicing of electrical consumers. Diagnosis of electrical equipment.

Technologies of Energy Engineering. Engineering as an independent field of activity. The range of engineering services. Engineering-consulting firms. Engineer-resident in engineering activities. Service as a means of creating a system of relations between the company and client. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image-producer.

Technology of Maintenance and Repair of Electrical Equipment and Means of Automation. Operation of transformer substations, switchgears, transmission lines, electric, lighting and Irradiation plants and electrically heated electric equipment, means of communication. The procedure for putting into operation mounted systems. Formation and Organization of instrumentation and automation tools. Operation of boilers, heat generators and heaters. The operation of power equipment.

Mathematical Modeling of Electromagnetic Devices and Electromechanical Energy Converters. Analytical methods of mathematical modeling of objects agricultural production. Methods of mathematical models. Construction of mathematical models electrotechnological equipment analytical method and the results of the experiment. Analysis models and their optimization.

Reliability of Electromagnetic Devices and Electromechanical Energy Converters. Basic concepts, performance and position of integrated program reliability, calculation methods and improve the reliability of the results of tests and operation of electromagnetic and electromechanical devices, power converters, reliability analysis, a system providing spare parts, determining the reliability of technical systems for an operator.

Special Sections of Theoretical Electrical Engineering. The method of conformal mapping and its application to calculate the static electromagnetic fields in electromechanical devices and converters. Basic theory and technology of modeling. The method of integral equations calculate static fields.

Modern Theory of Electromechanical Energy Conversion. Foundations of the theory of electromagnetism and general principles of electromechanical energy conversion, their practical use for design and operation of electrical machines.

Training of masters of sciences in educational program "ELECTRIFICATION AND AUTOMATION OF AGRICULTURE" in specialty 141 "POWER ENGINEERING, ELECTRICAL ENGINEERING AND ELECTRICAL MECHANICS" field of knowledge "Electrical Engineering"

Form of training,	Licensed number of persons
– Full-time	50
– Part-time	50
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
– Part-time	1,5 years
Credits:	
– educational and professional program	90 ECTS
– educational and research program	120 ECTS
Language of Teaching	Ukrainian
Qualification	Engineer-electrician

The concept of training

Educational activities while ensuring fulfillment of state orders and other agreements with legal entities and individuals for training specialists with higher education is carried out in accordance with state standards of higher education. Courses in the Institute of Energy, automation and energy efficiency based on a systems approach and interdisciplinary learning principles to educate students broadmindedness non-standard thinking, the ability to address overhead and socio-economic problems in their relationship and to meet the needs of modern production and con ' situation on the labor market.

An integral part of the educational activity is an educational process that involves the education of future professionals in the best traditions of national and world culture taking into account the human priorities, Recovery and development of the national economy, culture, science, spiritual unity of the nation and the people of Ukraine.

Educational and professional program of master's training

Master's program "Automation of Technological Processes and Computer-integrated Control Systems of Information and Technological Resources in Agriculture"

Research, development and implementation of computer-integrated control systems of information and technological resources in agriculture. Technology and mathematical modeling of information and technological resources in agriculture. Automated control systems' information and technological resources in agriculture.

Areas of employment for graduates

Engineer of automated control systems. Engineer of automation and computer-integrated technologies, engineer of automation systems at the enterprise.

Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production"

Research, development and introduction of modern technologies of electrified farms in the production and processing of agricultural products. Simulation of controlled electric actuators in livestock. Design of electrical power and lighting systems and networks in livestock. Modeling of controlled electric actuators in the seed and seedling. Design of electrical power and lighting systems and networks in the seed and seedling.

Areas of employment for graduates

Electrotechnology of agroindustrial complex. Repair, maintenance and operation of electrical equipment in animal husbandry and plant growing. Installation works. Design works.

Educational and research program of master's training

Master's program "Energy Efficient Control Systems of Biotechnical Objects"

Research and development of advanced energy efficiency control systems of biotechnical objects. Technology and mathematical modeling of processes in the areas of agriculture, automated process control systems in agriculture.

Areas of employment for graduates

Engineer of automated control systems, research engineer of research institutions, scientific assistant of research institutions.

Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production"

Research the efficiency improving methods of agricultural production using the new electrified technologies. Modeling of controlled electric drives and actuators in agriculture. Methods of processing quality products in agriculture.

Areas of employment for graduates

Engineer of electrified technology, research engineer of research institutions, scientific employee of research institutions.

Practical training

Practical training is carried out in educational and research facilities of the university: Separated subdivision of NULES of Ukraine "Velykosnytinske Education and Research Farm named after O. Muzychenka", Separated subdivision of NULES of Ukraine "Agronomic Research Station", Separated subdivision of NULES of Ukraine "Education and Research Farm "Vorzel", Separated subdivision of NULES of Ukraine "Boyarka Forestry Research Station", LTD "Kyiv Poultry", PC "Kombinat "Teplychniy", State Enterprise "Puscha Vodytsia", PC "Kyivsilelectro", regional electricity networks.

Proposed Topics for Master's Thesis

1. Electrification processes in the processing of animal products.
2. Electrification processes in the food industry.
3. Electrification processes in the processing plant production.
4. Automated system of accounting and regulation of the energy resources and energy.
5. Computer-integrated control system of packaging dairy products.
6. Intelligent automated control system of technological processes.
7. Automated control system with neuro information networks.

8. Assessment of quality agricultural products by visual discharge electrography.
9. Magnetic treatment of water and nutrient fuel solvent in greenhouses.
10. Research of ultraviolet radiation on animals.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master's training in educational program "Electrification and Automation of Agriculture" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	120	4
6	Electric Drive of Agricultural Machines, Aggregates and Production Lines	2	120	4
7	Design of Electrification, Automation and Energy Supply Systems in Agriculture	2	120	4
8	Methods of Synthesis and Analysis of ACS	2	150	5
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
Total for standard part			**1140**	**38**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	120	4
4	Philosophy of Science and Innovation Development	1	90	3
Total (Disciplines offered by University)			**420**	**14**
2.2. Disciplines offered by students				
2.2.1 Master's program "Automation of Technological Processes and Computer-integrated Control Systems of Information and Technological Resources in Agriculture"				
1	Automation of Technological Processes and Productions	2	90	3
2	Electrical Technologies in Agriculture	2	90	3
3	Engineering Activities of Automation Systems Maintenance	3	120	4
4	Methods of Modern Process and Production Control in Electrification	3	120	4
5	Software and Hardware of Control Systems in Electrification	2	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
6	Typical Technological Processes in Electrification and Methods of Modeling	3	120	4
Total (Disciplines offered by students)			**660**	**22**
2.2.2 Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production"				
1	Automation of Technological Processes and Productions	2	90	3
2	Electrical Technologies in Agriculture	2	90	3
3	Electrical Technologies in Agricultural Products Proceeding	3	120	4
4	Electron-ion Technologies	3	90	3
5	Engineering Activities of Electro Energy Systems Maintenance	3	90	3
6	Modeling of Adjustable Electric Drives, Aggregates and Production Lines	2	90	3
7	Optical Electrotechnologies	3	90	9
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	300	10
2	Writing and Defense of Master's Thesis	3	180	6
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Electrification and Automation of Agriculture" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Electromagnetic Compatibility	1	120	4
2	Energy Security	1	90	3
3	Mathematical Modeling of Electrotechnical Systems and Their Components	1	120	4
4	Basics of Energy Saving	1	120	4
5	Safety in Electrical Installations	2	120	4
6	Electric Drive of Agricultural Machines, Aggregates and Production Lines	2	120	4
7	Design of Electrification, Automation and Energy Supply Systems in Agriculture	2	120	4
8	Methods of Synthesis and Analysis of ACS	2	150	5
9	Optimization Theory	2	90	3
10	Information Technology	2	90	3
Total for standard part			**1140**	**38**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	1	90	3
2	Business Foreign Language	1	120	4
3	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	1	120	4
4	Philosophy of Science and Innovation Development	1	90	3
Total (Disciplines offered by University)			**420**	**14**
2.2. Disciplines offered by students				
2.2.1 Master's program " Energy Efficient Control Systems of Biotechnical Objects "				

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1	Automation of Technological Processes and Productions	2	90	3
2	Electrical Technologies in Agriculture	2	90	3
3	Engineering Activities of Automation Systems Maintenance	3	120	4
4	Methods of Modern Process and Production Control in Electrification	3	120	4
5	Software and Hardware of Control Systems in Electrification	2	120	4
6	Typical Technological Processes in Electrification and Methods of Modeling	3	120	4
7	Biotechnological Automation Objects, Methods of Its Research and Modeling	4	240	8
8	Information Technology of Control Systems	4	180	6
9	Computer Integrated Control Systems in Agriculture	4	240	8
10	Modern Methods of Design Automation Systems of Biotechnological Objects	4	240	8
Total (Disciplines offered by students)			**1560**	**52**
2.2.2 Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production "				
1	Automation of Technological Processes and Productions	2	90	3
2	Electrical Technologies in Agriculture	2	90	3
3	Electrical Technologies in Agricultural Products Proceeding	3	120	4
4	Electron-ion Technologies	3	90	3
5	Engineering Activities of Electro Energy Systems Maintenance	3	90	3
6	Modeling of Adjustable Electric Drives, Aggregates and Production Lines	2	90	3
7	Optical Electrotechnologies	3	90	9
8	Electromagnetic Processing of Agricultural Products	4	240	8
9	Electro-technological Methods of Research	4	180	6
10	Scientific and Technical Bases of Electrotechnological Installations Design	4	240	8
11	Proceeding of Agricultural Product in the Field of Corona Discharge	4	240	8
Total (Disciplines offered by students)			**1560**	**52**
Total for elective part			**1980**	**66**
3. OTHER TYPES OF TRAINING				
1	Practical Training	2	300	10
2	Writing and Defense of Master's Thesis	3, 4	180	6
Total			**480**	**16**
Total for educational program			**3600**	**120**

Annotations educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES

Safety in Electrical Installations. Safety measures in normal and emergency modes of electrical installations. Safety during installation, repair and maintenance of electrical installations. Lightning agricultural facilities.

Electromagnetic Compatibility. Power quality. Quality of energy and its determination. Ensuring of sustainable functioning of normal power supply for any violations of modes. Transients in stations synchronous generator and electrical systems networks. Electromechanical transients in electrical systems for small and large disturbances.

Electric Drive of Agricultural Machines, Aggregates and Production Lines. Driving characteristics of machines and mechanisms. The principles and control electronic

circuits. Complete equipment for automatic control. Experimental methods of driving characteristics.

Energy Security. Main provisions national energy security. Diversification of energy supply. Planning, organization and management of the power plants and industrial energy management. The main directions of formation of tariffs in the market. System Planning and preventive maintenance of equipment. Control power consumption. The energy balance. Rationing of fuel and energy resources. Energy consumption monitoring system. Energy-saving measures.

Information Technology. Information and controlling complexes and systems. Concept of automated electricity metering systems in terms of energy market in Ukraine. The structures and features of the construction and information control systems and systems for electricity metering.

Mathematical Modeling of Electrotechnical Systems and Their Components. Parameters of energy networks. Modeling of systems and networks parameters. Requirements for the performance of systems and networks, ways to support them. Criteria for optimizing network settings. How to optimize the network settings. Analysis of modes of power systems. Criteria for optimization of networks. Optimizing components of the cost of electricity.

Methods of Synthesis and Analysis of ACS. Intelligent systems. Tool environment intelligent systems. Technological means intelligent systems. Subsystem Automation programming tools and intelligent. The intelligent programming. Automation Programming Environment – TURBO. Systems EXSYS, GURU – ART. Hardware implementation of intelligent systems, element base. Examples of artificial intelligence.

Basics of Energy Saving. The main factors of energy savings in the industry. General questions determining the economic efficiency of capital investments in the energy sector. Fundamentals of electricity rationing. The main directions of energy saving various industries. Power saving modes in power systems industry.

Design of Electrification, Automation and Energy Supply Systems. Methodology Electrification system design, automation and energy agriculture. Computer technologies in design. Requirements for projects.

Optimization Theory. Fundamentals of linear and nonlinear mathematical programming. Mathematical models. Transport problem. Fundamentals of dynamic programming. Optimization models.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their

lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Philosophy of Science and Innovation. Ideologically and methodological training of students, formation of their philosophical culture as the theoretical basis of university level training. Coverage of philosophical knowledge of the main parts of philosophy that would develop the type of consciousness of students. The philosophical image of science. Philosophical problems of modern science.

2.2. Disciplines offered by students
Educational and professional program of master's training
2.2.1 Master's program "Automation of Technological Processes and Computer-integrated Control Systems of Information and Technological Resources in Agriculture"

Automation of Technological Processes and Productions. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Electrical Technologies in Agriculture. Electrophysics, electrochemical, electrobiological factors in nature. The use of strong electric fields. The cultivation of electric shock. Of electric machinery and technology. Magnetic materials processing.

Engineering Activities of Automation Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of instrumentation and automation means an agricultural enterprise. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image - producer.

Methods of Modern Process and Production Control in Electrification. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes in energetics. Principles of the control system design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Software and Hardware of Control Systems in Electrification. Principles of the control systems design. Information channels and their characteristics. Identification of

control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation. Architecture microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Controllability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Typical Technological Processes in Energetics and Methods of Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes AIC branches. Physics and chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

2.2.2. Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production"

Automation of Technological Processes and Productions. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Electrical Technologies in Agriculture. Electrophysics, electrochemical, electrobiological factors in nature. The use of strong electric fields. The cultivation of electric shock. Of electric machinery and technology. Magnetic materials processing.

Modeling of Adjustable Electric Drives, Aggregates and Production Lines. Parameters drive. Simulation parameters drives. Requirements regarding efficiency and ways to support them. Criteria for parameter optimization drives. Optimization methods. Analysis modes of occasions. Management modes of the drive. Technical support.

Electrotechnologies of Agricultural Products Processing. Research and electro-technological processes of electro-technological equipment in terms of agriculture. Electrical installation source and electrophysical processing of agricultural materials. Basic theory using strong electric fields seed treatment considering its features. Ozonation. Processing electric shock. Electro equipment and technology, ultrasound and magnetic materials processing.

Engineering Activities of Electro Energy Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of instrumentation and automation means an agricultural enterprise. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image - producer.

Electron-ion Technologies. Characteristics electric fields and ways of charging particles. Electric separators. Artificial air ionization and electric filters. Power plants of electron-ion technology.

Optical Electrotechnologies. Technological features radiant energy installations. Designing of optical energy. Designing of microwave radiation. Ultrasonic treatment.

Educational and research program of master's training

2.2.1. *Master's program "Energy Efficient Control Systems of Biotechnical Objects"*

Automation of Technological Processes and Productions. Principles of the control systems design. Information channels and their characteristics. Identification of

control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Electrical Technologies in Agriculture. Electrophysics, electrochemical, electrobiological factors in nature. The use of strong electric fields. The cultivation of electric shock. Of electric machinery and technology. Magnetic materials processing.

Engineering Activities of Automation Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of instrumentation and automation means an agricultural enterprise. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image - producer.

Methods of Modern Process and Production Control in Electrification. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes in energetics. Principles of the control system design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Software and Hardware of Control Systems in Electrification. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation. Architecture microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Controllability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Typical Technological Processes in Electrification and Methods of Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes of AIC branches. Physics and chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

Biotechnological Automation Objects, Methods of Its Research and Modeling. Automation object; classification, structure and main characteristics of typical technological facilities, technologies and processes AIC branches. Physico-chemical basis of hydrodynamic, thermal, mass transfer, mechanical, chemical and technological processes. Calculation of the heat and mass transfer processes in agriculture technology processing and storage of agricultural products. Fundamentals of modeling and designing technological devices.

Information Technology of Control Systems. Computer technology for visualization modes and parameters of technological facilities and production processes. Applications for processing and transmitting of information. Technical means of information technology.

Computer Integrated Control Systems in Agriculture. The architecture of the microprocessor and microcomputer, microprocessor programming in assembly language, microprocessor-based hardware systems. Development and debugging microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The analysis in the time and frequency domains. Manageability. The synthesis of digital systems. Restrictions in microprocessor control systems.

Modern Methods of Design Automation Systems of Biotechnological Objects. Characteristics of technological processes as control facilities and their disturbances. Principles of automated process control systems. Automation of technological processes in energetics. Principles of the control system design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

2.2.2. Master's program "Electrified Technologies and Electrical Equipment in Agricultural Production"

Automation of Technological Processes and Productions. Principles of the control systems design. Information channels and their characteristics. Identification of control objects. Control algorithms. Technical means of automation. Reliability and economic efficiency of automation.

Electrical Technologies in Agriculture. Electrophysics, electrochemical, electrobiological factors in nature. The use of strong electric fields. The cultivation of electric shock. Of electric machinery and technology. Magnetic materials processing.

Modeling of Adjustable Electric Drives, Aggregates and Production Lines. Parameters drive. Simulation parameters drives. Requirements regarding efficiency and ways to support them. Criteria for parameter optimization drives. Optimization methods. Analysis modes of occasions. Management modes of the drive. Technical support.

Electrotechnologies of Agricultural Products Processing. Research and electro-technological processes of electro-technological equipment in terms of agriculture. Electrical installation source and electrophysical processing of agricultural materials. Basic theory using strong electric fields seed treatment considering its features. Ozonation. Processing electric shock. Electro equipment and technology, ultrasound and magnetic materials processing.

Engineering Activities of Electro Energy Systems Maintenance. Procedure mounted delivery systems in operation. Formation and Organization of instrumentation and automation means an agricultural enterprise. Net after-sales service of power equipment. Group activities with after sales service. Care System as part of the company image - producer.

Electron-ion Technologies. Characteristics electric fields and ways of charging particles. Electric separators. Artificial air ionization and electric filters. Power plants of electron-ion technology.

Optical Electrotechnologies. Technological features radiant energy installations. Designing of optical energy. Designing of microwave radiation. Ultrasonic treatment.

Electromagnetic Processing of Agricultural Products. Research and electromagnetic processes of electro-technological equipment in terms of agriculture. Power sources and installation of electromagnetic processing of agricultural materials, basic theory of strong magnetic fields using seed treatment considering its features. zonation. Electric pulse technology.

Electro-technological Methods of Research. Research and electromagnetic processes of electro-technological equipment in terms of agriculture. Power sources and installation of electromagnetic processing of agricultural materials, basic theory of strong magnetic fields using seed treatment considering its features. zonation. Electric pulse technology.

Scientific and Technical Bases of Electrotechnological Installations Design. Methods for calculating the electrothermal and electrotechnological power plants; methods of calculating the electric drives for production lines; designing the power grids; characteristics of electrical power supply systems. The procedure for putting into operation

mounted systems. Formation and organization of instrumentation and automation means farmer. Net after-sale service of energy equipment. Group activities with after sales service. Care system as a part of the image of the company - producer.

Proceeding of Agricultural Product in the Field of Corona Discharge. Research and electro-technological processes of electro-technological equipment in terms of agriculture. Electrical installation source and electrophysical processing of agricultural materials. Basic theory using strong electric fields seed treatment considering its features. Ozonation. Processing electric shock. Electro equipment and technology, ultrasound and magnetic materials processing.

Training of masters of sciences in educational program "AUTOMATED CONTROL OF TECHNOLOGICAL PROCESSES" in specialty 151 "AUTOMATION AND COMPUTER INTEGRATED TECHNOLOGIES" branch of knowledge "Automation and Instrumentation"

Form of Training:	Licensed number of persons:
– Full-time	35
Duration of training:	
– Full-time educational and professional program	1,5 years
– Full-time educational and research program	2 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language	Ukrainian, English
Qualification of graduates:	research engineer of computer systems and automatics

The concept of training

Educational activities while ensuring fulfillment of state orders and other agreements with legal entities and individuals for training specialists with higher education is carried out in accordance with state standards of higher education. Courses in the Institute of Energy, automation and energy saving based on a systems approach between the objective and principles of learning to educate students broadmindedness non-standard thinking, overhead and ability to solve social and economic problems in their relationship and to meet the needs of modern production and con ‘situation on the labor market.

An integral part of the educational activity is an educational process that involves the education of future professionals in the best traditions of national and world culture taking into account the human priorities, Recovery and development of the national economy, culture, science, spiritual unity of the nation and the people of Ukraine.

Educational and professional program of master's training *Master's program "Computer-Integrated Process Control Systems of Livestock Production"*

Research, development and implementation of computer integrated control systems in animal husbandry. Technology and mathematical modeling of processes in livestock, automated process control systems in animal husbandry.

Areas of employment for graduates

Engineer CEA poultry, engineer of APCS livestock complex, engineer maintenance of automation systems in the enterprise.

Master's program "Computer-Integrated Process Control Systems of Crop Production"

Research, development and implementation of computer-integrated control systems in crop production. Technology and mathematical modeling of processes in the plant, automated process control systems in the plant.

Areas of employment for graduates

Engineer Department APCS greenhouses, Engineer CEA greenhouses, engineer maintenance of automation systems in the enterprise.

Educational and research program of master's training

Master's program "Energy Efficient Control Systems of Biotechnological Objects"

Research and development of advanced energy efficiency control systems of biotechnical objects. Technology and mathematical modeling of processes in the areas of agriculture, automated process control system in agriculture.

Areas of employment for graduates

Engineer of automated control systems, research engineer of research institutions, research associate of research institutions.

Practical training

Practical training is carried out in educational and research facilities of the university: Separated subdivision of NULES of Ukraine "Velykosnytinske Education and Research Farm named after O. Muzychenka", Separated subdivision of NULES of Ukraine "Agronomic Research Station", Separated subdivision of NULES of Ukraine "Education and Research Farm "Vorzel", Separated subdivision of NULES of Ukraine "Boyarka Forestry Research Station", LTD "Kyiv Poultry", PC "Kombinat "Teplychniy", State Enterprise "Puscha Vodytsia", PC "Terezyne", Company Group "Veres".

Proposed Topics for Master's Thesis

1. The use of fuzzy logic in automated control system of temperature regime in the poultry house with keeping laying hens in the winter.
2. Neural networks in SAR bound control temperature and humidity in the greenhouse.
3. Intelligent control system of microclimate in a growth chamber mushrooms and its temperature compost research.
4. Intelligent control system of microclimate in the vegetable store and its humidity research.
5. The use of fuzzy logic in automated control system of greenhouse temperature.
6. Neural networks in SAR bound control temperature in the poultry house considering CO_2 concentrations.
7. Intelligent thermal control system in the poultry house using the optimal control algorithm.
8. The use of fuzzy logic in automated control system of temperature regime in winter greenhouses considering external influences.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Automated control of technological processes" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Philosophy of Science and Innovation	1	90	3
2	Civil Protection	1	90	3
3	Automated Accounting of Energy and Material Resources	2	120	4
4	Computer-Simulation Control Systems in Agriculture	2	150	5
5	Technological Processes Automation	2	150	5
6	Installation, Commissioning and Maintenance of Automation Systems	2	120	4
7	Special Sections of High Mathematics	1	90	3
8	CAD of Automation Systems in Agriculture	2	150	5
9	ACS of Technological Processes in Agriculture	2	120	4
10	Safety in the Area	1	90	3
Total for standard part			**1170**	**39**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	3	90	3
2	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	2	90	3
3	Business Foreign Language	1	150	5
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
1	Calculations of Economic Efficiency of Scientific Developments	3	90	3
2	Neuro Information Control Networks of Biotechnical Objects	3	120	4
3	Object-Oriented Programming	2	90	3
4	Robotic Complex and Systems in Agriculture	3	90	3
5	Modeling and Identification of Biotechnical Objects in Agriculture	2	150	5
Total			**540**	**18**
2.2.1. Master's program "Computer-Integrated Process Control Systems of Livestock Production"				
1	Methods and Tools of Modern Automated Control of Technological Processes and Productions in Livestock	3	90	3
2	Features Computer Integrated Control Systems in Livestock	3	90	3
Total for *master's program*			**180**	**6**
2.2.2. Master's program "Computer-Integrated Process Control Systems of Crop Production"				
1	Methods and Tools of Modern Automated Control of Technological Processes and Productions in Crop	3	90	3
2	Features Computer Integrated Control Systems in Crop Production	3	90	3
Total for *master's program*			**180**	**6**
Total (Disciplines offered by students)			**720**	**24**
Total for elective part			**1050**	**35**
3. OTHER TYPES OF TRAINING				
1	Practical Training	1	300	10
2	Writing and Defense of Master's Thesis	3	180	6
Total			**480**	**16**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Automated control of technological processes" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Philosophy of Science and Innovation	1	90	3
2	Civil Protection	1	90	3
3	Automated Accounting of Energy and Material Resources	2	120	4
4	Computer-Simulation Control Systems in Agriculture	2	150	5
5	Technological Processes Automation	2	150	5
6	Installation, Commissioning and Maintenance of Automation Systems	2	120	4
7	Special Sections of High Mathematics	1	90	3
8	CAD of Automation Systems in Agriculture	2	150	5
9	ACS of Technological Processes in Agriculture	2	120	4
10	Safety in the Area	1	90	3
Total for standard part			**1170**	**39**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Agricultural Policy	3	90	3
2	Methodology and Organization of Scientific Research on the Basics of Intellectual Property	4	360	12
3	Business Foreign Language	1	150	5
Total (Disciplines offered by University)			**600**	**20**
2.2. Disciplines offered by students				
1	Calculations of Economic Efficiency of Scientific Developments	3	90	3
2	Neuro Information Control Networks of Biotechnical Objects	3	12 0	4
3	Object-Oriented Programming	2	90	3
4	Robotic Complex and Systems in Agriculture	3	120	4
5	Modeling and Identification of Biotechnical Objects in Agriculture	2	150	5
6	Computer Integrated Control Systems	2	90	3
7	Intelligent Control Systems of Biotechnical Objects	4	360	12
Total			**1020**	**34**
2.2.1. Master's program "Energy Efficient Control Systems of Biotechnological Objects"				
1	Special Systems	3	180	6
2	Methods for Preparing Research	4	150	5
Total for *master's program*			**330**	**11**
Total (Disciplines offered by students)			**1350**	**45**
Total for elective part			**1950**	**65**
3. OTHER TYPES OF TRAINING				
1	Practical Training	1	300	10
2	Writing and Defense of Master's Thesis	4	180	180
Total			**380**	**16**
Total for educational program			**3600**	**120**

Annotations educational plan disciplines

1. STANDART ACADEMIC DISCIPLINES

Philosophy of Science and Innovation. Science and reality. The role of theory in the knowledge of phenomena in nature and society. The relationship of theoretical

knowledge and practical tools. Logical-mathematical and theoretical methods of processing the results of the experiment.

Civil Protection. Theoretical foundations of civil defense and safety in production and life. Prevention of disasters and elimination of their organization adverse effects.

Automated Accounting of Energy and Material Resources. Concepts and Models: object, class, data, methods, access inheritance properties. Systems of objects and classes. Designing object-oriented programs: methods and algorithms. Object-oriented languages, classification, architecture, expressive means, technology application. Interface: The rules of the organization, methods and programming tools. Object-oriented systems, methods, language and methods of programming

Computer-Simulation Control Systems in Agriculture. Methods of computer-modeling systems (KMS). Structure and function of KMS. Gathering and processing information. Mathematical modeling. Algorithms of optimal and adaptive management. Implementation of control functions. Examples KMS in agriculture.

Technological Processes Automation. Specifications processes as facilities management and their disturbances. Principles of automated process control systems. Automation of technological processes in crop and livestock production.

Installation, Commissioning and Maintenance of Automation Systems. Installation of automation circuits. Operation of equipment automation systems. Adjustment of sensors, controllers, actuators of automated control systems. The procedure for putting into operation mounted systems. Formation and organization of instrumentation and automation means in agricultural enterprise.

Special Sections of High Mathematics. The main sections of high mathematics needed for research and development of electro-technologies in agriculture. Mathematical methods for solving linear and nonlinear differential equations. Matrix, operating methods. Functional series. Basic theory of random functions.

CAD of Automation Systems in Agriculture. Basic concepts and definitions. Basic concepts of electrification systems and process automation. General information about agricultural processes. Technical support of CAD. Software of CAD. Databases of CAD. Statistics and dynamics of technological objects control. Regulatory impact and organs. Automation of technological devices.

ACS of Technological Processes in Agriculture. Principles of control systems. Information channels and their characteristics. Identification of control objects. Algorithms management. Technical means of automation. Reliability and economic efficiency of automation.

Safety in the Area. Safety measures in normal and emergency modes of electrical installations. Safety during installation, repair and maintenance of electrical installations. Lightning agricultural facilities.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of

formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students
Educational and professional program of master's training

Calculations of Economic Efficiency of Scientific Developments. The feasibility of implementing scientific developments needs the calculation of economic efficiency, which should be evaluated from different perspectives. Varieties of techniques in different conditions are offered. The basis of the discipline is estimation calculations, the risks and feasibility of projects. Statistical methods, methods of expert analysis and calculations of investments are proposed.

Neuro Information Control Networks of Biotechnical Objects. Basic concepts of neural networks. The properties of the neural network training. Hopfield neural networks. Basic concepts of fuzzy logic. uzzy sets and fuzzy neural networks.

Object-Oriented Programming. Concepts and models: object, class, data, methods, access inheritance properties. Systems of objects and classes. Designing object-oriented programs: methods and algorithms. bject-oriented languages, classification, architecture, expressive means, technology application. Interface: The rules of the organization, methods and programming tools. bject-oriented systems, methods, language and methods of programming.

Robotic Complex and Systems in Agriculture. esign and simulation tasks, principles, algorithms control robotic systems and systems. Appointment, classification and objectives robotic control systems. Structure, key components of robotic control systems. Intelligent robotic systems. The system of perception and recognition information. Keeping system knowledge, problem solving and forming control actions. The system of environmental impact. Principles of robots and robotic systems. System design,

manufacturing, robotics control systems. Possibilities of robots and robotic systems in the agro-industrial complex.

Modeling and Identification of Biotechnical Objects in Agriculture. A classification of technological processes and objects of automatic control. Methods of constructing static and dynamic objects agricultural processes and industries.

2.2.1. Master's program "Computer-Integrated Process Control Systems of Livestock Production"

Methods and Tools of Modern Automated Control of Technological Processes and Productions in Livestock. Modeling of technical and biological objects under uncertainty: random processes. Statistical modeling of random processes. Decision making under uncertainty using gaming techniques. Creating and working databases. Software. Technical support of intelligent systems.

Features Computer Integrated Control System in Livestock. Principles of the control systems. Information channels and their characteristics. Identification of control objects. Algorithms management. Technical means of automation. Reliability and economic efficiency of automation.

2.2.2. Master's program "Computer-integrated Process Control Systems of Crop Production"

Methods and Tools of Modern Automated Control of Technological Processes and Productions in Crop. Modeling of technical and biological objects under uncertainty: Kharkiv random processes. Statistical modeling of random processes. Decision making under uncertainty using gaming techniques. Creating and working databases. Software. Technical support of intelligent systems.

Features Computer Integrated Control System in the Crop Production. Principles of control systems. Information channels and their characteristics. Identification of control objects. Algorithms management. Technical means of automation. Reliability and economic efficiency of automation.

2.2. Disciplines offered by students Educational and research program of master's training

Calculations of Economic Efficiency of Scientific Developments. The feasibility of implementing scientific developments needs the calculation of economic efficiency, which should be evaluated from different perspectives. Varieties of techniques in different conditions are offered. The basis of the discipline is estimation calculations, the risks and feasibility of projects. Statistical methods, methods of expert analysis and calculations of investments are proposed.

Neuro Information Control Networks of Biotechnical Objects. Basic concepts of neural networks. The properties of the neural network training. Hopfield neural networks. Basic concepts of fuzzy logic. Fuzzy sets and fuzzy neural networks.

Object-Oriented Programming. Concepts and models: object, class, data, methods, access inheritance properties. Systems of objects and classes. Designing object-oriented programs: methods and algorithms. Object-oriented languages, classification, architecture, expressive means, technology application. Interface: The rules of the organization, methods and programming tools. Object-oriented systems, methods, language and methods of programming.

Robotic Complex and Systems in Agriculture. Design and simulation tasks, principles, algorithms control robotic systems and systems. Appointment, classification and objectives robotic control systems. Structure, key components of robotic control

systems. Intelligent robotic systems. The system of perception and recognition information. Keeping system knowledge, problem solving and forming control actions. The system of environmental impact. Principles of robots and robotic systems. System design, manufacturing, robotics control systems. Possibilities of robots and robotic systems in the agro-industrial complex.

Modeling and Identification of Biotechnical Objects in Agriculture. A classification of technological processes and objects of automatic control. Methods of constructing static and dynamic objects agricultural processes and industries.

Computer Integrated Control Systems. Principles of construction of control system. Information channels and their characteristics. Identification of facilities management. Algorithms management. Technical means of control system. Reliability and economic efficiency of control system.

Intelligent Control Systems of Biotechnical Objects. Classification of types of intelligent systems. Presentation specialized development environments Intelligent Systems. Basic concepts of neural networks. Classification of neural networks and their properties. The properties of the neural network training. Neural networks counter-proliferation. Hopfield neural networks. The neural network Hemet. Basic concepts of fuzzy logic. The theoretical basis of fuzzy logic. Fuzzy sets. Fuzzy operation. Algorithm of fuzzy inference systems. Fuzzy sets and fuzzy neural network. Basic concepts of genetic algorithm.

2.2.1. Master's program "Energy Efficient Control Systems of Biotechnological Objects"

Special Systems. Special subjects in the study which students have to study methods of creating, optimizing adaptive control systems, control systems built on fuzzy logic. Creation of research systems, their configuration and optimization must take place in an environment in MatLAB Packages Simulink and Fuzzy Logis. Also laid the foundations of genetic learning of neural networks is the basis for building intelligent controllers.

Methods for Preparing Research. Within the course presents the main stages of scientific research of the problem of system-analytical position and generalized requirements for methods of materials processing research. Lecture and laboratory practical course material covers the entire range of the materials for their research publications in general and, in particular, consider writing the competent scientific text. It may be, for example, research papers, thesis or reports, reviews of scientific means ordering information, summarizing the results of the pilot study, graphical interpretation of research results and more.

EDUCATIONAL AND RESEARCH INSTITUTE OF FORESTRY AND PARK GARDENING MANAGEMENT

Director - Doctor of Agricultural Sciences, Professor Petro I. Lakyda
Tel: (044) 527-85-28
E-mail: lakyda@nubip.edu.ua
Situated: educational building №1, room 119

The ERI organizes and coordinates educational process of master training in educational programs within specialties:

Specialty 205 "Forestry"

Educational program "Forestry"
Graduating departments:
Silviculture
Tel.: (044) 527-82-82
E-mail: lisivnutstvo@gmail.com
Head of the Department – doctor of science, professor Anatolii Bondar
Biology and game management science
Tel.: (044) 527-82-38
E-mail npuzrina@nubip.edu.ua
Head of the Department – PhD of Agricultural Sciences, associated professor Natalia Pyzrina
Forest management
Phone: (044) 527-83-70
E-mail: domashovets@nubip.edu.ua
Head of the Department – PhD of Agricultural Sciences, associated professor Galina Domashovec
Forest restoration and meliorations
Tel.: (044) 527-87-47
E-mail: forest_crops@nubip.edu.ua
Head of the Department – PhD of Agricultural Sciences, professor Viktor Maurer
Forest mensuration and forest inventory
Tel.: (044) 527-85-23
E-mail: aagirs@ukr.net
Head of the Department – doctor of science, professor Girs Oleksandr

Educational program "Hunting industry"
Graduating departments:
Forest biology and game management
Tel.: (044) 527-82-38
E-mail npuzrina@nubip.edu.ua
Head of the Department – PhD of Agricultural Sciences, associated professor Natalia Pyzrina

Specialty 206 "Park and Gardening Management"

Educational program "Park and Gardening Management"

Graduating departments:

Landscape architecture and landscape construction:

Tel.: (044) 527-82-96

E-mail: A-kushnir@ukr.net

Head of the department – PhD of Biological Sciences, associated Professor Anatolyi Kushnyr

Landscape gardening and floristic:

Tel.: (+38044) 258-47-27

E-mail: kafDecSad.NUBiP@gmail.com

Head of the department – octor of Biological Sciences, Professor Serhii Popovych

Forest Restoration and Meliorations

Tel.:(044) 527-87-47

E-mail: forest_crops@nubip.edu.ua

Head of the Department – PhD of Agricultural Sciences, professor Viktor Maurer

Specialty 187 "Woodworking and furniture technologies"

Educational program "Woodworking and furniture technologies"

Graduating department:

Woodworking technologies

Tel.: (044) 527-81-67

E-mail: opinchewskaya@gmail.com

Head of the Department – doctor of science, professor Olena Pinchevska

Training of masters of sciences in educational program "FORESTRY" in specialty 205 "FORESTRY" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	100
– Part-time	75
Duration of Training:	
– Full-time educational and professional program	1,3 years
– Part-time	2 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Master of Forestry

The concept of training

The full operation of forestry in a market economy requires highly specialized professionals capable of solving specific problems scale production and research directions. The basis of the formation of the contents Master programs put:

- compliance with existing and future needs of the forestry;
- flexibility in the system of training for their adaptation to the rapidly changing demands of national and international labor markets;
- the integration of education, research and innovation on the pattern of the leading research universities in the world;
- logical relationship of master's programs of training programs education level "Bachelor".

The content of education masters determined by the relevant industry standard of higher education in Ukraine, namely: educational qualification characteristics, educational and vocational training program.

Master's program "Silvics and practical silviculture"

The program provides training with a deeper understanding of the nature of the forest and forest multivariate relationships with the environment, growth and use of forests, ensuring the successful adaptation of alumni in the workplace.

Areas of employment of graduates

After graduation, graduates can be employed in the following organization: state forestry and game management enterprises of the State Forest Resources Agency of Ukraine (chief forest district ranger, chief forester, reforestation forester etc.), Ukrainian Center for training, retraining and advanced training of forestry "Ukrtsentrkadrylis", related universities I-IV accreditation, zoological parks, natural reserve fund institutions, Ukrainian State Project and Searching Institute of Forestry "Ukrdiprolis", Ministry of Ecology and Natural Resources of Ukraine (scientist).

Master's program "Forest melioration"

Training is carried out in order to equip of modern scientific and practical knowledge creation and use of protective forest plantations, as an integral part of the erosion zonal anti-erosion systems and the basis of architectonic of forest agricultural landscapes.

Areas of employment of graduates

After graduation, graduates can be employed in such enterprises: state forestry, forestry and hunting and hunting enterprises of the State Agency of forest resources of Ukraine (ranger, chief ranger, forestry engineer, forestry engineer, agroforester), Ukrainian Research Institute of Forestry and agroforestry, Ukrainian center for training, retraining and advanced training of forestry "Ukrtsentrkadrylis" related higher education institutions of I-IV accreditation levels, zoological parks, the Nature Reserve Fund, Ukrainian State Design Institute of Forestry "Ukrdiprolis", Ministry of Environment and Natural Resources of Ukraine (scientist).

Master's program "Forest Protection"

The program focuses on the cultivation of complex professional knowledge and practical skills for developing bio-ecological fundamentals of a comprehensive protection and recovery of forest biomes, researching forest pathogens and improving system measures to combat them.

Areas of employment of graduates

Post-graduates are employed in such enterprises: state forestry and hunting enterprises of the State Agency of Forest Resources of Ukraine (as forest ranger, chief forest ranger, forestry engineer, forestry engineer, forest protection engineer), State forest protection association (forest pathologist, chief forest pathologist), Ukrainian center for training, retraining and advanced training of forestry, associated higher education institutions of I-IV accreditation levels, zoological parks and Nature Reserve Fund institutions, Forestry Project Institute, Ministry of Ecology and Natural Resources of Ukraine (scientist).

Master's program "Renewal and breeding of the forest"

Program foresees the deep capture of theoretical knowledge's and newest technologies from organization and exploitation of permanent forest seed base, forest seed, microklonal propagation of woody plants, forest and decorative nursery, recreation of the forests, on principles of the ecologically oriented forestry, forest plantations, rehabilitations technogenic broken earths and increase of the productivity of the forests of silvicultural methods.

Areas of employment of graduates

Upon termination of city council graduating students can be employed on such enterprises: State forestry and hunting's enterprises of the State agency of forest resources of Ukraine (forester, main forester, forestry engineer, chief of the plantation nursery forest), Ukrainian NDI of forestry and agroforestry the name of G.M. Visockogo, Ukrainian center of preparation (scientist).

Master's program "Management of forest resources and forest business"

Master's program is focused on training in economics for forestry sector, able to develop and implement strategic vision in forest management and forest use at different levels in a market economy.

Areas of employment of graduates

After graduation, graduates can be employed in such enterprises: state forestry, forestry and hunting and hunting enterprises of the State Agency of Forest Resources of Ukraine (forester, chief forester, forest use engineer, forestry engineer) Ukrainian center for training, retraining and advanced training of forestry "Ukrtcentrkadrylis" related higher

education institutions of I-IV accreditation levels, zoological parks, the Nature Reserve institution, Ukrainian State Planning Institute of Forestry "Ukrdiprolis", Ministry of Ecology and Natural Resources of Ukraine (scientist).

Proposed Topics for Master Theses

1. Analysis and improvement of methods for stands growing stock assessment of forest enterprise.
2. Role of erosion and reclamation properties ravine and gully vegetation in forest enterprises.
3. Sanitary condition of arboretum: cells of pathogens and insect pests.
4. Increasing of productivity and improving of the quality of the forest plantations by care cuttings in forestry enterprises.
5. Improvement of forest fire protection in forestry enterprises.
6. An improvement of high-quality composition and increase of the productivity of the forest planting is in forest enterprises.
7. Natural renewal of main forestry breeds is in the prevailing types of site conditions in Forestry enterprises.
8. Ways of perfection of growing of forest cultures are in forestry enterprises
9. Sanitary condition Arboretum: cell pathogens and insect pests.
10. Current status and characteristics game management in Ukraine.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Forestry" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Forestry Management	1	120	4
2	Regulation of forest productivity	1	180	6
3	Information technology in forestry	1	120	4
4	Planning Forestry	1,2	180	6
Total for standard part			**600**	**20**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Forest policy	1	90	3
2	Business foreign language	1	90	3
3	Methodology and organization of scientific research on the basics of intellectual property	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total (Disciplines offered by University)			***270***	***9***
2.2. Disciplines offered by students				
2.2.1. Master's program "Sylvics and practical silviculture"				
1	Forest production	2,3	240	8
2	Forest roads and forest vehicles	2	150	5
3	Forestry commodity	2	90	3
4	Hunting	2	90	3
5	Forest Ecology and typology	2	90	3
6	Increasing the productivity of forests by forestry methods	2	210	7
7	Non-wood products and adverse use of forests	2	90	3
8	Biological bases of thinning	2	90	3
Total (Disciplines offered by students)			***1050***	***35***
2.2.2. Master's program "Forest melioration"				
1	Inventory of protective plantations	2	90	3
2	Forest land reclamation	2	120	4
3	Erosion scince	2	90	3
4	Systems of erosion soils control	2	240	8
5	Optimization of forest-agricultural landscapes	1	180	6
6	Protective afforestation	2	120	4
7	Protective plantations in the ways vehicles	2	90	3
8	Hydrotechnical reclamation	2	120	4
Total (Disciplines offered by students)			***1050***	***35***
2.2.3. Master's program "Forest Protection"				
1	Forest pathology with the basics of plant immunity	2	180	6
2	Forecast pathogens and pests	2	150	5
3	Mathematical modeling of pest and pathogen populations	3	90	3
4	Forest nematology	2	90	3
5	Technology integrated protection	1	240	8
6	Bacterioses forest tree species	2	90	3
7	Diagnosis of pests and pathogens	2	120	4
8	Mycotrophy woody plants	2	90	3
Total (Disciplines offered by students)			***1050***	***35***
2.2.4. *Master's program "Renewal and breeding of the forest"*				
1	Modern technologies of nursery	2	150	5
2	Microclonal propagation of woody plants	2	150	5
3	Forestry methods of rehabilitation of the technogenic-broken earth	2	90	3
4	Industrial methods of forest growth	1	150	5
5	Ecoadaptational restoration of forests	2	180	6
6	Increasing the productivity of forests forest-cultivated methods	2	150	5
7	Forestry sort study	2	90	3
8	Forest planting of green areas	2	90	3
Total (Disciplines offered by students)			***1050***	***35***
2.2.5. *Master's program "Management of forest resources and forestry business"*				
1	Management of forest resources	2	150	5
2	Special type of measurements	1	150	5
3	Special type of inventory of protective plantations	2	150	5
4	Forest Productivity Modeling	2	120	4
5	Forest Inventory and Forest Monitoring	2	120	4
6	Economics of nature use	2	90	3
7	Foreign trade in forest sector	2	90	3
8	Information systems in forestry	2	180	6
Total (Disciplines offered by students)			***1050***	***35***
Total for elective part			***1320***	***44***

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3. OTHER TYPES OF TRAINING				
1	Training practice		60	2
2	Production practice		540	18
3	Preparation and defense of master's thesis		180	6
Total			**780**	**26**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Management of Forestry. Includes the study of a systematic approach to the management of production, mastering organizational, functional and official regulation on forestry enterprises, evaluation of personal and professional qualities of workers, develop creative approach to the study and management decisions taking into account the specific characteristics and forestry production.

Regulation of forest productivity. Discipline study after study program issues of forestry, forest inventory, forest species, forest reclamation and hydraulic engineering, forest genetics and breeding, which can solve the problem of forest productivity and improving their quality comprehensively. Details the performance concept, its types, nature wood productivity and ways to improve forestry and silvicultural ways, including the selection and genetic basis.

Information technology in forestry. The subject aims to study the basic information tools for forest management and processing information for decision-making. Working with databases, standard office applications, network tools, database "forest management".

Planning Forestry. Subject, method and objectives of the discipline. Basic principles and methods of planning in market conditions. The system plans that operate in the forestry industry. Methodology formation of tactical and strategic plans for forest production. Regulatory information management planning process. Analysis of the implementation plan of the enterprise for the last time. The product and its formation. Business planning for forest enterprises. Plan your work and wages in forest enterprises. Planning logistics for l / d plants. Planning costs of forest products in market conditions. Financial planning for forest enterprises. Features pricing and their bottom Forestry enterprise.

2. Elective academic disciplines

2.1. Disciplines offered by University

Forest policy. Basic concepts of the discipline. Subject, purpose and concept of forest policy. Levels of forest policy. Basic principles of forest policy. Components of forest policy. Aims and objectives of forest policy. Conditions, goals and objectives in Ukraine. Legislation in the field of social, financial and environmental law as instruments of forest policy. Forestry legislation. Forest Code of Ukraine. Analysis of the distribution of government functions in the forestry sector in Ukraine and ways of its reform. The main functions of the state. Strategic priorities of forest policy in Ukraine. Environmental, economic and social aspects of sustainable development. Criteria and indicators of sustainable forest management. The concept of sustainable development in Ukraine. The principles of sustainable forest management. Basic concepts and definitions of certification and forest certification. Features of forest policies of European countries.

Business foreign language. Speech Etiquette communication: language models salutation, civility, forgiveness, coordination and more. Linguistic and cultural aspects of international exhibitions. Grammatical and a minimum of linguistic communicative level presentations. Professionally-oriented foreign-language sources. Methods of finding new information in the foreign-language sources. Linguistic methods for analytical processing of foreign sources. The study of foreign language printed original literature and expansion of vocabulary and grammatical skills. Methods and linguistic features of annotation and summarization of foreign sources. Electronic foreign-language sources. Finding information on the Internet by using keywords. Fundamentals of Translation professionally oriented foreign-language sources. Machine translation of large volumes of foreign language information. Lexical minimum computer (information) technology.

Methodology and organization of scientific research on the basics of intellectual property. Disclosed, the concept of scientific knowledge, science, classification of sciences and basic concepts that define the content of the research. Outlined overview of the methodology and the classification of research, especially research in forest conditions and methods used for this purpose. The problems concerning planning and sequencing research students and young scientists working on the scientific literature.

2.2. Disciplines offered by students

2.2.1. Master's program "Silvics and practical silviculture"

Forestry production. Technology Organization upper storage, loading and unloading depots in the upper plains and mountains. Lower stocks: organization works to lower stocks. Transport: optimization of the parameters of the motor Downloads timber wagons. Technology and regulations. Export products. Methods for machining wood. Elementary cutter. Wood cutting resistance, strength and power cut. The main types of woodworking machines. Wood processing on lower landing and woodworking shops.

Forest roads and forest vehicles. Study course «Forest roads and forest vehicles" forms the scientific knowledge concerning the design, construction and maintenance of forest roads and vehicles, which can effectively solve the problem of reforestation, forest protection organization of forest management and apply their received skills in practice.

Forestry commodity. The structure of the wood, its physical and mechanical properties. Drawbacks of wood. Properties, methods of drying and storage timber. Accounting, sorting, labeling. Requirements for raw materials.

Hunting. The history of hunting and the game management. Systematics and biology of game animals. Biotehniya. Hunting lands inventory. Ways and means of obtaining wild animals. Types of hunting products. Animal breeding and furriery. Hunting dog breeding. The game management legislation. Reserve management and studies. The world practice, economics, organization and planning of game management.

Forest ecology and typology. In studying forest ecology emerging necessary theoretical knowledge on forest ecology and skills for management and restoration of forest ecosystems. The basic concept autecology and synecology are studied, also studied the impact of environmental factors on forest ecosystems. It reveals the need for ecological approach to the study of the forests. Highlights the environmental principles of the approach to the study of the formation of forests, forest care outlined the concept of forest typology, its formation and use for the science and forestry practice.

Increasing the productivity of forests by forestry methods. Based on in-depth study of processes of organic matter in tree plants and forestry methods influence the

activation of growth processes to enhance of tree productivity and improve the quality of future stands. The place forest science of Ukraine in international structures are illustrated.

Non-wood products and adverse use of forests. This discipline studies the types of non-timber forest products and methods of its management, ways to improve the quality and productivity of forest fruit plants, medicinal plants, grazing land and harvest methods. Also considered extraction technology of birch sap, forest growing fruit plants in plantations. Honey plants and their resources are studied and ways of its increase in forests of Ukraine.

Biological basis of thinning. It reveals the impact of thinning on tree stands for the light and change the microclimate, which positively affects the physiological processes of trees, their growth and development.

2.2.2. *Master's program "Forest melioration"*

Inventory of protective plantations. Basics ordering protective plantations. Legal basis of regulation of protective vegetation. Agroforestry regulation of protective forest plantations on agricultural lands. Contemporary forest management.

Forest land reclamation. Objects and types of land reclamation. Forestry of disturbed lands. Value of bioecological characteristics of trees and shrubs species for forest restoration. Technology plantation establishment on disturbed lands. Ecological and economic aspects of forest land reclamation.

Erosion science. The concept, classification and categories of soil erosion. Water erosion: ancient and modern, factors of development, physical properties and erosion of rain, runoff energy structure. Wind erosion (deflation) dust storms. Prediction of erosion modeling of deflation. Research. Erosive zoning. Methods and properties of eroded soils. Justification zone of erosion.

Systems of erosion soils control. Rationale for zonal systems. The system measures against water erosion: organizational and economic, agronomic and agroforestry, hydraulic measures. The set of measures to combat wind erosion (deflation). Erosion in mountainous areas and measures to combat it. Features of zonal systems. Economics and Organization works to protect the soil of erosion.

Optimization of forest-agricultural landscapes. Crop rotations and farming systems. Land Management and agroforestry ordering. Organization of erosion area. Agroforestry plantations in the structure of FAL - types, placement, efficiency. Forest area. Principles of creation of FAL. The criterion of optimality, optimization model FAL. System of normative reference data for assessing environmental and economic efficiency of FAL.

Protective afforestation. The theoretical justification for the use of protective plantations. Features water erosion and deflation of soils and expression of harmful climatic effects. Shelter afforestation. Protective afforestation as part of the zone of erosion. Agroforestry plantations on sand, in the mountains, on reclaimed lands and waterways transport.

Protective plantations in the ways vehicles. Experience the protective afforestation in the ways vehicles. Types of protective forest plantations, their properties and accommodation. Forms snow deposits. Categories of snow accumulation ways of transport. Design of protective forest plantations in the ways of transport. Cost-effectiveness of afforestation in the ways vehicles.

Hydrotechnical reclamation. Environmental aspects hydrotech melioration. Key elements of hydrology, hydraulics and hidrometriyi. Irrigation and water supply. Drainage of forest lands. Irrigation. Irrigation regime. Irrigation system. Salinization of soils and how they demineralized.

2.2.3. *Master's program "Forest Protection"*

Forest pathology with the basics of plant immunity. The theoretical principles of infestation and biological protection from pathogens. Genetic interactions between host plant, pathogen and environment.

Forecast pathogens and pests. Short-term and long-term forecasts for major pathogens and pests for the purpose of timely introduction of prevention and control measures.

Mathematical modeling of pest and pathogen populations. Types of mathematical models. Technological stages of mathematical modeling. Theories of mass reproduction of pests and pathogens. Regulatory mechanisms of population dynamics. Forest stand resistance, pathogen dynamics, and correlation analysis.

Forest nematology. Morphology, biology, ecology and systematics nematodes. The relationship of nematodes in plant groups. Nematodosis in tree crops and nurseries. Useful nematodes. Antinematodes measures in forest protection.

Technology integrated protection. Forest protection enterprises and their goals. Forest pathology control. Pestaccounting and population forecast. Forest entomology examination. Forest entomology monitoring. Planning forest protection operations and assessing their effectiveness. Forest quarantine. Mechanical, physical, biological, chemical, and genetic methods. Bacterial, fungal and viral agents. Antibiotics.

Bacterioses forest tree species. Plant pathogenic bacteria in general forest pathology. Morphological, biological, physiological and cultural characteristics of bacteria. Classification and taxonomy of bacteria. Reproduction and dissemination of bacteria. Bacterial diseases of forest plantations.

Diagnosis of pests and pathogens. Diagnosis of tree and shrub diseases. Configuration and usage of different instruments and tools. Methods for various diagnostic analyses.

Mycotrophy woody plants. Structure, nutrition, growth and development of fungi. Technology of mushroom cultivation. Protection of mushrooms against pests and pathogens.

2.2.4. *Master's program "Renewal and breeding of the forest"*

Modern technologies nursery. Wood nursery Ukraine: current state, the main problem, the main trends and ways of improvement. Agronomic crop rotation and tillage requirements in modern farming conditions. Types of fertilizers in accordance with modern classification, especially their application. Theoretical and practical bases of vegetative propagation of woody plants. Ways of modernizing cultivation of seedlings in the ground with an open root system. Growing woody plant propagating material with closed root system. Agro-technical features of growing seedlings in greenhouses. Features of growing seedlings of woody plants with major no injured root system. Features large-sized growing ornamental plants seed and vegetative origin. Methods land rehabilitation permanent forest nurseries.

Microclonal propagation of woody plants. Modern trends culture of isolated cells, tissues and organs of plants. Fundamentals of biosafety. Advantages of microclonal reproduction method over traditional methods. Features regenerate plants in vitro. Types and main stages microclonal reproduction. Preparation of virus-free planting material. The main directions of biotechnology research in forestry. Features of propagation of woody species. The influence of genetic, physiological, hormonal and physical factors on plant micropropagation. Adaptation of plants regenerants to the conditions in vivo. The use of plant material plants regenerants in silvicultural production.

Forestry methods of rehabilitation of the technogenic-broken earth. Technogenesis and its importance in modern society. Types and agrotechniques of establishment of forest plantations in anthropogenically polluted lands. Types and agrotechniques of establishment of forest plantations in the man-disturbed lands.

Industrial methods of forest growth. Potential productivity of plantation and selection of arboreal plants. Principles of organization of raw materials plantations. Improvement of habitat terms. Regional technologies of creation of raw materials plantations of coniferous and leafy arboreal kinds. Features of creation of arboreal plants plantations of the different having a special purpose setting.

Ecoadaptational restoration of forests. Current approaches to restoration of forests and their importance in the context of sustainable forest management. Basic principles of ecoadaptational restoration of forests. Zoning of territory for the potential success of natural regeneration. Conceptual provisions and organizational and methodological foundations of introduction ecoadaptational restoration of forests. Agrotechnologies of adaptive restoration of forests, their characteristics and conditions of use. Features of ecoadaptational restoration of forests on the different categories of forest restoration fund.

Increasing the productivity of forests forest-cultivated methods. Types performance. Features of regulation of endogenous and exogenous factors influencing the performance of forest communities. Forest-cultivated methods to increase productivity of forest plantations (improvement of forest types of crops, fertilizer use, reconstruction of low-value plantations, creating cultures under the forest canopy, introduction of exotic species, etc.). Measures to improve the productivity of forests different purpose.

Forestry sort study. Ukrainian varietal forest seed production: current state, challenges and prospects. Theoretical principles and organization measures of transferring forest seed production to the genetic and breeding base. The concept of variety and varietal categories of forest woody plants seeds. The organization of the permanent forest seed base on genetic and breeding principles. Laws and regulations of varietal forest seed production. The main provisions of regulatory legal acts that regulate relations in the field of varietal seed. The structure, the main provisions, the scope and the application of the Laws of Ukraine "On Seeds and Planting Material", "On Plant Quarantine", "On Protection of Rights of Varieties of Ukraine". The methods of varietal plant breeding of woody plants. Registration, sustentation and exploitation of the variety of woody plants in the register of varieties of Ukraine.

Forest planting of green areas. Historical aspects and modern approaches to the formation and use of suburban forests. Classification of urban and suburban green spaces. Classification of forest park landscapes. Composite principles of formation of plantations and forest park landscapes. Selection of species for plantations of different purposes. Technological features of creation of the plantation of green areas. Technological and agronomic features of formation of plantations and forest park landscapes. Silvicultural methods of improvement of hygiene properties of forest park landscapes. Selection of woody plants for the reconstruction of low value planting green areas. Forest plantations under forest canopy as a means of improving hygienic properties of suburban forests and parks.

2.2.5. *Master's program "Management of forest resources and forestry business"*

Management of forest resources. Description and main features of management of forest resources and forestry businesses. Methods inform decisions in the management of forest resources. The economic risks associated with the management of forest resources and forest business. Management of forest resources in crisis situations.

Management of forest resources on the basis of sustainable development. Management of forest resources in the natural reserve fund. Conflicts in forest use: theory and management. Strategic management in forestry: theoretical foundations and features.

Special types of measurement. Features landscape forest inventory. Inventory of hunting grounds. Inventory of protective forest plantations.

Special type of inventory of protective plantations. Fundamentals organize recreational and protected forests. Managing protective forest plantations. Streamlining hunting grounds. Other domestic species ordering forests. Forest management abroad.

Forest Productivity Modeling. Classification of models. Modeling as the main process of study of forest objects. Criteria for optimal stands. Development of regression models using modern mathematical methods. Peculiarities of development of models of dynamics and prognosis. Modeling growth functions with modern computing techniques. Planning of active experiment. Development of mathematical models using full and partial factor plans. General knowledge on numerical methods for solving optimization tasks.

Forest Inventory and Forest Monitoring. The theoretical basis of sampling inventory. The concept of selective enumerative and selectively measuring inventory. The size and placement of primary sampling units, the intensity of the sample. Statistical Forest Inventory. Advantages and disadvantages of sampling methods. The practice of sampling inventory in different countries. National forest inventory. The system of continuous monitoring of the forest. Monitoring of forests. Control of economic activity in the woods.

Economics of nature use. Involves study of causes of ecological and economic problems, setting goals and priorities of sustainable development of different areas of environmental management, environmental and economic substantiation of efficiency of management decisions in environmental management, mastering economic evaluation of natural resources, practical skills in formation and use of environmental policy instruments in framework of economic mechanism of nature use.

Foreign trade in forest sector. The main purpose of discipline is: studying theoretical foundations in area of foreign trade in forestry sector, and to develop practical skills and ability to apply the acquired knowledge in export-import operations on enterprises of forest sector. The main areas of learning material are: legal principles of foreign trade and business activities in the forest sector, theoretical and practical bases of foreign investment in the forest sector of Ukraine and choice of organizational forms of foreign investment, issues of justification and choice of forms and methods of entering foreign markets; procedure of concluding external contracts, their features in forestry, planning, control and reporting in foreign trade in forestry.

Information systems in forestry. The subject aims to study main information tools for acquiring forest management information and its processing for decision-making support. Work with databases, standard office applications, network tools, database management system "Forest resources management".

Training of masters of sciences in educational program "HUNTING INDUSTRY" in specialty 205 "FORESTRY " branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	25
– Part-time	25
Duration of Training:	
– Full-time educational and professional program	1,4 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Master of game management

The concept of training

In the sustainable management of sectors of the economy Ukraine urgent problem arises integrated approach to the management, restoration and conservation of natural resources. An integral part of this problem is the regulation of wildlife resources, particularly wildlife, to organize, regulate and improve the use of which there is a separate form of human activity - game management. The successful development of this industry provides for an appropriate infrastructure, which is an important element of qualified human resources.

Educational and professional program of master's training

Master's program "Game management"

The program focuses on the development of professional knowledge to manage populations and habitat for game animals, conservation and sustainable use of game animal resources, evaluation and optimization of hunting grounds.

Areas of employment of graduates

Post-graduates are employed in such enterprises: state forestry and hunting enterprises of the State Agency of Forest Resources of Ukraine (as forest ranger, chief forest ranger, forestry engineer, forestry engineer, forest protection engineer), State forest protection association (forest pathologist, chief forest pathologist), Ukrainian center for training, retraining and advanced training of forestry, associated higher education institutions of I-IV accreditation levels, zoological parks and Nature Reserve Fund institutions, Forestry Project Institute", Ministry of Ecology and Natural Resources of Ukraine (researcher positions).

Proposed Topics for Master Theses

1. Means and prospects of hunting and wildlife management on conservation forest lands.
2. Population dynamics of ungulate game species in forestry hunting enterprises and its regulation
3. Approaches to improve biotechnical activities in forestry hunting enterprises.
4. Problems and perspectives of bat habitat conservation in forestry hunting enterprises.

5. Game population dynamics and means for its optimization in forestry hunting enterprises.

6. Comparative aspects and prospects of hunting in forestry hunting enterprises.

7. Current status and characteristics of hunting and wildlife management in forestry hunting enterprises.

8. Current status and approaches to optimize hunting and wildlife management in Kiev region.

9. Ways to optimize the number of game animals in forestry hunting enterprises.

10. Prospects and stages of hunting ground establishment in forestry hunting enterprises.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Hunting industry" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Forestry Management	1	120	4
2	Regulation of forest productivity	1	180	6
3	Information technology in forestry	1	120	4
4	Planning Forestry	1,2	180	6
Total for standard part			**600**	**20**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Forest policy	1	90	3
2	Foreign language (for professional purposes)	1	90	3
3	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
Total (Disciplines offered by University)			**270**	**9**
2.2. Disciplines offered by students				
2.2.1. Master's program "Game management"				
1	Immobilization and transport of animals	1	240	8
2	Hunting tourism and regional features hunting	2	150	5
3	Zoo management	2	180	6
4	Hunting resources and hunting products	2	90	3
5	Innovative technologies in game management	2	120	4
6	Zoogeographical and hunting zoning	2	90	3
7	The evolution of the animal world	2	90	3
8	Managing populations of game animals	2	90	3
Total (Disciplines offered by students)			**1050**	**35**

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total for elective part			**1320**	**44**
3. OTHER TYPES OF TRAINING				
1	Training practice		60	2
2	Production practice		540	18
3	Preparation and defense of master's thesis		180	6
Total			**780**	**26**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Management of Forestry. Includes the study of a systematic approach to the management of production, mastering organizational, functional and official regulation on forestry enterprises, evaluation of personal and professional qualities of workers, develop creative approach to the study and management decisions taking into account the specific characteristics and forestry production.

Regulation of forest productivity. Discipline study after study program issues of forestry, forest inventory, forest species, forest reclamation and hydraulic engineering, forest genetics and breeding, which can solve the problem of forest productivity and improving their quality comprehensively. Details the performance concept, its types, nature wood productivity and ways to improve forestry and silvicultural ways, including the selection and genetic basis.

Information technology in forestry. The subject aims to study the basic information tools for forest management and processing information for decision-making. Working with databases, standard office applications, network tools, database "forest management".

Planning Forestry. Subject, method and objectives of the discipline. Basic principles and methods of planning in market conditions. The system plans that operate in the forestry industry. Methodology formation of tactical and strategic plans for forest production. Regulatory information management planning process. Analysis of the implementation plan of the enterprise for the last time. The product and its formation. Business planning for forest enterprises. Plan your work and wages in forest enterprises. Planning logistics for l / d plants. Planning costs of forest products in market conditions. Financial planning for forest enterprises. Features pricing and their bottom Forestry enterprise.

2. Elective academic disciplines

2.1. Disciplines offered by University

Forest policy. Basic concepts of the discipline. Subject, purpose and concept of forest policy. Levels of forest policy. Basic principles of forest policy. Components of forest policy. Aims and objectives of forest policy. Conditions, goals and objectives in Ukraine. Legislation in the field of social, financial and environmental law as instruments of forest policy. Forestry legislation. Forest Code of Ukraine. Analysis of the distribution of government functions in the forestry sector in Ukraine and ways of its reform. The main functions of the state. Strategic priorities of forest policy in Ukraine. Environmental, economic and social aspects of sustainable development. Criteria and indicators of sustainable forest management. The concept of sustainable development in Ukraine. The principles of sustainable forest management. Basic concepts and definitions of certification and forest certification. Features of forest policies of European countries.

Foreign language (for professional purposes). English terminology in hunting industry. Derivation of model phrases. Verb participle. See, The. Adjective, the comparison. Pronoun. Adverb. Preposition and conjunction. The use of time and how clause. Listening. Methods and linguistic features of annotation and summarization of foreign sources. Electronic foreign-language sources. Finding information on the Internet by using keywords. Fundamentals of Translation professionally oriented foreign-language sources. Machine translation of large volumes of foreign language literature.

Methodology and organization of scientific research on the basics of intellectual property. Scientific topics of research schemes of their conduct. Making scientific documentation. Selection of animals for experiments and their distribution in groups. Development of methodology and organization of research. Settlements area of hunting grounds, food supply, land productivity, species and quantities of game animals. Math (biometric) data processing. Justification of the research results and conclusions. Literary execution of scientific work (qualifying master thesis, scientific articles, abstracts, etc.). Expand the concept of scientific knowledge, science, classification and basic science concepts to the content of research. Set out general information about the methodology and classification research, especially research in the forest and methods used for this purpose. The questions on planning and consistency of research students and young researchers working on the scientific literature.

2.2. Disciplines offered by students

2.2.1. Master's program "Game management"

Immobilization and transport of animals. Means and effects of chemical immobilization of wild animals. Remote injection animal anesthesia. Requirements for transportation and vehicle design.

Hunting tourism and regional features hunting. Domestic and international tourism and game population management. Promoting hunting services and trophies. Tour design and implementation, green tourism, range tourism etc.

Zoo management. Zoos in forest hunting enterprises. Modern technology of keeping, breeding, exhibiting and preserving wildlife in ex-situ. Organization of scientific, educational and environmental activities in zoos.

Hunting resources and hunting products. Inventory of hunting resources. Classification of hunting methods and tools. Regional hunting in Ukraine. Hunting ethics. Changes of hunting fauna in Ukraine in the context of historical periods. Game species and hunting traditions in the world. Unitization and reproduction of game fauna.

Innovative technologies in game management. Features modern databases to assess the current status and the achievement of targets hunting economy. Program of remediation and reclamation hunting ground in cooperation with the forestry, agriculture and recreational activities. New technologies breeding and scientific advances that are suitable for keeping and breeding of game animals in natural and artificial conditions. Applications improving condition of game animals breeding and genetic methods and techniques of cryobiology statistical and mathematical software packages for evaluation, forecasting and modeling hunting economy.

Zoogeographical and hunting zoning. Patterns of geographical distribution of animals. Zoogeographical zoning. Zoogeographical areas and their fauna. Zoogeographical fauna characteristics of Ukraine. Active and passive settlement. Migration paths (historical and contemporary aspects). Zoogeographical elements of flora and fauna complexes. Hunting zoning in Ukraine.

The evolution of the animal world. Stages of development of fauna and main representatives of the faunal complexes during different geological eras. Configuration

principles of species composition of hunting. Biotechnical principles allowing for the evolution of animals.

Managing populations of game animals. Planning of hunting, development plans of breeding technology control populations of game animals. Development of technology for managing populations of game animals in farms of intensive and extensive types. Providing selective removal of unwanted populations genotypes.

Training of masters of sciences in educational program "PARK AND GARDENING MANAGEMENT" in specialty 206 "PARK AND GARDENING MANAGEMENT" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	75
– Part-time	75
Duration of Training:	
– Full-time educational and professional program	1,3 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Master of park gardening

The concept of training

The concept and goal of training specialists in Park Gardening Management is the necessity of training specialists with system knowledge in use of Park Gardening Management resources in our state and transition to European standards of living that are focused on the natural ability of regeneration of forests: ensuring ecological and esthetical management based on forest management and comprehensive use of resources, taking into account historical and landscape aspects, revisions of principles of distribution of plantations according to ecological and economic value depending on benefits of their functions, decreasing recreational activity, replacement of old planting, especially in the forests of green belts situated around settlements; preservation of biodiversity of planting of general and limited use; inventory and optimization of protected areas and objects; including measures of regional ecological, economic and social conditions; monitoring of planting, creation and growing plants resistant to extreme environmental conditions of forest biogeocenosis in Steppe considering the necessity of transfer of management on the landscape- ecological principles; improvement of scientific and staff providing Park Gardening management; improvement of the system of planting inventory and monitoring and objects of landscape architecture based on GIS technology; improvement of the system of informing industry and introduction of information technologies.

Master's program "Landscape architecture"

Oriented to forming in future specialists complex approach to analysis, ground of acceptance and realization of decisions in exploitation, reconstruction and restoration of park and garden objects, planning of landscape objects of the different special purpose by means of modern computer technologies se in accordance with modern requirements of Park Gardening Management in Ukraine.

Graduates employment field

The graduates of Master's program "Landscape architecture" will be able to work as: junior research worker, planning and organization of public services engineer or specialist, landscape design specialist, park-gardening worker.

Master's program "Decorative Nursery"

Foresees mastering by student’s theoretical knowledge and modern technologies of decorative planting stock production: generative, vegetative and microclonal woody plants

reproduction, container culture of trees and shrubs, features and growing, shaping and using different purpose seedlings, etc.

Graduates employment field

Graduates of Master's program "Decorative Nursery" would be able to work as: junior research worker, nursery garden chief, planning and organization of public services engineer, landscaper, green planting worker, gardener.

Master's program "Landscape building"

Foresees mastering by student's theoretical knowledge and practical skills in economic and building work on landscape objects, mastering the latest engineering technologies in creating of landscaping objects, planting and caring of decorative plants, studying machines and mechanisms, which are necessary for creating, organization and keeping of landscaping objects.

Graduates employment field

Graduates of Master's program "Landscape building" would be able to work as: junior research worker, planning and organization of public services (improvement) engineer, landscaper, green planting or laying out of parks worker, gardener.

Master's program "Ornamental horticulture"

It provides theoretical knowledge and practical skills of new technologies of formation and maintenance of green spaces of different functions, assortment of highly decorative and resistant to adverse environment factors trees, shrubs and flower plants; techniques, methods and technology of breeding and cultivation of ornamental plant material in the open and protected ground.

Graduates employment field

Graduates of master's program "Ornamental horticulture" would be able to work as: junior research worker, green planting master, green planting or laying out of parks worker, gardener, nursery garden chief, hothouse farm master.

Practical training

The bases of practical training, carried out during their training and practical training in the second and third semester is educational, scientific, educational and laboratories and departments of NUBiP of Ukraine.

Proposed Topics for Master Theses:

1. Territory reconstruction project of the landscape art memorial park.
2. Ornamental painting of stones in small gardens' design.
3. Project of recreation-demonstrational area organization in decorative nursery garden.
4. Project of landscaping and improvement school and kindergartens territories.
5. Experience of school territories in Ukraine landscaping.
6. European experience of using species of Buxus L. genus in landscaping.
7. Dendrological grade of existing assortment of Gymnosperms and prospects of replenishment the decorative forms collection of botanical gardens.
8. Technological peculiarities of forcing flowering plants varieties.
9. Baroque, rococo and classicism in modern phytodesign aspect.
10. Woody plants reproduction peculiarities.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Park and Gardening Management" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Computer design technologies	2	150	5
2	Greenhouse facility	1	120	4
3	Forest-parks management	2	180	6
4	Reconstruction and restoration of landscape-gardening objects	1	150	5
5	Dendrological projecting	1	150	5
6	Forest-parks economy	1	120	4
7	Inner phytodesign	1	120	4
8	Soils and soils compounds	1	90	3
Total for standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Business foreign language	2	90	3
2	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
Total (Disciplines offered by University)			**180**	**6**
2.2. Disciplines offered by students				
2.2.1. Master's program "Landscape architecture"				
1	Landscape design	1	150	5
2	Recultivation of affected landscapes	2	150	5
3	Park studies	2	90	3
4	Landscape planning	2	90	3
5	Form diversity of ornamental woody plants	2	90	3
6	Ecological examination	2	90	3
Total (Disciplines offered by students)			**660**	**22**
2.2.2. Master's program "Landscape building"				
1	Vertical planning of landscape objects	2	150	5
2	Agricultural engineering in park- garden building	2	150	5
3	Parks and garden constructions, mechanisms and equipment	3	90	3
4	Landscape planning	3	90	3
5	Recultivation of affected landscapes	3	90	3
6	Ornamental plants protection	3	90	3
Total (Disciplines offered by students)			**660**	**22**
2.2.3. *Master's program "Ornamental Nursery"*				
1	Modern technologies in ornamental nursery studies	2	150	5

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
2	Woody plants growth and mineral nutrition regulation	2	150	5
3	Potted woody plants growing	3	90	3
4	Nurseries rules and regulations	3	90	3
5	Biotechnology methods in decorative nursery	3	90	3
6	Planting stock quality and methods of its estimation	3	90	3
Total (Disciplines offered by students)			**660**	**22**
2.2.4. *Master's program "Ornamental horticulture"*				
1	Plant breeding and seed study	2	150	5
2	Recultivation of affected landscapes	2	150	5
3	Ornamental plants protection	3	90	3
4	Ornamental horticulture	3	90	3
5	Form diversity of ornamental woody plants	3	90	3
6	Modern technologies in ornamental nursery	3	90	3
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**840**	**28**
3. OTHER TYPES OF TRAINING				
1	Academic Practice		60	2
2	Production Practice		540	18
3	Preparation and defense of master's work		180	6
Total			**780**	**26**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Computer design technologies. Designing of park-gardening objects using computer programs. Students perform the course project within such programs as ArhiCAD, REALTIME, Photo Land Designer, SIERRALANDDESIGNER 3D, etc.

Greenhouse farming. Detailed studying of the technologies of blooming plants on the industrial base; acquainting with the main types of pests and measures of pest control – expects deeper studying of technological processes, detailed familiarization with technologies of growing different flower production, accounting of industrial space requirement, organization of the manufacturing process and as a result – organization of greenhouse facility with taking into account specifics of its work.

Forest-parks management. Origins and developing of management. Specifics of management activity on park-gardening enterprises. Management functions and their realization on park-gardening enterprises. Principles and methods of management. The essence of the process of making decisions in park-gardening management. Conflict management fo park-gardening enterprises.

Reconstruction and restoration of landscape-gardening objects. Forming of professional approach to the accomplishment of reconstruction, concervation, adaptation, and protection of existing landscape architecture objects is the main task for landscaping specialist. Discipline takes the leading part in the landscaping cycle disciplines, because the bigger part of town’s complex green zone objects are the objects of reconstruction and restoration.

Dendrological projecting. The subject observes the main principles of projecting green plantations systems, specifics of landscape-dimensional and landscape-planning composition, peculiarities of woody plants assortment selection during the creating of main plantations elements of composition. When studying the subject students consider physionomical types of woody plants according to L.I. Rubtsov.

Forest-parks economy. Modern forested economy aimed at understanding the biological bases essentially forest laws of its growth and development, mastering the methods of forest typology, knowledge of various types of timber harvesting, including recreational, learning the fundamentals and techniques of farming in forest parks and green areas of cities. Using internalized the principles and methods of forming the forest park plantings future specialists Landscape Architecture has focused, environmentally correctly generate woodlands landscapes, taking into account characteristics of growth and development of trees, shrubs and meadow plant communities resistant to anthropogenic pressures and adverse environmental factors.

Inner phytodesign. The “Inner phytodesign” subject gives theoretical and practical knowledge about the phytodesign of the specific Earth regions plants, forming of the long-lasting groupings of a leafy-decorative and flowering subtropical and tropical plants to the future specialists, acquaints with the rules of their keeping. It studies the rules of creating compositions and combination plants according to ecological, decorative and functional principles in different types and styles of interior, opens specifics of keeping plants in this type of compositions.

Soils and soil compounds. The course program allows mastering the bases of controlling the soil nutrition conditions for the ornamental plants. It provides the preparation of specialist in possession of knowledge and skills, and gives an ability to create the optimal models of the nutrition regime and manage it according to the biological requirements of the plants.

Elective academic disciplines

2.1. Disciplines offered by University

Business foreign language. Speech Etiquette communication: language models salutation, civility, forgiveness, coordination and more. Linguistic and cultural aspects of international exhibitions. Grammatical and a minimum of linguistic communicative level presentations. Professionally-oriented foreign-language sources. Methods of finding new information in the foreign-language sources. Linguistic methods for analytical processing of foreign sources. The study of foreign language printed original literature and expansion of vocabulary and grammatical skills. Methods and linguistic features of annotation and summarization of foreign sources. Electronic foreign-language sources. Finding information on the Internet by using keywords. Fundamentals of Translation professionally oriented foreign-language sources. Machine translation of large volumes of foreign language information. Lexical minimum computer (information) technology.

Methodology and organization of scientific research on the basics of intellectual property. The concept of scientific knowledge, science, classification and basic science concepts of the content of research are expand. General information about the methodology and classification of research, especially research in the forest and methods used for this purpose are set out. The questions on planning and consistency of research students and young researchers working on the scientific literature are set out.

2.2. Disciplines offered by students

2.2.1. *Master's program "Landscape architecture"*

Landscape design. Landscape design as a modern direction of landscape architecture. Landscape design practice considering individual components and elements of landscape: relief geoplastics; water structures; plant forms; coloristic of plantations; small architectural forms. Creation of small garden.

Recultivation of affected landscapes. In a course basic information is given about factors, kinds and degree of violation of landscape structure, classification of basic forms

of technogenic relief of earth surface. The program is based on modern information of theoretical and practical value, which is necessary for organization of work for recultivation of affected land and formation of phytocenosis for melioration.

Park studies. Studies the aspects of dendrological composition of different categories of park plantations, longevity of woody plants, analyze territories of parks and forest-parks as a phytocenosis objects, investigates general progress of park phytocenosis and phytogeographical aspect, ecology of park environment trends, in thereby to monitoring of green plantations and ground conditions. Lights up physiognomic groups and types of arboreal plants, studies natural landscapes as feedstock for park building, features of creation of some types of park and garden landscapes, forming of displays of botanical gardens and dendrological parks.

Landscape planning. Within the limits of discipline, the historical, social and town planning aspects of landscape objects forming are studied. The historical review of development of park and garden styles and their influence are brought around to modern progress of landscape architecture trends. Theoretical bases and practical methods of the landscape planning are examined, in particular an architectonically-plan and volume-spatial system of municipal space forming, use of natural and artificial components in the construction of landscape objects composition.

Form diversity of ornamental woody plants. Form diversity of ornamental woody plants is part of dendrology, that studies the cultures of woody plants, classification of decorative characteristics, methods of receipt, biological and ecological features are studied students the most widespread and interesting cultures of arboreal plants and their classification. On completion of study of discipline students must be oriented in the varietal diversity of woody plants and own skills of the use in green planting.

Ecological examination. Course of discipline "Ecological examination" studies the estimation of possible influence of the envisaged or pre-arranged activity on the state of environment, its accordance to the requirements of ecological legislation.

2.2.2. *Master's program "Landscape building"*

Vertical planning of landscaping objects. Basic concepts, principles, methods, requirements of normative documents and sequence of implementation of work are studied at traditional and automated methods of stowage of projects of the vertical planning of municipal territory, housing building, areas of green plantations.

Agricultural engineering in park-garden building. Park-garden building is important component in the general complex of town-planning and municipal economy. Includes the circle of various after the degree of complication questions of related to planning, building, exploitation of park and garden objects, creation, forming and maintenance of their important constituent - decorative planting. An agrotechnics in park and garden building is the complex of measures, which envisage the decision of the various tasks of legal, aesthetic, organizational, operating-economic, economic character, sent to creation and maintenance of the high-decorative planting of park and garden objects various purposes.

Park-garden constructions, mechanisms and equipment. Modern landscape building is important component part in the general complex of town-planning and municipal economy. It includes the circle of various questions, what planning, building, creation, forming, related to the features, and also further exploitation and maintenance of park-gardening garden objects. A considerable place in the list of the marked questions is occupied by park and garden constructions, mechanisms and equipments that allow realization of complex works on park-gardening objects with the use of modern machines, mechanisms and appliances.

Landscape planning. Within the limits of discipline, the historical, social and town planning aspects of landscape objects forming are studied. The historical review of development of park and garden styles and their influence are brought around to modern progress of landscape architecture trends. Theoretical bases and practical methods of the landscape planning are examined, in particular an architectonically-plan and volume-spatial system of municipal space forming, use of natural and artificial components in the construction of landscape objects composition.

Recultivation of affected landscapes. In a course basic information is given about factors, kinds and degree of violation of landscape structure, classification of basic forms of technogenic relief of earth surface. The program is based on modern information of theoretical and practical value, which is necessary for organization of works from recultivation of affected land and forming phytocenosis for melioration.

Ornamental plants protection. Methods of observation and entomopathological inspections, pest quantity accounts and level of pathogenicity of plant diseases pathogens, and also methods and facilities of decorative plant protection, prognostication of possible pathological changes in biocenoses, facilities of protection during the stowage of the complex systems of pest control and pathogens in corresponding biocenoses.

2.2.3. *Master's program "Ornamental nursery"*

Modern technologies in ornamental nursery studies. World experience of planting stock growing. Planning of ornamental planting stock growing measures. Features of ornamental nurseries organization and agrotechnics of planting stock growing.

Woody plants growth and mineral nutrition regulation. Subject embraces basic knowledge in relation to growing and nutrition of ornamental woody plants, using chemical and biological preparations for strengthening basic plant functions.

Potted woody plants growing. Scientific bases of decorative planting stock in a container culture organization of production. Technological features of growing and use of planting stock with the closed root system for green planting for urban landscapes.

Nurseries rules and regulations. A legislation is in relation to a seed-growing and nursery. Normative and regulating materials in the sphere of nursery. Documents about the seed quality and planting stock quality.

Biotechnology methods in ornamental nurseries. Modern state and prospects of development of method of microclonal reproduction of arboreal plants. Calusogeny, morphogeny and features of microclonal reproduction of decorative woody plants.

Planting stock quality and methods of its estimation. General approaches in relation to determination of the planting stock quality. Home and world standards are for planting stock. Features of quality determination of the woody plants nursery transplants.

2.2.4. *Master's program "Ornamental horticulture"*

Plant breeding and seed study. Subject studies fruits and determination of purity and germination of annual, biennial, and perennial herbaceous plants seeds; classification of the most widespread annuals, biennials, tuberous, corms, rhizome plants; creation of module flower-gardens using different types of plants; general terms of methodology of plant sort determination.

Recultivation of affected landscapes. In a course basic information is given about factors, kinds and degree of violation of landscape structure, classification of basic forms of technogenic relief of earth surface. The program is based on modern information of theoretical and practical value, which is necessary for organization of works from recultivation of affected land and forming phytocenosis for melioration.

Ornamental plants protection. Methods of observation and entomopathological inspections, pest quantity accounts and level of pathogenicity of plant diseases pathogens, and also methods and facilities of decorative plant protection, prognostication of possible pathological changes in biocenoses, facilities of protection during the stowage of the complex systems of pest control and pathogens in corresponding biocenoses.

Ornamental horticulture. A study of theoretical and practical principles of reproduction, growing and use of arboreal plants is at creation of the decorative planting. The "Ornamental horticulture" gives to future specialists theoretical and practical knowledge about the assortment of decorative plants, methods of reproduction, technology of growing, creation of decorative artificial characteristics of woody plants and supervision upon them in the decorative planting.

Form diversity of ornamental woody plants. Form diversity of ornamental woody plants is part of dendrology, that studies the cultures of woody plants, classification of decorative characteristics, methods of receipt, biological and ecological features are studied students the most widespread and interesting cultures of arboreal plants and their classification. On completion of discipline study students must be oriented in the varietal diversity of woody plants and own skills of the use in green planting.

Modern technologies in ornamental nursery. World experience of planting stock raising. Planning of ornamental planting stock raising measures. Features of ornamental nurseries organization and agrotechnics of planting stock growing.

Training of masters of sciences in educational program "WOODWORKING AND FURNITURE TECHNOLOGIES" in specialty 187 "WOODWORKING AND FURNITURE TECHNOLOGIES" branch of knowledge "Agricultural science and food"

Form of Training:	Licensed number of persons:
– Full-time	40
– Part-time	40
Duration of Training:	
– Full-time educational and professional program	1,3 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Master of woodworking technologies

The concept of training

Master's training in the specialty involves the assimilation of knowledge and skills of developing the designs and technologies of wood materials and products manufacturing, of determination of their characteristics and quality level, mastering of the techniques for analyzing of the existing processes, planning and carrying out the researches aimed for the processes optimization and woodworking industry improving.

After the successful completion of master's education, the graduate should be able to solve the following problems:

- to analyze the technical process of a certain product manufacturing and to make recommendations for its improvement;
- to analyze the structure of wood products and to make recommendations for its improvement;
- to develop the routing of the certain wood product;
- to develop the structure of the certain wood product and to draw it;
- To calculate the cost of the certain wood product manufacturing and the payback period on its implementation;
- to adjust the machines for certain wood products manufacturing;
- to calculate the parameters of power and aspiration for a particular technological process;
- to give the scientific evidence concerning the changes of a timber drying equipment structure.

Master's program "Modern woodworking technologies"

The basis of the master's program is a systematic approach to the study of woodworking technology and forming of students' ability to use rationally the equipment, wood and energy. Disciplines cover the theoretical and practical aspects of the technologies of wood products manufacturing, trends of the woodworking technology, modern requirements for wood products, features of the modern woodworking machinery, new materials used in the wood products manufacturing, new accessories, methods of the details dimensions calculations of the contemporary structural wood products, the design technologies development directions, requirements for furniture products, basic artistic design, the main features of furniture styles, modern trends of the style solutions for the furniture products and the means of their implementation

Areas of employment of graduates

The masters of "woodworking technologies" use their skills in related educational institutions of I-II and III-IV accreditation levels, government and commercial enterprises of the production and sale of construction materials, Ukrainian Research Institute of Nanobiotechnologies, government and commercial woodworking and furniture enterprises (engineer-technologist, Controller of the wood production, specialist, leading specialist, head of the production unit, head of the company). Besides, this level of the professional training allows to work as a junior researcher, researcher, senior researcher, senior researcher, lecturer, assistant in research and educational institutions, to participate in the international research projects.

Proposed Topics for Master Theses

1. Foundation of technology facades finishing of solid wood for the furniture for the woodworking industry.
2. Prospects for the introduction of deck board production technology to the woodworking industry.
3. Investigation of accuracy and workmanship of the molded products on the woodworking industry.
4. Foundation of the measures on improving the technological process of furniture manufacturing on the woodworking industry.
5. Foundation of furniture manufacturing technology at the enterprise.
6. Foundation of the proposals concerning the improvement of floorboards manufacturing technology at the woodworking industry.
7. Improving of the technological process of polymer production manufacturing at the woodworking industry.
8. Foundation of the modern methods of coatings application while manufacturing the furniture products.
9. Foundation of the infrared heaters applicability for veneer drying.
10. Research of the volume indicators of round timber cutting for the timber production at the woodworking industry.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Woodworking and furniture technologies" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Actual problems of mechanical wood working	1	180	6
2	Theory and Practice of wood cutting	1	180	6
3	Theory of thermal treatment of wood	1	180	6
4	Theory and technology for agglutination of wood	1	180	6
5	Modeling and optimization of technological processes	2	120	4
Total for standard part			**840**	**28**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Forest policy	1	90	3
2	Foreign language (professional orientation)	1	120	4
3	Methodology and organization of scientific research on the basics of intellectual property	2	90	3
Total (Disciplines offered by University)			**360**	**12**
2.2. Disciplines offered by students				
2.2.1. Master's program "Modern woodworking technologies"				
1	Planning At The Woodworking Industry	1	120	4
2	Planning and design of wood	2	210	7
3	Ergonomics of furniture products	1	90	3
4	Technology Of Special Woodworking Industries	2	90	3
5	Foreign trade in the wood-processing enterprises	2	90	3
6	Mechanical and technological properties of wood	2	90	3
7	Innovative woodworking machinery	2	90	3
Total (Disciplines offered by students)			**780**	**26**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Training practice		60	2
2	Production practice		540	18
3	Preparation and defense of master's thesis		180	6
Total			**780**	**26**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Actual problems of mechanical wood working. Theoretical foundation of wood cutting and wood-based materials, the direction of the cutting theory, ways of improving of wood cutting tools and woodworking equipment, modes of cutting, milling, turning, grinding and deep processing of wood, ways of increasing the period of stability of wood-cutting tools.

Theory and Practice of wood cutting. Scientific principles of the wood cutting technology, theory of logs cutting for the timber, posture calculation and planning of logs cutting, wood cutting optimization criteria, standardization of raw at the timber cutting, methods of experiments conducting at the timber cutting and its planning, analysis of the equipment and technologies of logs cutting, simulation of logs cutting; practical recommendations for the technological processes of the timber production.

Theory of thermal treatment of wood. Convective heat transfer. Similarity theory. Heat treatment of wood. Technology and equipment of the heat treatment. Heat and

moisture exchange in the drying process. Aerodynamics. Equipment and technology of sheet and powdered materials drying. Alternative heat sources.

Theory and technology for agglutination of wood. Structure and properties of the wood composite materials. Modern understanding of the mechanisms of wood composite materials creation. Polymers destruction mechanism. Kinetic concept of strength. Formation terms of the adhesive joints. Basics of the compaction theory. The essence of the compaction process. Modification of wood composites.

Modeling and optimization of technological processes. Evaluation of basic parameters of statistical population. The analysis of functional response parameters of influence. The method of least squares to build one-factor models. Full-factor based planning experiments. Construction of mathematical models with experimental plans for the second and third order. Optimizing research facilities by coordinate-wise search and steep ascent. Simplex method for optimization of planning observations.

2. Elective academic disciplines

2.1. Disciplines offered by University

Forest policy. Basic concepts of the discipline. Subject, purpose and concept of forest policy. Levels of forest policy. Basic principles of forest policy. Components of forest policy. Aims and objectives of forest policy. Conditions, goals and objectives in Ukraine. Legislation in the field of social, financial and environmental law as instruments of forest policy. Forestry legislation. Forest Code of Ukraine. Analysis of the distribution of government functions in the forestry sector in Ukraine and ways of its reform. The main functions of the state. Strategic priorities of forest policy in Ukraine. Environmental, economic and social aspects of sustainable development. Criteria and indicators of sustainable forest management. The concept of sustainable development in Ukraine. The principles of sustainable forest management. Basic concepts and definitions of certification and forest certification. Features of forest policies of European countries.

Foreign language (professional orientation). Speech Etiquette communication: language models salutation, civility, forgiveness, coordination and more. Linguistic and cultural aspects of international exhibitions. Lexico-grammatical and a minimum of linguistic communicative level presentations. Professionally-oriented foreign-language sources. Methods of finding new information in the foreign-language sources. Linguistic methods for analytical processing of foreign sources. The study of foreign language printed original literature and expansion of vocabulary and grammatical skills. Methods and linguistic features of annotation and summarization of foreign sources. Electronic foreign-language sources. Finding information on the Internet by using keywords. Fundamentals of Translation professionally oriented foreign-language sources. Machine translation of large volumes of foreign language information. Lexical minimum computer (information) technology.

Methodology and organization of scientific research on the basics of intellectual property. Students learn the theory dimensionality, physical modeling, statistical methods for object models building. Regressive model of the research object. Elements of the experiment planning theory. Plans of the multifactor experiments. Characteristics of the main stages of the research. Principals of the patents, features of the patents at the woodworking.

2.2. Disciplines offered by students

2.2.1. Master's program "Modern woodworking technologies"

Planning at the woodworking industry. Subject, method and objectives of the discipline. The system of plans operated at the woodworking industry. Business planning at the workplace. Regulatory information management of the planning process. Production program and its formation. Work and wages planning over / on plants. Planning of production costs according to the market conditions. Financial planning for the woodworking enterprises.

Planning and design of wood. Designs, classification, connections for wood products, the technology of design, production and design, ergonomics requirements.

Ergonomics of furniture products. Methods, Theory and Practice of ergonomics, ergonomic requirements and basic standards required in the design.

Technology of special woodworking industries. Technology of special woodworking industries: consumer products, cooperage products, flooring, match, chip packaging, carbonization. Flow charts, machinery, equipment, raw materials and production quality requirements.

Foreign trade in the wood-processing enterprises. Purpose of the course - acquisition of theoretical foundations in the area of foreign trade the forestry sector, and to develop practical skills and the ability to apply the acquired knowledge in export-import operations woodworking industry.

Mechanical and technological properties of wood. The issue of mechanical and technological properties of wood materials for all types of strains. The problems of elasticity of isotropic, anisotropic and orthotropic bodies, rheology, physical properties of wood of various breeds. These practical calculations compounds constructions of wood with real operating conditions.

Innovative woodworking machinery. Modern technical solutions in the construction of equipment for processing wood and wood materials, construction of modern technological equipment.

LAW FACULTY

Dean – Candidate of Science in Law, Associate professor Yara Olena Sergiivna

Tel.: (044) 259-97-25
E-mail: lawyer_dean@twin.nubip.edu.ua
Location: Building № 6, Room 231

Faculty organizes and coordinates educational process of master training in educational program within specialties:

Specialty 081 "Law"

Educational program "Law"

Graduating department:
Agrarian, land and environmental law named after V.Z.Yanchuk
Tel.: (044) 259-97-25
E-mail: agrolaw_chair@twin.nubip.edu.ua
Head of Department – Doctor of Law, Professor Yermolenko Volodymyr Mykhaylovych

International Law and Comparative Law
Tel.: (044) 259-97-25
E-mail: interlaw_chair@twin.nubip.edu.ua
Head of Department – Doctor of Law, Professor Ladychenko Viktor Valerijovych

Administrative and Finance Law
Tel.: (044) 259-97-25
E-mail: adminlaw@twin.nauu.kiev.ua
Head of Department – Doctor of Law, Professor Kurylo Volodymyr Ivanovych

Civil and Economic Law
Tel: (044) 259-97-25
E-mail: civillaw_chair@twin.nubip.edu.ua
Head of the department – Doctor of Law, Associate professor, Piddubnyi Oleksiy Yuriyovych

Master's course
in educational program "LAW"
in specialty 081 "LAW"
branch of knowledge "Law"

Form of Training:	Licensed number of persons:
– Full-time	75
– Part-time	75
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of teaching	Ukrainian
Qualification	Master of Law

The concept of training

Program goal-oriented training of legal experts in law to meet the needs for legal services of the state agricultural sector, including agricultural enterprises of all forms of ownership and legal organizational forms, the sphere of land relations, provision with qualified legal personnel of state organs, public organizations, other enterprises and organizations.

Master's program "Agrarian Law"

Master's program was created based on the state and prospects of development of agricultural science in Ukraine and abroad. The curriculum provides training experts who have deep theoretical base on agrarian, land, environmental and natural resource law, and also be able to apply modern legal techniques for basic and applied research in law. Training oriented in-depth mastery of academic knowledge and skills of their application in practice.

Areas of employment for graduates

The program of training for lawyers of agrarian direction provides for personnel needs of Agro-industrial complex and rural social sphere. The level of training and qualifications of graduates gives them the opportunity to work as a lawyer in various economic entities in AIC, in the state executive authorities, local government bodies, relevant departments and offices that exercise powers concerning implementation of state agricultural policy. The program also provides adequate training of future researchers, namely: a graduate student, a teaching assistant, a senior lecturer, a researcher.

Master's program "Environmental Law"

Master's program was created based on the state and prospects of development of environmental science in Ukraine and abroad. The curriculum provides training experts who have deep theoretical framework for environmental and natural resource law, and also be able to apply modern legal techniques for basic and applied research in law. Training oriented in-depth mastery of academic knowledge and skills of their application in practice.

Areas of employment for graduates

The training of lawyers ecological enables them to employment in the central executive authority in the field of Environment and Natural Resources and its territorial divisions; Poresursovyh State agencies, services and inspections; State Emergency Service of Ukraine; local executive bodies and local authorities; the internal affairs of Ukraine; the Prosecutor's Office of Ukraine; judicial authorities; of environmental organizations.

Master's program "Land Law"

The master's program aims to meet social needs in a professional lawyer and provide theoretical, practical and scientific training of qualified personnel who would have acquired deep knowledge to perform professional tasks Research and practical in the sphere of land relations.

Areas of employment for graduates

State Service for geodesy, cartography and cadastre and its territorial bodies; Ministry of ecology and natural resources of Ukraine; Ministry of agrarian policy and food of Ukraine; main administration of agroindustrial development administrations; State environmental inspectorate of Ukraine and its territorial bodies; SLC Centre and its affiliates; local authorities and local authorities; prosecution service of Ukraine; the judicial authorities; enterprises of land management profile.

Master's program "Administrative law"

Programme getting and deepening students scientific knowledge of administrative and legal activities of state executive, practical skills application of the law in this area, monitor its compliance and familiarization with the organization of public institutions and development of draft regulations on legal support of state executive bodies.

Areas of employment for graduates

Prepared within specialization legal professionals have the opportunity to work on a specialty in public administration of Ukraine (public authorities and bodies of local government), as well as enterprises, institutions and organizations. The level of training and qualifications enable students to work on teaching positions in research institutes, graduates are entitled to continue postgraduate study.

Master's program "The Court. Office of Public Prosecutor. The legal profession"

The legal profession" getting and deepening students scientific knowledge of administrative and legal activities of judicial, law enforcement and advocacy, practical skills application of the law in this area, monitor its compliance and familiarization with the organization of the judiciary and law enforcement. Development of draft regulations on legal support of judicial and law enforcement and ensure the implementation of lawful action in making management decisions.

Areas of employment for graduates

Prepared within the specialization legal professionals have the opportunity to work on a specialty in the judiciary and prosecutors; as lawyers; notaries; consultants of notaries; judge of the court; assistant of the head of the court; in government and local government as, head of legal department. The level of training and qualifications enable students to work on teaching positions in research institutes, graduates are entitled to continue postgraduate study.

Master's program "International Law"

Master's program provides theoretical, practical and scientific training of qualified personnel who would have acquired in-depth knowledge to perform professional tasks of research and practical character in international law. Studiying Master's program students acquire knowledge of international law, foreign relations, international economic law, international humanitarian law, international legal regulation of food security. Special attention while studying the disciplines is given to the analysis of law of international organizations and international treaty law.

Areas of employment for graduates

The program of training lawyers in the field of international law ensures the need for personnel of the enterprise, institutions and organizations that carry out diplomatic and foreign economic activities and represent the state in the field of international relations and international trade. The level of training and qualification of graduates gives them the opportunity to work in positions of legal advisers in the different subjects of foreign economic activity, the public authorities in the country, bodies representing the State abroad, diplomatic and trade missions, the relevant departments and offices of the Ministry of Economic Development and Trade of Ukraine. The program also provides proper training for future researchers, namely: a graduate student, an assistant of the department, a senior teacher, a research assistant.

Master's program "Business Law"

The program provides an opportunity in the current economic conditions to prepare skilled workers for various sectors of agriculture includes both training and the ability to plan litigation legal work, interaction with regulatory authorities, specific contractual relations in certain sectors of the economy and the appropriate legal protection of the rights and legitimate interests of economic subjects object.

Areas of employment for graduates

The level of training and qualification of graduates gives them the opportunity to work as a lawyer in various business entities in state executive power bodies, relevant departments and offices of the Ministry of Justice of Ukraine. The program provides both proper training of future scientists, namely graduate student assistant, senior lecturer, researcher.

Practical training

The aim of the practice is obtaining by the master students of practical skills in agriculture, agricultural production and environmental management. The difficulty lies not only in the problems of application of the imperfect legislation, but, chiefly, in the need to master the many different law provisions of different areas of law, the knowledge of which eventually form a real professional, able to withstand any competition in the legal services market. This knowledge enable practicing lawyers to find an optimal solution of a complex legal problems and achieve its implementation through the competent public authorities.

Proposed Topics for Master’s Thesis

1. Rights of sustainable rural development.
2. Rights diversification of agricultural activities.
3. Social development of the village as the Institute of Agricultural Law.
4. Principles of environmental law.
5. The system of environmental law.

6. The subject of environmental law.
7. Legal aspects of the State Land Cadastre.
8. Legal regulation of the state registration of rights to land.
9. Legal aspects of resolving land disputes.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Law" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Philosophy of Law	1	120	4
2	Rule-Making Technicality	1	120	4
3	Civil Procedure Document	1	120	4
4	International legal regulation of food security	1	90	3
5	International treaty law	1	90	3
6	Problems of Information Law	1	90	3
7	The law of international organizations	2	120	4
8	Interpretation of Law	2	90	3
9	The problems of ownership	2	120	4
10	Theoretical issues of civil law	2	120	4
11	Current issues preventing and combating corruption in Ukraine	2	90	3
12	Current issues of agrarian law	2	120	4
13	Current problems of natural resource law	2	120	4
14	The law on environmental safety	3	90	3
15	Advisory activities of a lawyer	3	90	3
Total for standard part			**1590**	**53**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of scientific research and the principles of intellectual property	2	90	3
2	Foreign language for specific purposes	1	150	5
3	Agricultural policy	1	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Agrarian Law"				
1	Features of legal regulation of labor relations in agriculture	3	90	3
2	Problems of legal regulation of the agricultural market	3	90	3
3	The legal quality and safety of agricultural products	3	90	3
4	Legal protection of the environment in agriculture	3	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
5	The agrarian law of foreign countries	3	120	4
6	Legal regulation of financial activity of industrial agriculture	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.2. Master's program "Land Law"				
1	State registration of land and rights to them	3	90	3
2	Legal aspects of the protection of land rights	3	90	3
3	The legal regulation of the land market	3	90	3
4	Legal protection of lands	3	90	3
5	Land law of foreign countries	3	120	4
6	Legal problems acquisition and sale of land rights	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.3. Master's program "Environmental Law"				
1	International and European environmental law	3	90	3
2	Legal problems of landscape law formation	3	90	3
3	Problems fauna and flora law	3	90	3
4	Actual problems of water law	3	90	3
5	Rights biotechnology	3	120	4
6	Legal problems of forest law	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.4. Master's program "Administrative law"				
1	Administrative jurisdiction in the agricultural sector	3	90	3
2	Administrative responsibility	3	90	3
3	Current issues of administrative law	3	90	3
4	Legal support public administration	3	90	3
5	Rights of public revenues and expenditures in Ukraine	3	120	4
6	Administrative and legal regulation of nature	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.5. Master's program "The Court. Office of Public Prosecutor. The legal profession"				
1	Modern problems of the judicial system in Ukraine	3	90	3
2	The Prosecutor's Office of Ukraine	3	90	3
3	Problems of reforming law enforcement bodies of Ukraine	3	90	3
4	Problems and consideration of criminal cases	3	90	3
5	Actual problems of criminal legal qualifications	3	120	4
6	Problems of forensic activities	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.6. Master's program "International Law"				
1	International humanitarian law	3	90	3
2	Law of external relations	3	90	3
3	Comparative constitutional law	3	90	3
4	International criminal law	3	90	3
5	Legal basis of EU environmental policy	3	120	4
6	International economic law	3	90	3
Total (Disciplines offered by students)			**570**	**19**
2.2.7. Master's program "Business Law"				
1	Contract law	3	90	3
2	Problems of economic justice	3	90	3
3	Competition law	3	90	3
4	Legal regulation of securities market	3	90	3
5	Legal protection of intellectual property rights	3	120	4
6	Legal regulation of trading activities	3	90	3
Total (Disciplines offered by students)			**570**	**19**
Total for elective part			**900**	**30**
3. OTHER TYPES OF TRAINING				
1	Academic Practice	2	60	2
2	Production Practice	2	60	2

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3	Preparation and defense of master's work	3	90	3
Total			**210**	**7**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Philosophy of Law. The philosophy of law is a specific sphere of the theoretic legal knowledge which borders on such philosophy branches as ethics, ontology, anthropology, axiology, epistemology etc. The purpose of the “Philosophy of law” academic discipline is to explore the philosophic principles of the legal science and practice of law, to deepen knowledge of the legal sciences as to the conditions of the future professional law enforcement and compliance activities.

Rule-Making Technicality. The rule-making technicality is a set of legal and technical rules, procedures, means and methods of the implementation by the authorized entities of presentation of the state’s rule-making will with the purpose of efficiently regulating and guarding social relations and ensuring system links of regulatory legal acts of different legal force. The purpose of the “Rule-making technicality” academic discipline is to shape knowledge about the main methods and procedures of the rule-making technicality which is used for forming content and external drawing up of regulatory legal acts as well as its varieties and peculiarities of use in the modern Ukrainian state.

Civil Procedure Document. Most of appeals to the court by members procedural relations submitted in writing. The court, in turn responds to these appeals enacting a decree or ruling on the case. Its decision the court sets out exclusively in writing. Based on the knowledge that students have after studying civil procedural law and the foundations of business communication, students must learn how to made procedural documents. Also the special course deals with the design appeals to international courts if the possibility of protecting the rights and legitimate interests in courts of Ukraine. During the development of this discipline students focused on claims that procedural law raises procedural documents such as claims, counter-claims court, the court, procedural documents consisting mandatory and special proceedings. Attention focus on features content relevant procedural documents with regard to the subject of the dispute. In workshops with special course offered for familiarization and analysis of samples procedural documents published in the literature, and taken from judicial practice. Practiced professional skills up to procedural documents in accordance with the Civil Procedure Code of Ukraine.

International legal regulation of food security. The main purpose of this discipline is to obtain knowledge about: the concept, the essence, the main characteristics of the international legal food security, sources of international law in the field of food security, international legal regulation of food safety within the UN and its specialized agencies, international regulation of food safety within the World trade Organization. Special attention is paid to international legal regulation of food security at regional level, including legal regulation of food security in the EU.

International treaty law. Academic discipline is aimed at developing students' knowledge on appropriate concepts and codification of international treaty law, the concept of an international treaty, its language, form, structure and species and stages of the procedure concluding international agreements, action, reality and termination of international treaties.

Problems of Information Law. Introducing students to the concept of information relations in society, which are the subject of legal regulation. Highlights of the determination information law as a science, its tasks and place in the law, the formation history of the industry and its individual institutions, but also includes issues of theoretical concepts of information law and information law of foreign countries.

The law of international organizations. The main objective of the discipline is mastering by students a wide range of concepts and ideas about the complex process of formation and development of international structures, deepening integration interaction between states, new international alliances as a source of stability and peace.

Interpretation of Law. The subject of the law interpretation occupies an important place in the jurisprudence as it is related to solution of important issues of the legal rules' implementation. The purpose of the "Law interpretation" academic discipline is to equip the students as future highly qualified specialists with a necessary foundation of knowledge and practical skills as to clarification and explanation of the meaning of the legal acts' directions with a view to clearly and effectively use them both in the conditions of a specific simulated situation and in a future practical activities.

The problems of ownership. Special course is aimed at mastering of theoretical material on the legal nature of the of ownership, the content of the legal relations and the legal status of participants of property relations. The practical component consists in studying the questions of establishment and protection of the rights of owners. The student should know: theoretical principles of ownership, the main provisions of ownership in the works of scientists-lawyers and current legislation in this area. The student should be able to: analyze current legislation and apply this knowledge in practice.

Theoretical issues of civil law. The academic discipline involves learning of legal regulations, which have some positive features and direct the state efforts to meeting customer needs, providing conditions for the development of entrepreneurship, diligence, business and creative initiative, development of legal civil society where a person with dignity will feel independent.

Current issues preventing and combating corruption in Ukraine. Familiarizing students with the modern paradigm of public policies to prevent corruption legal framework of public policies on prevention of corruption, international legal and regulatory acts applicable law system in combating and preventing corruption, effective international experience in combating and preventing corruption system of counteraction and prevention of corruption, their functions and powers, novellas national legislation to combat and prevent corruption, with the implementation of anti-corruption reform and so on.

Current issues of agrarian law. Involves the study of peculiarities of the formation of agricultural legislation in the modern period. Particular attention is paid to the study of the legal regulation of reformation processes of land and property relations in the countryside. We study the basic directions of state support for agricultural commodity producers, namely the system of tax incentives, loans and insurance. The ways of investment in the agricultural sector of the country as a means of removing it from the crisis.

Current problems of natural resource law. Issues to be studied: doctrinal approaches concerning the development of the areas of natural-resource law. Natural resources as complex subjects of the legal regulation. Ecological-legal nature of the objects of natural-resource legal relationships in the process of their implementation: the problem of conflicts overcoming. Problems of further integration of the areas of natural resource of law.

The law on environmental safety. Issues to be studied: the scientific and legal basis of environmental security provision; subject, technique, principles, system and source of law on environmental safety; mechanism for legal provision of environmental safety; liability as a guarantee of environmental safety; legal principles of environmental safety provision in industry; legal principles of environmental security provision on transport; legal principles of environmental security provision in agriculture; legal principles of environmental security provision in the field of waste handling; legal provision of environmental security in the production and sale of food products; legal principles of environmental security provision in genetic engineering activities; legal principles of environmental security provision when locating and development of human settlements; legal principles of environmental security provision in the use of nuclear energy; legal regime of zones of environmental emergency and guarantee of the realization of rights by victims.

Advisory activities of a lawyer. Familiarizing students with modern advocacy organization, theoretical knowledge and practical skills of counseling relationships, customer. Application of this knowledge in practical work.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "Agrarian Law"

Features of legal regulation of labor relations in agriculture. Is to better understanding of the legal regulation of labor relations in the village / h. Registration of employment, especially wages, health and safety, working time, rest periods and other issues.

Problems of legal regulation of the agricultural market. Studied problems of legal provision of agricultural market infrastructure. Special attention is paid to the study of the legal status of Agrarian Exchange, the Agricultural Fund, wholesale markets for agricultural products and agri-trading houses.

The legal quality and safety of agricultural products. Studied general provisions on the requirements and standards for Agricultural Products, allowing for the manufacture and sale of certain types of agricultural products. Analyzed international experience and scientific achievements in the field of quality and food safety in agriculture.

Legal protection of the environment in agriculture. Issues to be studied: the general theoretical principles of legal protection of the environment and natural resources in agriculture. The sources of legal protection of the environment and natural resources in agriculture are to be analyzed. The mechanism of legal protection of the environment and natural resources in agriculture are to be revealed. The legal provision of environmental security during implementation of various agricultural activities (while handling pesticides and agrochemicals, in livestock farms activity, etc.) is to be studied. The following elements of the legal provision of environmental security are to be considered: food, biological and genetic safety in agriculture. The features of liability for violations of legislation on environmental security in agriculture are to be studied.

The agrarian law of foreign countries. The purpose and objectives of the course "Agrarian Law of foreign countries" are building knowledge of legal regulation of agrarian relations in foreign countries. Special attention is devoted to the experience of agro-regulation in Russia and Belarus and the EU.

Legal regulation of financial activity of industrial agriculture. Studied problems of legal regulation of production and financial activities in agriculture. Agricultural financial analyzes legal and legal relations in livestock and crop production.

2.2.2. Master's program "Land Law"

State registration of land and rights to them. In the study of the course students will be asked to study the legal nature of the land cadastre, relationship management in the State Land Cadastre, peculiarities of legal regulation of its individual components, legal support of state registration of land, as well as responsibility for violation of legislation of the State Land Cadastre. The aim of the course is also the formation of students theoretical knowledge of the legal nature of the registration of land rights, legal principles of state registration of land rights, legal aspects of the procedure of state registration of rights to land and place it in the registration system of Ukraine, as well as the formation of practical skills for independent solution liabilities problems associated with the implementation of the norms land legislation in that area.

Legal aspects of the protection of land rights. Discipline aimed at forming students adequate knowledge about the general characteristics of land rights of land relations, constitutional guarantees and legal tools for legal protection of land rights,

institutional and functional to protect land rights, land characteristics offenses and practical skills for solving features land disputes, their procedural provision, jurisdiction of the courts in land relations.

The legal regulation of the land market. Discipline aimed at forming students adequate knowledge about the legal nature of the land market, legal, institutional and functional aspects of the software market circulation of land, regulation concluding civil contracts for the alienation of land, land sales on a competitive basis, legal basis for forming market of agricultural land.

Legal protection of lands. Studying discipline ensures the proper formation of students knowledge on the legal regulation of land protection system of measures aimed at sustainable use of land, protecting them from adverse anthropogenic influence, reproduction and improvement of soil fertility, improving land productivity, particularly regarding legal support reclamation, revegetation, conservation land.

Land law of foreign countries. In the study of the course students possess knowledge of the basic institutions of the land rights of foreign countries of different legal systems of the world on the basis of theoretical research and legislative principles of land reform, the right to land use and protection of land, government regulation of land relations, ensuring the rights and legal protection on the ground.

Legal problems acquisition and sale of land rights. Discipline aimed at forming students appropriate knowledge in the field of theoretical principles of legal support of land rights and legal issues of purchase and sale of land ownership and land use rights, improving security of land rights and features of legal liability offense for land and formation of students practical skills for independent problem solving related to the acquisition and sale of land rights.

2.2.3. Master's program "Environmental Law"

International and European environmental law. Issues to be studied: the major global environmental problems; the concepts of international environmental law, its formation and development, sources, principles, codification issues; The concept of environmental safety and sustainable development; international legal protection of environmental rights of a human; institutional mechanism of international environmental law; liability in international environmental law; environmental protection during armed conflicts; international regulation of handling with hazardous to environment materials and substances; international legal protection of marine and freshwater environment.

Legal problems of landscape law formation. Issues to be studied: landscapes as integrated objects of environmental legislation. Features of the legal regime of natural landscapes. Anthropogenic landscapes as objects of legal regulation. The problems of implementation of legal regime of natural-anthropogenic landscapes. The problems of consolidation of the legal regime concerning hazardous landscapes. Legal aspects of the formation and development of landscape law.

Problems fauna and flora law. Issues to be studied: historical foundations of fauna law. The concept, subject, methods, principles and system of fauna law. The sources of fauna law. Title to and use of objects of fauna law. State management and control in the area of protection and use of wildlife. Legal regulation of hunting business and hunting. Legal regulation of fish farming and fishing. Legal basis of the use, protection and reproduction of water living resources. Legal basis of keeping the Red Book of Ukraine. Legal regulation of protecting animals from cruelty. Liability for violations of the legislation on fauna.

Actual problems of water law. Issues to be studied: historical foundations of water law development. The concepts, subject, methods, principles and the system of water law.

Sources of water law. Title to Title to and use of water objects. The order of use of water. General and special use of water. Types of water use agreements. Easements. Payment for the use of water. The functions and powers of water use management bodies. Land of water fund and water resources protection zones. The legal regime of marine waters.

Rights biotechnology. Objectives of the course lies in the deep learning by students of law faculty of methodology of issues research in the field of biotechnologies, concept, subject and object of legal relations on the development and use of biotechnologies, problematic aspects of the formation and legal fixation of the modern biotechnology doctrine in Ukraine, legislation in the field of biotechnologies.

Legal problems of forest law. Issues to be studied: historical foundations of forest law development. The concepts, subject, methods, principles and the system of forest law. Sources of forest law. Title and the right to use under forest law. Legal basis of permanent use of forests. Legal basis of temporary use of forests. Legal basis forest easements. The general use of forests. Stay of citizens in forests. Target use of forests. Types of target use of forests. The procedure for granting citizens, legal persons of forest plots, which are in state or municipal property. Harvesting timber. Harvesting of secondary forest materials. The use of forests for hunting business, amateur and sport hunting.

2.2.4. Master's program "Administrative law"

Administrative jurisdiction in the agricultural sector. Provides students acquiring knowledge about the legal framework of inspection bodies in agriculture, their system, types, structure and powers of each inspection, especially administrative proceedings for offenses in the field of agriculture.

Administrative responsibility. Familiarizing students with knowledge on legal ensuring the rights, freedoms and interests of citizens in relation to administrative - jurisdictional authorities and courts, students master the basic assumptions of the theory of administrative law, the Constitution of Ukraine, laws and other normative - legal acts, implementation of theoretical knowledge in practice.

Current issues of administrative law. Provides familiarize students with contemporary problems of administrative legal relations, topical issues of regulation of administrative relations in implementing public authority, problematic aspects to ensure the proper protection of the rights and freedoms of man and citizen in the implementation of the functions and powers of the executive authorities and local governments.

Legal support public administration. Provides study of peculiarities of legal regulation of state management and ensuring legality in the activities of executive bodies and local authorities; analyze problems of structural and organizational restructuring of state power in Ukraine.

Rights of public revenues and expenditures in Ukraine. Involves the study of current tax and budget legislation, review of scientific papers on tax and budget law, as well as the practice of law in this area.

Administrative and legal regulation of nature. Provides familiarize students with the administrative and legal regulation of environmental protection.

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2.2.5. Master's program "The Court. Office of Public Prosecutor. The legal profession"

Modern problems of the judicial system in Ukraine. Familiarizing students with the modern challenges of ensuring the right to a fair trial in Ukraine, organization and functioning of the judicial system of Ukraine, possible prospects of the judicial system and status of judges.

The Prosecutor's Office of Ukraine. Familiarizing students with the basics of organization and activities of the prosecution, its capabilities in protecting the interests of individuals, society and the state, its place and role in the Ukrainian legal system needed not only to graduates of higher educational institutions, who decided to choose the location of their future prosecution.

Problems of reforming law enforcement bodies of Ukraine. Introducing students to the subject of discipline, which is the study of information on the regulatory framework, organization, tasks, functions, authority and main activities of state bodies which carry out law enforcement and not the state organization enable the law enforcement functions of the state.

Problems and consideration of criminal cases. Familiarizing students with theoretical and practical applied problems of criminal legal qualification and solutions in the theory of criminal law, law enforcement practice and legislation.

Actual problems of criminal legal qualifications. Familiarizing students with the modern criminal law Ukraine (general and special parts), criminal procedural law and so on. We study under the following issues: the concept of the legal system and legal system, sources of law, of the right; basic concepts and categories, which operates the theory of criminal law qualifications, namely crime, the stage of the crime, complicity in the crime, the multiplicity of crimes, etc; Procedure and order of presentation of results of criminal legal qualifications.

Problems of forensic activities. Familiarizing students with forensic activities undertaken in the course of judicial expert institutions and government experts. It lies in the organization and conduct forensic examination. Legal proceedings - a set of principles and rules governing the organization and activity of the judiciary.

2.2.6. Master's program "International Law"

International humanitarian law. The concept and history of the formation of international humanitarian law. Sources and principles of international humanitarian law. Concept and types of armed conflicts. Stages of the war. Armed conflicts of an international and non-international character. Parties in the international armed conflict. The concept and conditions of the "humanitarian intervention". The legal status of persons in armed conflict. The regime of military captivity and military occupation. Means and methods of warfare. Protection of civilian objects and cultural values in armed conflicts. Responsibility for crimes and offenses in the field of international humanitarian law. International legal means of protection of human rights in the field of international humanitarian law.

Law of external relations. External relations and international relations. Diplomacy and international law as the main regulator of international relations. Law of external relations as brunch of international law. Internal organization of activities in the field of external relations. Diplomatic relations and other means of implementation of external relations in the aspect of international legal recognition. Structure and personnel of diplomatic missions. Functions of diplomatic missions and means of their implementation. The concept and history of diplomatic privileges and immunities. Theoretical justification and regulatory support of privileges and immunities in international relations. The legal nature of privileges and immunities. Persons who use international protection. Privileges and immunities as permanent diplomatic missions of the sending state. Privileges and immunities of the staff of permanent diplomatic mission.

International criminal law. International criminal law. Concept, subject and system of international criminal law. Principles and sources of international criminal law. International crime and its characteristics. International crime. International responsibility

of states for international crimes. The concept of crimes of international character as the main object of cooperation among states to prevent such crimes and punishment of their perpetrators. The difference between crimes of international nature from ordinary criminal offenses and of international crimes, the criteria of differentiation. Cooperation of states in combating crimes of international nature and its main international legal forms, contracts, participation in international organizations. United Nations congresses on the prevention of crime and the treatment of offenders. Legal grounds for cooperation among states in combating certain types of crime, counterfeiting of currency, terrorism, slavery and the slave trade, illegal drug operations. International criminal courts. The Nuremberg and Tokyo international military tribunals. International Criminal Tribunal for Yugoslavia and Rwanda. International Criminal Court. Extradition (extradition), the term and conditions of issuance. The problem of "extradition or asylum." Principle "or the extradition or prosecution by law by holding state." International Criminal Police Organization (Interpol). History and creation of conditions. Legal basis of Interpol Structure, functions and powers.

Comparative constitutional law. The essence of the legal person status. Types of status of the person: constitutional, individual, industrial. Special status of certain categories of persons. The concept and significance of international standards in the sphere of legal person status. Universal Declaration of Human Rights of 1948 as the most important legal document in the sphere of status of the person. International and regional regulations in the sphere of status of the person. Ensuring international standards of human rights and freedoms. Relationship between international law and national regulation of rights and freedoms of man and citizen.

General characteristics of the institution of parliament and parliamentarism in the world. Genesis of parliamentarism. Legal and factual importance of parliament in the state mechanism. Lobbying. Models of the constitutional status of parliament, depending on the form of government.

Constitutional and legal position of the government, depending on the form of government of a state. Relations between the government and the head of state. The exercise by the head of state of his powers through the government or with his sanction in states with a parliamentary form of government. Institute of contrasignature. The order of government formation in states with different forms of government: theory and practice of government formation. Party composition of government. Party members and coalition governments. Minority governments. Other types of government.

Constitutional and legal regulation of judicial authorities in foreign countries. Basic principles of organization and functioning of the judiciary. The basic model of building the judicial system. The legal status of the judges, comparative characteristics. Trial incompatibility. Judicial immunity. The principle of public participation in the administration of justice in foreign countries.

Legal basis of EU environmental policy. The concept of EU environmental policy. The principles of EU environmental policy. Legal protection of the air. Legal protection of flora. Legal protection of wildlife. Legal protection of water resources.

United Nations Convention on the Law of the Sea of 1982. The Vienna Convention for the Protection of the Ozone Layer of 1985. Framework Convention on Climate Change of 1992. World Conservation Strategy for IUCN of 1980. "Rio Declaration" of 1992. LANDSCAPE. Convention on the Protection of the Fauna and Flora in Europe of 1979.

International environmental organizations. UNEP. IUCN. European Agency for the Environment, European Network Information and environmental monitoring. The main directions and priorities of international cooperation of Ukraine in the environmental sphere.

International economic law. Definition and sources of international economic law. Subjects of international economic law. Economic integration of states and international economic law. Settlement of disputes in international economic relations. Legal regulation of foreign economic activity in Ukraine. International trade and finance. International investment law and international legal regulation of scientific and technical cooperation.

2.2.7. Master's program "Business Law"

Contract law. In studying contract law students gain practical skills in drafting contracts; learn specific techniques protect the business interests of the company by entering into agreements of special conditions on liability, penalties, fines and penalties credits; correct statement of rights and responsibilities of the parties to the treaty.

Problems of economic justice. The purpose of discipline "Problems of economic justice" - a generalization of judicial practice of different categories of economic affairs; study features of application of procedural rules, the stages of the trial; application of precedents for similar cases, in particular as the basis for an appeal, and cassation repeated appeal court decisions.

Competition law. The purpose of discipline is indicated formation of special legal knowledge in the field of unfair competition and monopoly entity in the market; order and reasons of anti-dumping investigations; application of antitrust sanctions.

Legal regulation of securities market. The main purpose of this study is to obtain discipline and learning about: legal bases issue and circulation of securities; establishment and operation of professional actors participating in the securities market; features making certain types of transactions (futures, forwards, swaps, options, hedging, etc.).

Legal protection of intellectual property rights. The purpose of discipline is to acquire skills to solve the legal problem: innovative business sector, research and development firms, and concert producer's agencies; representation of individual professional artists and inventors

Legal regulation of trading activities. The purpose of discipline is to capture future lawyers with knowledge of legal regulation of trade; Special rules for consumer protection; requirements to objects of wholesale and retail trade.

FACULTY OF LAND MANAGEMENT

Dean - Ph.D., Associate Professor, Taras Ievsiukov

Tel.: (044) 258-05-25
E-mail: yevsyukov@ukr.net, landuse_dean@twin.nauu.kiev.ua
Location: building No. 6, office 219

Faculty organizes and coordinates educational process of master training in educational programs within specialties:

Specialty 193 "Geodesy and Land Management"

Educational program "Geodesy and Land Management"

Departments in charge of graduate training:

Land Resources Administration Management
Tel.: (044) 258-05-25
E-mail: Uzr_k@ukr.net,
Head of department – Doctor of Economics, Professor O.S. Dorosh

Land-use Planning
Tel.: (044) 258-05-25
E-mail: agmartyn@gmail.com,
Head of department – Doctor of Economics, Professor A.G. Martyn

Land cadastre
Tel.: (044) 258-05-25
E-mail: v_zayats@ukr.net
Head of department – Doctor of Economics, Professor V.M. Zayats

Geodesy and Cartography
Tel.: (044) 258-05-25
E-mail: kovalchukip@ukr.net
Head of department – Doctor of geographical, Professor I.P. Kovalchuk

Geoinformatics and Aerospace Research of the Earth
Tel.: (044) 258-05-25
E-mail: k_svit@mail.ru
Head of department – Doctor of technical, Professor S.S. Kohan

Training of masters of sciences in educational program "GEODESY AND LAND MANAGEMENT" in specialty 193 "GEODESY AND LAND MANAGEMENT" branch of knowledge "Architecture and Construction"

Form of Training:	Licensed number of persons:
– Full-time	90
– Part-time	85
Term of study:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Master of Science in Land Management and Cadastre

The concept of training

The concept of training for specialty 193 “Geodesy and Land Management” aimed in training highly qualified specialists in land management, land conservation, land administration, environmental monitoring of geosystems and the state land cadastre. Training involves the formation of skills and abilities that allow Master students to solve independently complex issues of land use, land development projects and planning for environmental protection, monitoring and public control over rational use and protection of land, using modern information technologies for information on land resources.

Master’s program "Land Management and Cadastre"

The master's program related to the study and preparation of land use at the national and regional levels, programs and use of land, land management schemes and feasibility studies of land use and protection of lands of the administrative-territorial units, land management projects on establishing and changing the boundaries of administrative units, organizations and delineation of areas of natural conservation, recreational areas and also areas of historical and cultural significance.

Sphere of graduates employment

Setting the boundaries of land plots, approval of boundaries with adjacent land users, making the cadastral plan.

Master’s program "Land Conservation"

When studied in this master's program, students acquire skills and knowledge in the field of rational use and protection of land, restoration of soil fertility, increase productivity of forest land, providing special treatment of land use environmental, health, recreational, historical and cultural significance. Particular attention is paid to the learning standards and standardization in the field of land.

Sphere of graduates employment

Inspection activities in the field of land use and land conservation, prediction of land use changes, restrictions in land use and carry their registration.

Master's program "GIS in Land management"

Development and filling modern cadastral information systems.

Sphere of graduates employment

Modern GIS and remote sensing data necessary for carrying out work on the land, in municipal information systems, GIS management areas.

Master's program "Assessment of land and property"

Master's program aimed at creating specialized skills and knowledge to conduct regulatory and expert monetary value of land, determine the market value of real estate of the economic value of land and quality of soil, the use of automation systems evaluation activities, the conduct of local and regional databases of market value of land and property, service of civil operations for the disposal of real property.

Sphere of graduates employment

Regulatory and expert evaluation of land of all categories and custom real estate.

Master's program "Geodetic-cartographic technology in land management"

Provides training for field-geodetic mapping of land management, performance geodetic and cartographic works, land inventory, accounting and registration of land. Much attention is also paid to technology of mapping of land use, zoning maps, optimizing land use, land use cartographic modeling problems, including using GIS technology, the characteristics of the national geospatial data infrastructure and so on.

Sphere of graduates employment

Creation of maps of land use, zoning maps and zoning, optimizing land use, land inventory.

Practical training

Curriculum of Master training on specialty "Geodesy and Land Management" has two practical trainings: production and pre-diploma practice. The practice of students is conducted to enhance the practical skills of the students by acquiring practical experience to solve production problems and the collection of materials about a specific company, which are necessary to perform the master's thesis. The leading databases and practical training are: State Agency on Land Resources and its units, the Center of the State land cadastre and its regional offices, scientific research and design institutes on land use, research institutions dealing with land management, monitoring, development; land management, State Inspection for Control over the use and protection of land and its regional offices.

Proposed Topics for Master Theses

1. Formation of territorial restrictions in land use, land management schemes.
2. Legal and technical support of state control over rational use and protection of land.
3. Agrolandscape optimization of land agricultural enterprises and administrative units.
4. The use of information technology, design and modern technology to create cadastral maps, evaluation of land and other real estate. Remote sensing for updating cadastral plans and maps.

5. Improved methods of economic and monetary value of land. Methods of soil evaluation.

6. Methods of land and real estate evaluation.

7. Analysis and evaluation of the transformation processes in land use.

8. Methods of forecasting, planning, rational use and protection of land resources.

9. Ecological and economic aspects of regulation of agricultural land.

10. Normative and expert monetary evaluation of various categories of land.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Geodesy and Land Management" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	State Examination of land management decisions	1	90	3
2	Agricultural, land and environmental law	1	90	3
3	Land Resources Management	1	120	4
4	Organization of land surveying works	1	90	3
5	Land Monitoring and Conservation	2	180	6
6	The legal process of land management	2	150	5
7	The land market and real estate	2	120	4
8	Design engineering	2	180	6
9	Tax system	2	90	3
10	Institutional support cadastre and real estate	3	120	4
11	Licensing and patenting of research output	3	90	3
12	Information technologies in scientific research	3	90	3
13	GIS in cadastral systems	3	90	3
14	Economics of land use and land management	3	120	4
Total for standard part			**1620**	**54**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. *Disciplines offered by University*				
1	Methodology and organization of scientific research on the basics of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural Policy	2	90	3
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. *Master's program "Land Management and Cadastre"*				
1	Aided design technology in land management	1	120	4
2	Territorial planning and spatial development	1	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3	Standardization and Regulation of Land Management	2	150	5
4	Quality Management of Land Management Projects	3	270	9
Total (Disciplines offered by students)			**660**	**22**
2.2.2. *Master's program "Land Conservation"*				
1	Formation of agrolandscapes	1	120	4
2	Evaluation and forecast of land quality	1	120	4
3	Engineer-technological regulation of land protection	2	150	5
4	Prediction of land use	3	270	9
Total (Disciplines offered by students)			**660**	**22**
2.2.3. *Master's program "GIS in land management"*				
1	Information Modeling and programming in land management	1	120	4
2	Methods of remote sensing of the Earth	1	120	4
3	Geoinformation analysis and modeling	2	150	5
4	Integration of GIS, remote sensing and GNSS data	3	270	9
Total (Disciplines offered by students)			**660**	**22**
2.2.4. *Master's program "Evaluation of Land and Property"*				
1	Information support of monetary evaluation of land	1	120	4
2	Registration of ownership	1	120	4
3	Cadasters of natural resources	2	150	5
4	Real Estate Evaluation	3	270	9
Total (Disciplines offered by students)			**660**	**22**
2.2.5. *Master's program "Geodetic-Cartographic Technologies in Land Management"*				
1	Computer technologies of mapping	1	120	4
2	National Spatial Data Infrastructure	1	120	4
3	Topographic, geodetic and cartographic supply of land management	2	150	5
4	Thematic mapping of land resources	3	270	9
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**990**	**33**
3. OTHER TYPES OF TRAINING				
1	Research and production practice	2	60	2
2	Preparation and defense of master's work	3	30	1
Total			90	3
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

State Expertise of land management decisions. The purpose of discipline is to develop knowledge and ownership regulations on relevant research, analysis and evaluation of land documents for compliance with legal requirements, set standards, rules, regulations for objects of expertise.

Agricultural, land and environmental law. The course aims to create a system of knowledge of the legal regulation of agrarian relations in Ukraine, legal support agrarian and land reform, to determine the peculiarities of legal regulation of food and environmental safety, and mechanisms of its implementation.

Land Resources Management is a special discipline in the training of engineers and surveyors focused on the knowledge of the nature and patterns of land management, research methods and management mechanisms.

Organization of land surveying work. Discipline is based on the provisions of economics that studies the scientific methods of organizing and planning production activities in the field of land management.

Land Monitoring and Conservation. The purpose of the discipline is learning and gaining listeners required theoretical knowledge and practical skills in monitoring land.

The legal process in land management. The main objective of the discipline is the study of procedural order of land management activities in relation to: the transfer of land ownership and provision for use of natural and legal persons; withdrawal (redemption) of land, privatization of land, the sale of land to individuals and companies, regulatory fees ground, the creation and operation of the farm, land acquisition, the formation of farms and so on.

The Land market and real estate. Purpose - study of, basic functioning of the land market and real estate and use the knowledge gained in practical tasks. Students should be aware of the regulatory and legal framework for the functioning of the land market mechanisms mortgage have knowledge on how the alienation of land and real estate, to be able to analyze and use information.

Design engineering. The aim of the discipline is to develop theoretical knowledge and its practical application in external and internal organization of land ownership, land use: and rational allocation of blocks, cells, working in areas of areas of perennial crops, vineyards, collective gardens, shelterbelts design, placement constructions for cattle, designing erosion waterworks, with terracing of slopes, land reclamation, etc.

Tax system. Taxes as they are have relations to each citizen of Ukraine who pays taxes to government and also as one who get and use public goods. Beside this the relation system between entrepreneurs and government needed thorough knowledge of tax laws. The subject “Tax system” forecast acceptation of theoretical and organizational basis of tax system and tax policy, methodology of calculations, the order of payment of direct and indirect taxes by legal entities and individuals, functioning of alternative systems of taxing, work organization of supervisory authorities and tax administration.

Institutional support cadastre and real estate. The purpose and objectives is to develop an integrated system of property register which will lead to more effective management of real estate, improve property rights and open wider possibilities for the use of these rights will help to monitor the quality of cadastral objects and the environment, will create an objective system property taxation.

Licensing and patenting of research output. The purpose of discipline is to master knowledge in the formation of patent licensing, copyright and related rights. The ability to use knowledge for the preparation of applications for industrial property rights and patents for the protection of copyright in works of scientific and technical purposes with the requirements of national and international laws and regulations in the field of intellectual property.

Information technologies in scientific research. Discipline involves in-depth study of organizational and methodological foundations of information technology in research work, logic and stages of information research works, sources of information, design and implementation of others.

GIS in cadastral systems. Discipline involves consideration of practical applications of GIS and geodata bases of cadastral systems and the acquisition of practical skills in using GIS for automated SLC.

Economics of land use and land management. Based on objective economic laws, a system of socio-economic and environmental measures aimed at implementing the provisions of the land laws, develop the methodology and techniques of effective reasoning and rational land use and protection of various categories, forms and types of

land use, administrative-territorial units, by region and country as a whole. Includes patterns and specific guidelines for the explanation of design decisions on the improvement of the territory of the administrative-territorial units, land ownership and land use, territorial organization of agricultural and other industries under the conditions of different regions and ownership of land.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of scientific research on the basics of intellectual property. Research in the field of land management affects the growth of the social product. The results of scientific research in land management are an intermediate product. But their role in the organization of land relations and land use in the economy is significant. Addressing socio-economic and investment programs require training of relevant personnel of higher qualifications, which would possess methodology and methods of scientific research on problems of rational use and land conservation, land management, economics, land use and land management, new manufacturing and information technology, management and marketing in land management.

Business foreign language. The purpose of studying this discipline - to form students' skills and business communication skills in a foreign language at proficient user autonomous level (C1), which provides the necessary communicative competence in professional work situations orally and in writing; mastering the latest professional information through foreign sources.

Agricultural policy. Course objective - to master methodical and methodological foundations of development and implementation of measures to support and ensure the development of agriculture in the system of linkages in the national economy, and assess from the perspective of the theory of action- state structures for the regulation of the agricultural production in the country.

2.2. Disciplines offered by students

2.2.1. *Master's program "Land management and cadastre"*

Aided design technology in land management. The course involves studying technologies of automation of land management process, the finalresult of which is a set of land-use planning documentation sufficient forfurther formation of land plots or other land objects. We consider the practical aspects of using special software, automated data banks and peripherals.

Territorial planning and spatial development. The course examines the trends and patterns of settlement, organization of production, the functioning of the urban economy, social services, urban transportation systems, street and road network and their components, systems of engineering equipment and engineering site preparation, landscaping, landscape architecture. The modern urban ecology issues and resource conservation are reviewed. We study the principles of development planning, management of space resources to meet the needs of the population and the economy.

Standardization and Regulation of Land Management. The purpose of discipline is: development of general knowledge on standardization and regulation of land management to conserve land resources, soil fertility, implementation and development of sustainable land use, land protection and protection of the environment in general, the definition of the main goals and objectives in the regulation of anthropogenic pressures on ecosystems is general and land resources partially, the definition of the structure and mechanisms of formation and functioning of standardization and regulation system (SRS), the definition of priorities for creating SRS, ensuring governance in process of creation and

revision of existing international, national and industry standards and regulations regarding sustainable land management, land use and land protection.

Quality Management of Land Management Projects. The aim and purpose of discipline is the development of socio-economic activities in the program, project and working land documents that would ensure sustainable use and protection of land, the creation of the environment and improve the natural landscape with the introduction of the scientific organization of labor in the land management process, improving the quality of practical solutions and project documentation as a whole.

2.2.2. *Master's program "Land Concervation"*

Formation of agrolandscapes. The purpose of the study of the course - the mastery of general Theoretical Foundations of environmentally sustainable agricultural landscapes, the development of methodological approaches to the assessment and prediction of agricultural landscapes, the practical application of technology design and ameliorative soil-dimensional structure of agricultural landscapes.

Evaluation and forecast of land quality. Purpose of the discipline - the development of modern methods of assessing the quality of land, the forecast change their state under the influence of natural and anthropogenic factors, basis for the preservation and restoration of ecological values of natural and acquired qualities of land on different natural and economic conditions of areas of land use.

Engineer-technological regulation of land protection. Measures system in the field of land protection: regulation and control, protecting land from harmful human impact, improve soil fertility, standardization. Engineering methods of agricultural landscapes constructing. Technology for the land protection of from degradation processes. Regulations in the field of land protection and reproduction of soil fertility. Land protection in forest and water management; land protection of environmental and other purposes.

Prediction of land use. The course is designed to help master the theoretical knowledge and practical skills of agroecological research in different soil-climatic zones of the study of the causes of degradation phenomena, assessment of the extent of their distribution and performance measures for their prevention, conducting environmental and agrochemical land evaluation.

2.2.3. *Master's program "GIS in land management"*

Information modeling and programming in land management. The course provides learning basic programming skills in C++.

Methods of remote sensing of the Earth. Discipline involves consideration of remote sensing techniques and the possibilities of using contextual interpretation of results in problems of territory management and monitoring.

Geoinformation analysis and modeling. Discipline provides theoretical background of geoinformation analysis and spatial modeling in GIS. There are geographical models of the real world, types of spatial data analysis, principles and technologies of neighborhood analysis, as well as distance analysis, analysis of attributes, reclassification, overlay operations, analysis of location of objects, change detection analysis, statistical surfaces within the course. Theoretical basis and practical application of global and local interpolation methods are reviewed.

Integration of GIS, remote sensing and GNSS data. Discipline provides theoretical basis and practical skills of integration various geospatial data including remote sensing information and GNSS data in GIS, principles of geomodeling to serve soil rational use and soil conservation as well as monitoring of agricultural resources.

2.2.4. *Master's program "Evaluation of Land and Property"*

Information support of monetary evaluation of land. The aim of the course - mastering future specialist surveyors nature of information aspects land evaluation and use of information technologies in the implementation of evaluation. Determination of the real, fair value is essential for taxation and privatization of land and property transactions about the land and rights of its lease on the secondary market. In addition, the value of land is required for the development and implementation of investment projects, obtaining loans secured by real estate.

Registration of ownership. Purpose – to study methods of registration of title to land is required at the conclusion of civil agreements on land, including-sales transactions, rent relations, for the purposes of monitoring – monitoring system as the rights of ownership of land in order to timely detect changes in their assessment, prevention and elimination of negative effects, as well as public accounting.

Cadasters of natural resources. The content and methodological support of the discipline is aimed at developing students' knowledge and practical skills about forming database of natural resources cadasters (including water, forests, territories and objects of nature reserves, spas, etc.), their use in solving problems of local territories management and individual land use.

Real Estate Evaluation. Purpose – to learn to identify the objective market value of the property, which usually depends on the type of the property, the location of the property, the cost of construction of similar facilities, the general level of prices, the market situation.

2.2.5. *Master's program "Geodetic-Cartographic Technologies in Land Management"*

Computer technologies of mapping. The task of the discipline dates required theoretical knowledge of modern computer technology to teach methods of their use in the creation and design of maps, acquire skills and abilities while learning specialized software products that are used in the creation of cartographic products used in land surveying; familiarize students with technological features phases of cartographic products (plans, drawings and maps).

National Spatial Data Infrastructure. Content of the discipline is intended to form an idea of the national spatial data infrastructure (NSDI), its structure, purpose, function, the need to fill it, and its role in the production problems related to land management. The features studied are related to legal and institutional framework for the establishment and development of NSDI to ensure the functioning of the production, updating, processing, storage, delivery and use of geospatial data in various spheres of society and state, expansion of the modern geospatial products and services, and integration into the European spatial data infrastructure (INSPIRE).

Topographic, geodetic and cartographic supply of land management. The task of the discipline: to give information on the current legal and organizational framework for the establishment and development of national infrastructure geospatial data gain skills and ability to use geospatial data in land management.

Thematic mapping of land resources. Classification of thematic maps and ways to design legends according to their types are shown. The possibilities to display various objects, processes and phenomena through different ways of map image are explained. The main methods of creating thematic maps, the basic content of their ways and their conclusion and approval are reviewed. During laboratory classes, students fix theoretical knowledge and gain practical skills for the creation, analysis and evaluation of thematic maps with the QGIS software.

FACULTY OF ECONOMICS

Dean – Professor, Doctor of Economics Anatolii Dibrova

Tel.: (044) 527-85-40
E-mail: economy_dean@nubip.edu.ua
Location: Building № 10, Room 301

Faculty organizes and coordinates educational process of master training in educational programs within specialties:

Specialties 051 "Economy"

Educational programs "Economics of enterprise"
"Applied Economics"

Graduating departments:
Enterprise economics named after prof. I.V.Romanenko
Tel.: (044) 527-81-01
E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Svitlana Rogach
Entrepreneurship and agribusiness organization
Tel.: (044) 527-86-60
E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Mykola Ilchuk
Labour Economics and Social Development
Tel.: (044) 527-82-69
E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Oleksandr Iermakov
Global Economy
Tel.: (044) 527-86-48
E-mail: dibrova@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Natalia Vdovenko

Specialties 072 "Finance, Banking and Insurance"

Educational program "Finance and Credit"
Graduating departments:
Finance
Tel.: (044) 527 88 90
E-mail: kafedfin@ukr.net
Head of Department – Professor, Doctor of Economics Nadiia Davidenko
Fiscal policy and Insurance
Tel.: (044) 527-87-59
E-mail: tax_chair@twin.nauu.kiev.ua
Head of Department – Professor, Doctor of Economics Lybov Khudoliy
Banking
Tel.: (044) 527 88 90
E-mail: banking_chair@nubip.edu.ua
Head of Department – Professor, Doctor of Economics Olena Oliinyk-Dunn

Specialties 071 "Accounting and Taxation"

Educational programs "Accounting and Audit"
Graduating departments:
Accounting and Taxation
Tel.: (044) 527-83-61
E-mail: oia616@ukr.net
Head of Department – Professor, Doctor of Economics, Ievheniia Kaliuga
Statistics and economic analysis
Tel.: (044) 527-82-36
E-mail: statistics_chair@twin.nauu.kiev.ua
Head of Department – Professor, Doctor of Economics Vasyl Savchuk
Fiscal policy and Insurance
Tel.: (044) 527-87-59
E-mail: tax_chair@twin.nauu.kiev.ua
Head of Department – Professor, Doctor of Economics Lybov Khudoliy

Specialties 076 "Entrepreneurship, Trade and Exchange Activities"

Educational program "Stock exchange activities"
Graduating department:
Exchange activity
Tel.: (044) 527-81-31
E-mail: kaf.birhga@ukr.net
Head – PhD, Professor Nadiia Reznik

Training of masters of sciences in educational program "ECONOMICS OF ENTERPRISE" in specialty 051 "ECONOMY" field of knowledge "Social and Behavioral Sciences"

Form of Training:	Licensed number of persons:
– Full-time	85
– Part-time	85
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of Teaching	Ukrainian, English
Qualification	Master of Economics graduates

The concept of training

The transition to the market economy, reforming property relations necessitated a radical restructuring of curricula, sending them to deepen the content and quality of professional education.

In addressing this important task is to promote the introduction of a higher speed training school.

Master stage of training in economics differ qualitatively new curricula and programs, innovative forms of educational process, which focused on providing a high level of theoretical knowledge, directly involved in the research and testing of their results in practice, mastery of scientific and methodological foundations of educational activities .

Master of Economics should be an expert with the general level of education and culture to the international standard that has sufficient intellectual capacity to a wide selection of specific areas of practice.

Master's program "Business planning production activities in agriculture"

Improved Agribusiness is an important area of economic growth in Ukraine. In agriculture continues irrational use of natural resources, labor and productive capacity. Resource efficiency depends on a large number of diverse organizational, economic, technical and financial factors, which leads to the need for real justification for each project investment of existing or newly established companies. The experience of foreign and domestic companies shows that in a stable market business success can not be achieved without making business planning. It helps distribute prioritize management efforts, rationally allocate the necessary resources and optimize the economic performance of the company. These problems need to solve economists qualifications. Their competence level of acquired knowledge on business planning of production depends on solving practical problems related to the efficiency of doing business in agricultural enterprises. "

Areas of employment of graduates

Managers and assistants economic departments of enterprises, associations, companies, etc. APC system.

Master's program "Economy of Labor and Social Partnership"

The purpose of the master's program "Economics of Labour and Social Partnership" is training educational degree "Master" specialty "Economics" by forming the students basic knowledge of the theory and practice of labor economics and social partnership in the agro-industrial sector of Ukraine and the professional competencies that provide highly professional staff for the national economy.

In order to form patterns of employment, economic conditions adequate new students on this master's program will learn to: 1) determine the parameters of the employment relationship, the degree of stability; the influence of trade unions; dependence of workers and employers under the specific enterprises and labor markets; 2) detect increase in the degree of commercialization of association of workers who increasingly turn to self-functioning economic actors; 3) formation of differentiated construction employment for workers with different status; 4) The monopolization and individualization of labor relations, which are caused by the emergence of a variety of professional organizations and the increasing number of career options for employees; 5) determine the significance of the growth of employment entered into by representatives of various minorities in the labor market (women, youth, the disabled, refugees, etc.).

Areas of employment of graduates

Head of village councils, specialists of district and regional directorates of agriculture administration.

Master's program "Agricultural Economics formations"

Reforming the Ukrainian economy and its transition to market principles of the need to develop new areas of economic science and practice. The issue market creation at the micro level, ie at the level of the enterprise.

In these circumstances, the successful development of the agricultural sector is based on competent and competent study of market requirements, creation and production of competitive products, providing a high yield. The total sectorial approach has important advantages compared with traditional projects and programs, as increases the responsibility of the Executive in studying the problems at the regional and national levels, fully take into account aspects of sectorial policies and regulation. However, you must educate Masters sufficient standards of public accountability, which in future will form a proper institutional and administrative capacity for the formulation, implementation and coordination of common sectorial programs.

Concept and overall goal of the program reflects the objective need for increasing economic effectiveness and efficiency of the agricultural sector. Today there is a great need to train highly intelligent, educated professional of the business. Masters must learn to take the initiative and solve social and personal issues. Previously it was a system that focused only on the production, then now it becomes a system aimed at improving income and living standards of the rural population.

Areas of employment of graduates

Agricultural enterprises of various forms.

Master's program "Regulation of Agricultural Markets"

The objective is the acquisition and development of the Master's program of theoretical knowledge and practical skills in economic analysis of issues that are in the interests of both individual producers of agro products and marketing managers of

agricultural firms, and analysts to assess the impact of the adoption of policy decisions in agriculture.

Areas of employment of graduates

Agricultural enterprises of various forms.

Master's program "Sustainable development of agribusiness enterprises in the conditions of global economic instability"

Development of organizational, legal and economic conditions for innovative economic development of agricultural production and improve on this basis of social living of the rural population, first of all, increasing its employment and income;

- The acquisition of skills masters for the development of agricultural market infrastructure on the basis of innovation, regulation of supply and demand, quality and development of agro-industrial integration;
- Analysis of the competitive environment for the development of the agricultural sector with regard to WTO requirements, identify and support innovative processes during the implementation of priority directions of development of the agricultural sector in modern conditions;
- The study and development of measures to improve the environmental situation.

Concept Master's program provides for the formation of masters skills in drawing up business plans and integrated programs of investment and innovation development entities in the country.

Social orientation Master Program of innovative development of the agricultural sector leads to the formation of a Master approaches to overcome the negative processes and phenomena in social and economic development of agriculture and sustainable living standards of the villagers, creating conditions for the development of business and on this basis to reduce unemployment and migration.

Areas of employment of graduates

Agricultural enterprises of different forms. Enterprises serving the areas of the APC. Head of village councils, specialists of district and regional directorates of agriculture administration.

Practical training

Teaching and research farms NUBiP Ukraine; advanced enterprise, association, firm AIC system of Ukraine, etc..

Estimated theme of master works

1. The development of agribusiness in the region and increase its efficiency.
2. Organization and prospects of agricultural enterprises.
3. Organization and economic efficiency of logistics farms.
4. Improvement of the forms of production maintenance of agricultural enterprises.
5. Socio-economic principles of sustainable rural development.
6. Improving forms of service production farms.
7. Formation and economic efficiency of sub zernoproduktov.
8. The formation and effective functioning of milk in the complex.
9. The economic mechanism of functioning of a regional stock market agricultural products.
10. Features of formation and development of the stock market agricultural products in Ukraine.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum for Master in educational program "Economics of enterprise" (educational and professional program of master's training)

№	Name of discipline	Semester	Amount	
			hours	ECTS credits
1. MANDATORY TRAINING COURSE				
1	Managerial Economics	2	150	5
2	competitiveness	1	150	5
3	Modeling in management of production systems	2	120	4
4	Stock market	1	120	4
5	Project management	2	150	5
6	Business Planning entrepreneurship in agriculture	2	150	5
7	Global economy	1	150	5
8	Corporate Social Responsibility	2	150	5
9	The taxation of business entities and individuals	2	120	4
10	Economics of production	1	150	5
11	Computer technologies in accounting, tax and auditing	2	120	4
Along with mandatory component			**1530**	**51**
2. SELECTIVE COURSES				
2.1. Disciplines by choice university				
1	Methodology and organization of scientific research with the basics of intellectual property	1	120	4
2	Agricultural policy	1	120	4
3	Business Foreign Language	1	120	4
Total elective University			**360**	**12**
2.2. Subjects chosen by the student				
2.2.1. Master's program "Business planning production activities in agriculture"				
1	Design of entrepreneurship in agriculture	2	180	6
2	Agribusiness: development and evaluation	1	180	6
Total student's choice			**360**	**12**
2.2.2. Master's program "Economy of Labor and Social Partnership"				
1	Labor market	2	180	6
2	Social economy	1	180	6
Total student's choice			**360**	**12**
2.2.3. *Master's program "Agricultural Economics formations"*				
1	Economics of agro-industrial units	2	180	6
2	Economy specialized agricultural enterprises	1	180	6
Total student's choice			**360**	**12**
2.2.4. Master's program "Regulation of Agricultural Markets"				
1	Regulation of agricultural markets	2	180	6

№	Name of discipline	Semester	Amount	
			hours	ECTS credits
2	European studies	1	180	6
Total student's choice			**360**	**12**
Total for the selective component			**720**	**24**
3. OTHER TRAINING				
1	Educational training		150	5
2	Internship		150	5
3	Preparation and defense of master's work		150	5
Total			**450**	**15**
Total with educational program			**2700**	**90**

Annotations subjects curriculum

1. MANDATORY TRAINING COURSE

Managerial Economics course "Managerial Economics" is aimed at getting students the knowledge and skills of decision making for strategic business development, business management in a competitive environment, risks and vicissitudes of the economic environment. Knowledge received as a result of the discipline will help to understand and interpret the economic reality and the mechanisms of modern economy, and facilitate the practical use of economic information and its skilful handling. The main issues of discipline are named: operational management of small and medium enterprises; corporate finance and their use; the competitiveness of enterprises; market analysis and market research; personnel management, cost, quality; Insurance and risk in business, logistics; project management; strategic management; Managerial Accounting; brand management; negotiation; PR; lobbying; economic regulation and competition policy; Labor Law; corporate social responsibility.

The competitiveness of enterprises. The goal of discipline is to form students theoretical knowledge and practical skills for managing competitive businesses in the current economic conditions. The task - studying the theory of domestic and international experience and management competitiveness of enterprises.

Modeling in management of production systems. Forming students' knowledge system of the methodology and tools of modeling economic systems, forming practical skills of construction and application of mathematical methods and models of objects and processes functioning market economy, determining optimal control parameters of socio-economic systems.

Stock market. discipline studies the organization and functioning of the stock market system as the main driving units and a market economy. The purpose of the study course - to give future specialists agrarian theoretical basis and practical skills of exchange activities and effective use of exchange operations in its future activities. Course description form students with knowledge of exchange trading and operation of various types of stock market.

Project Management. The purpose of discipline is to develop in students the necessary theoretical knowledge and practical skills in project management methodology, which is a promising area of management theory and is becoming more common in all areas, and master the appropriate tools for successful project management of information of different types and species. The objective of discipline is learning major theoretical, methodological and organizational foundations of project management; familiarization with the features, principles and objectives of project management in the field of information; practical skills an information system project management among MS Project.

Business Planning entrepreneurship in agriculture. The purpose - formation of

a system of knowledge on the methodology of development of business plans of enterprises and monitoring their performance. Objective: To study the theoretical principles of business planning of agricultural enterprises and practical skills to develop business plans and evaluating the effectiveness of business projects.

Global Economy. The purpose of discipline is the training of highly qualified specialists through formation of students' understanding of the conditions and factors of development, mechanisms and tools of the global economy, the realization of their intellectual mission for balanced decision-making in the context of civilizational progress. The main task - to learn and play at the professional level systematic knowledge of the global economy and to master professional skills formation strategies of economic development under the current transformation processes of globalization.

Corporate Social Responsibility. Formation of basic knowledge of theory and practice of social responsibility of professional competence, learning theoretical principles and practices of cooperation between the state, business, society and the rights of CSR.

The taxation of business entities and individuals. revealed the existing regimes of financial and business entities in various sectors of economy of Ukraine, including the peculiarities of taxation of agricultural products, construction enterprises, transport-forwarding companies, tourism, banking activities financial institutions, economic agents, non-resident, non-profit organizations (institutions) individuals. For materials developed theoretical problem for discussion and independent work.

Economics of production. purpose of the topic - mastering the subject, methods and relationships discipline "Economics of production" in market conditions. Students should note that the subject of discipline is to identify specific forms of manifestation of economic laws of functioning and development of social production in the business sector in a market economy. Economics of production based on the general economic laws that are studied in the disciplines of macro - and microeconomics.

Computer technologies in accounting, tax and audit. Formation of theoretical knowledge and practical skills in the field of construction and operation of information systems and computer technology in accounting. Study features rozv'yazuvannyaoblikovyh problems in the use of computer technology of economic information; formation of skills to perform accounting standard setting objectives, develop algorithms to solve them using specialized software.

2. Selective Courses

2.1. Disciplines by choice university

Methodology and organization of scientific research on the basics of intellectual property. Purpose of the course - mastering modern theoretical concepts of research, their practical application in their research and to familiarize students with the basics of intellectual property.

The object of study - methodology and research methods, methods of organization, and economic, organizational and financial principles of intellectual property in the domestic and international practice. Knowledge of the subject "Methodology and organization of scientific research with the basics of intellectual property" masters needed for research and writing of master works.

The main objective of the course is to prepare specialists in economics to conduct independent research.

Agricultural policy. Educational discipline enables master methodical and methodological foundations of development and implementation of measures to support and ensure the development of agriculture in the system of linkages in the national

economy, and assess from the perspective of the theory of action-state structures for the regulation of the agricultural production in the country .

The main objectives of the discipline is to acquire basic knowledge on the economic substance, character and principal components of agricultural policy; analyze the effectiveness of the bodies and institutions of agricultural policy, through various market-policy instruments; understand the features of formation of agrarian policy in countries with different levels of socio-economic development, characterized agricultural policies of individual countries and blocs.

Business Foreign Language. Discipline is intended to form the skills of knowledge of the English language in the process of everyday graduates with other countries on various issues in agriculture and in preparation for participation in international conferences, projects and discussions, and also teach students to conduct a written exchange of business information.

2.2. Subjects chosen by the student

2.2.1. Master's program "Business planning production activities in agriculture"

Design of entrepreneurship in agriculture. The purpose of discipline is mastering theoretical knowledge and practical skills to build a rational schemes combination in space and time of all components of the production process - labor, objects of labor and means of labor - in given conditions with the best technical and economic indicators of solving problems which put the agricultural enterprise is projected.

Tasks of the course: learning theoretical principles of design of agricultural enterprises, practical skills related to the development of technical, organizational and planning documents on which is formed and secured operation of production systems (companies).

Agribusiness: development and evaluation. The purpose of discipline - to lay out the basic framework for the formation and functioning of the structures of agribusiness, its specificity and the main directions of development, the need to combine market mechanism and state regulation of agribusiness.

The challenge is to uncover the essence of agribusiness as economic activity and its specificity; the role of agriculture in the food marketing system; organizational and economic conditions of effective development of agribusiness; specificity agribusiness in regions of Ukraine; regional structure of international agribusiness

2.2.2. Master's program "Economy of Labor and Social Partnership"

Labour market. Questions of functioning and regulation of the labor market, the development of its infrastructure, analysis of the labor market, state support employment, improving social security and fighting unemployment, development of the international labor market.

Social Economy purpose of the discipline "Social Economy" is to build basic knowledge of the theory and practice of social economy and the professional competence that ensure the formation of socially responsible behavior of its actors (institutions).

To determine the level of learning and the discipline rankings used sets of tests and control of individual tasks according to themes: 1. Social Economics as a science; 2. Social policy and social sphere; 3. The system of social economy; 4. Socio-cultural foundations of the economy; 5. The mechanism of socialization of the economy; 6. Social Security; 7. The role of motivation of economic activity in socialization of the economy; 8. Social factors of economic growth; 9. The mechanism of action of the social economy sector; 10. State regulation of social economy.

2.2.3. Master's program "Agricultural Economics formations"

Economics of agro-industrial units. Scientific aspects of agricultural resource potential for sustainable production. Status and trends of agricultural production. Increasing economic efficiency farming industry in innovation-based economic nature, character and main components of agricultural resources, ways to improve agricultural production in an innovative manner.

Economics of specialized agricultural enterprises. Defining quantitative and qualitative parameters of the cooperative sector in the future, and basic activities through the implementation of which these parameters are met, determining the economic efficiency of the cooperative sector, the use of productive resources, the study of contemporary issues related cooperative sector.

2.2.4. Master's program "Regulation of Agricultural Markets"

Regulation of Agricultural Markets. We estimate the situation and problems of the use of modern tools of regulation of the agricultural market in Ukraine, particularly in parts of institutions of agricultural products, the system of prices and pricing of agricultural products, ensure compliance with technical standards for quality and food safety international requirements. A priority measures of public policy to improve the efficiency of instruments for regulating the agricultural market.

European Studies. Study of European integration and the EU, the EU-Ukraine has always been one of the priority areas of research. Purpose: To raise awareness of the target audience of the program on the functioning of the European Union, of the governing institutions of the EU, relations between Ukraine and the EU and Ukraine's European integration; and to promote patriotic education, activity tolerance, formation of a new pro-European consciousness.

Training of masters of sciences in educational program "APPLIED ECONOMICS" in specialty 051 "ECONOMICS" field of knowledge "Social and Behavioral Sciences"

Form of Training:	Licensed number of persons:
– Full-time	85
– Part-time	85
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Master of Economics graduates

The concept of training

The transition to the market economy, reforming property relations necessitated a radical restructuring of curricula, sending them to deepen the content and quality of professional education.

In addressing this important task is to promote the introduction of a higher speed training school.

Master stage of training in economics differ qualitatively new curricula and programs, innovative forms of educational process, which focused on providing a high level of theoretical knowledge, directly involved in the research and testing of their results in practice, mastery of scientific and methodological foundations of educational activities.

Master of Economics should be an expert with the general level of education and culture to the international standard that has sufficient intellectual capacity to a wide selection of specific areas of practice.

Master's program "Regulation of Agricultural Markets"

The objective is the acquisition and development of the Master's program of theoretical knowledge and practical skills in economic analysis of issues that are in the interests of both individual producers of agro products and marketing managers of agricultural firms, and analysts to assess the impact of the adoption of policy decisions in agriculture.

Areas of employment of graduates.

Agricultural enterprises of various forms.

Master's program "Competitiveness of agrarian formations"

The objective is the acquisition and development of the Master's program of theoretical knowledge and practical skills development and improving the competitiveness of agricultural production. Only competitive enterprises can produce food products in accordance with international standards and will be able to take advantage of international cooperation in investment, credit, certification, insurance, scientific and technical support for agricultural production and sale of food products.

Areas of employment of graduates

Agricultural enterprises of different forms.

Practical training

Teaching and research farms NUBiP Ukraine; advanced enterprise, association, firm APC systems Ukraine and others.

Estimated theme of master works

1. The development of agribusiness in the region and increase its efficiency.
2. Organization and prospects of agricultural enterprises.
3. Organization and economic efficiency of logistics farms.
4. Improvement of the forms of production maintenance of agricultural enterprises.
5. Socio-economic principles of sustainable rural development.
6. Improving forms of service production farms.
7. Formation and economic efficiency of sub zernoproduktov.
8. The formation and effective functioning of milk in the complex.
9. The economic mechanism of functioning of a regional stock market agricultural products.
10. Features of formation and development of the stock market agricultural products in Ukraine.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum for Master in educational program "Applied Economics" (educational and professional program of master's training)

№	Name of discipline	Semester	Amount	
			hours	ECTS credits
1. MANDATORY TRAINING COURSE				
1	Applieng econometrics	2	120	4
2	financial management	1	120	4
3	Microeconomics	2	150	5
4	National economy	1	120	4
5	Accounting and Auditing	2	120	4
6	Macroeconomics	2	120	4
7	Statistical modeling and forecasting	1	120	4
8	Applied Economics	2	120	4
9	Economics of production	2	120	4
10	Global economy	1	120	4
11	Strategic Environmental Assessment	2	120	4
Along with mandatory component			**1350**	**45**
2. SELECTIVE COURSES				
2.1. Disciplines by choice university				

№	Name of discipline	Semester	Amount	
			hours	ECTS credits
1	Methodology and organization of scientific research with the basics of intellectual property	1	150	5
2	Agricultural policy	1	90	3
3	Business Foreign Language	1	90	3
Total elective University			**330**	**11**
2.2. Subjects chosen by the student				
2.2.1. Master's program "Business planning production activities in agriculture"				
1	European studies	2	150	*5*
2	The regulation of land relations	1	120	*4*
3	Regulation of agricultural markets	1	150	*5*
Total student's choice			**420**	**14**
2.2.2. Master's program "Economy of Labor and Social Partnership"				
1	Marketing management	2	150	*5*
2	The competitiveness of agricultural units	1	120	*4*
3	Analysis of investment projects	1	150	*5*
Total student's choice			**420**	**14**
Total for the selective component			**750**	**25**
3. OTHER TRAINING				
1	Educational training		300	10
2	Internship		150	5
3	Preparation and defense of master's work		150	5
Total			**600**	**20**
Total with educational program			**2700**	**90**

Annotations subjects curriculum

1. MANDATORY TRAINING COURSE

Applied Econometrics. Mastering mathematics - econometrics statistical tools, consisting of sections: classical linear model multiple regression and classic method of least squares; generalized linear model multiple regression and generalized least squares; models and methods of statistical analysis; time series and forecasting; system of structural equations.

Financial Management. Objective: mastering the ways of solving issues of financial transactions acquainted with specific problems and contradictions of operation and cash flows methods and techniques of financial manager for the implementation of professional management of financial assets of industrial and economic activity.

The task - to learn the theoretical foundations of financial management; master the methodological tools of financial management; form the theoretical and practical knowledge about the management of financial relations arising in the course of operating and investment activity; master the basics of money management company; develop skills in analyzing financial statements; learn the basics of financial management during the bankruptcy.

Microeconomics. Businesses and markets; sectoral barriers; grocery differentiation; market with monopoly power; market dominant firm; Strategy oligopolistic interaction; information asymmetry and market.

National economy. The subject of the course "National economy" is a cause-effect relations and economic relations in their unity and interaction at the macro level, the mechanism of functioning of the economy in the short and long term, and methods of state regulation of the economy.

Accounting and Auditing. Formation of theoretical knowledge and practical skills in the field of construction and operation of information systems and computer technology

in accounting. Study features rozv'yazuvannyaoblikovyh problems in the use of computer technology of economic information; formation of skills to perform accounting standard setting objectives, develop algorithms to solve them using specialized software.

Macroeconomics. Main macroeconomic indicators and indicators of macroeconomic development; basic models of equilibrium; mechanism components macroeconomic policies: fiscal, monetary, foreign, social.

Statistical modeling and forecasting. Forming students' knowledge system of the methodology and tools of modeling economic systems, forming practical skills of construction and application of mathematical methods and models of objects and processes functioning market economy, determining optimal control parameters of socio-economic systems.

Strategic Environmental Assessment. Strategic Environmental Assessment (SEA) is the main instrument for integrating environmental considerations (including health) in the development of plans and programs. CEO promotes sustainable development through the promotion of environmental issues in economic and social development and the integration of green economy objectives and sustainable consumption and production in strategic decision making.

Global Economy. The purpose of discipline is the training of highly qualified specialists through formation of students' understanding of the conditions and factors of development, mechanisms and tools of the global economy, the realization of their intellectual mission for balanced decision-making in the context of civilizational progress. The main task - to learn and play at the professional level systematic knowledge of the global economy and to master professional skills formation strategies of economic development under the current transformation processes and globalization

Economics of production. purpose of the topic - mastering the subject, methods and relationships discipline "Economics of production" in market conditions. Students should note that the subject of discipline is to identify specific forms of manifestation of economic laws of functioning and development of social production in the business sector in a market economy. Economics of production based on the general economic laws that are studied in the disciplines of macro - and microeconomics.

Applied Economics. Purpose - to study socio-economic, organizational, managerial, analytical, research and teaching in the field of applied problems in the sphere of economy in constant change. He is able to develop and implement management decisions in the field of industrial and agricultural businesses in domestic and foreign markets, labor market and financial market in the economic environment using economic and mathematical methods of analysis, forecasting and modeling.

2. SELECTIVE COURSES

2.1. Disciplines by choice university

Methodology and organization of scientific research on the basics of intellectual property. purpose of the course - mastering modern theoretical concepts of research, their practical application in their research and to familiarize students with the basics of intellectual property.

The object of study - methodology and research methods, methods of organization, and economic, organizational and financial principles of intellectual property in the domestic and international practice. Knowledge of the subject "Methodology and organization of scientific research with the basics of intellectual property" masters needed for research and writing of master works.

The main objective of the course is to prepare specialists in economics to conduct independent research.

Agricultural policy. Educational discipline enables master methodical and methodological foundations of development and implementation of measures to support and ensure the development of agriculture in the system of linkages in the national economy, and assess from the perspective of the theory of action-state structures for the regulation of the agricultural production in the country .

The main objectives of the discipline is to acquire basic knowledge on the economic substance, character and principal components of agricultural policy; analyze the effectiveness of the bodies and institutions of agricultural policy, through various market-policy instruments; understand the features of formation of agrarian policy in countries with different levels of socio-economic development, characterized agricultural policies of individual countries and blocs.

Business Foreign Language. Discipline is intended to form the skills of knowledge of the English language in the process of everyday graduates with other countries on various issues in agriculture and in preparation for participation in international conferences, projects and discussions, and also teach students to conduct a written exchange of business information.

2.2. Subjects chosen by the student

2.2.1. Master's program "Regulation of Agricultural Markets"

Regulation of Agricultural Markets. We estimate the situation and problems of the use of modern tools of regulation of the agricultural market in Ukraine, particularly in parts of institutions of agricultural products, the system of prices and pricing of agricultural products, ensure compliance with technical standards for quality and food safety international requirements. A priority measures of public policy to improve the efficiency of instruments for regulating the agricultural market.

European Studies. Study of European integration and the EU, the EU-Ukraine has always been one of the priority areas of research. Purpose: To raise awareness of the target audience of the program on the functioning of the European Union, of the governing institutions of the EU, relations between Ukraine and the EU and Ukraine's European integration; and to promote patriotic education, activity tolerance, formation of a new pro-European consciousness.

Regulation of Land Relations. study the problem of the modern state system of state regulation of land relations in Ukraine. Determine the need for active government intervention in the process of efficient use of agricultural land and preservation of their fertility.

2.2.2. Master's program "Competitiveness of agrarian formations"

Marketing Management. The place of marketing in the management, con sidered with the concept of marketing management and its methodological basis, you deferred the management of market research, market assessment-term business opportunities, develop marketing strategies, marketing plans and programs. From the standpoint of consistency and examined the relationship man agement tools of the marketing mix (marketynhumiks). Oharakte motorized modern methods of marketing and control of the company.

Competitiveness of agrarian formations. The purpose of discipline is to study the semantics of the term competitiveness, summarizing the criteria and methodology for determining the level of agricultural production and to develop specific recommendations to improve the competitiveness of products for domestic agricultural producers.

Analysis of investment projects. Analysis and development of investment projects as an academic discipline - a framework of methods and techniques to help you

develop an optimal design document and define the conditions for its successful implementation. Accordingly, the manual deals with constituents on issues of project analysis, defined the concept of the project life cycle methodology and criteria for evaluating projects and basic aspects of project analysis: marketing, technical, environmental, social, institutional, and economic analysis.

Training of masters of sciences in educational program "FINANCE AND CREDIT" in specialty 072 "FINANCE, BANKING AND INSURANCE" field of knowledge "Management and administration"

Form of Training:	Licensed number of persons:
– Full-time	100
– Part-time	100
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of Teaching	Ukrainian, English
Qualification	Master of Finance, Banking and Insurance

The concept of training

Training focused on in-depth study of theory and practice to ensure effective financial management of enterprises of agrarian sphere of economy, support of training experts from banking, insurance sectors for the needs of agricultural enterprises. An important direction of the program is targeting students for independent work, the development of creative activity of finding effective solutions to the problems studied, acquiring skills to the study of scientific literature, existing legislation and on this basis to acquire the ability to form internal and external financial relations, efficient use of financial management, successfully applied methodological tools of financial management.

Specialist "Finance and Credit" is to obtain a high level of basic knowledge in financial management, understand the features of software and information to be able to use computer technology in the financial and economic activities of agricultural entities, to know and understand the basic principles of agrarian policy .

Theoretical knowledge of financial discipline should undergo testing directly on specific enterprises and financial institutions.

Practical training has been made to equip future masters in finance and credit practical knowledge in finance, professional skills and ability to work as heads of financial departments of companies, financial analysts, chief financial officers.

Serious attention along with professional study of financial work should be given to the study of effective methods of organization and financial management of enterprises.

Implementation of research, their implementation in practice, implementation skills to think creatively and take extraordinary decisions are urgent problem of preparing future scientific staff in finance and credit.

The purpose of the master's work is to systematize, deepening and consolidation of theoretical knowledge, their testing in production.

Formation of a new type of modern economic thinking should be directed to development initiatives, increased business activity, finding creative ways that lead to improving the lives of people in a market economy.

Effective teaching educational program "Finance and Credit" is provided:

- Involvement of teaching staff qualifications;

- The use in teaching of modern educational technologies that provide theoretical knowledge and practical skills required for the provision of financial services;
- The use of flexible learning, individual approach to students, the possibility of combining teaching with research work in writing the Master's thesis under the guidance of the most experienced teachers qualifications;
- Holding consultation sessions, workshops financial services businesses of the agricultural sector, participation of students in scientific conferences on topical issues of the financial activities of agricultural enterprises.

Education provides training that can independently make effective decisions regarding the provision of financial services to entrepreneurs and generates qualified for Finance.

Master's program "Banking"

The main purpose of educational program "Banking" is training for the banking sector. Educational program provides students with the knowledge acquisition management of commercial bank on the basis of factors internal and external environment, as well as the organization of the central bank and the main directions of monetary policy. Besides training program involves studying the characteristics of banking services to entrepreneurs in the agricultural sector, due to seasonality and duration of agricultural production and the development of specialized tools required risk assessment.

Areas of employment of graduates

Managers and assistants economic financial departments of agricultural enterprises, associations, managers of banks.

Master's program "Risk Management and Insurance"

The purpose of the master's program "Risk Management and Insurance" is to get the students basic knowledge of theory and practical skills in risk management and insurance as a method of risk management. The main objectives of this master's program is to ascertain the necessary features measurement and risk assessment, and application management in different types of risks in order to create an effective system to protect the interests of citizens, businesses and the state.

As a result, the study of basic sciences master's program student must know: methods to avoid risks, especially the risk diversification, methods of reducing the negative effects of risks, specific economic, investment, financial risks and risk management and be able to: identify the probability of risk, identify and assess insurance risk quantitatively measure the risk, to variation risk analysis, to determine the necessary countermeasures risks to forecast a maximum degree of probability risks and develop an intervention strategy risks.

Areas of employment of graduates

Leaders, assistants, managers, insurance companies, heads of financial departments of enterprises of the agricultural sector.

Master's program "Tax consulting"

The purpose of the master's program "Tax advice" is to develop the students' key competencies for the implementation of the basic functions of tax management at the corporate level.

The main tasks of the master's program are: to provide knowledge of tax administration; formation of skills to implement the optimization of tax payments; providing

knowledge about the principles of tax policy of the company; formation of skills regarding taxation of different transactions that perform entities; providing knowledge on the implementation of financial and economic analysis for the purposes of consultation; providing knowledge of the rules of international taxation and transfer pricing.

As a result, the study of basic sciences master's program student must know: technology advisory services to individuals and legal entities; method of determining the tax base, calculation of taxes and fees, using benefits to certain taxpayers and fees; options for taxation in respect of the specific legal entities and individuals; monitor changes in the legislation; features of accounting and tax reporting; represent the interests of businesses and individuals in bodies that monitor the accrual and payment of taxes and fees, and judicial bodies.

Areas of employment of graduates

Heads and specialists of economic, financial departments of companies, associations, managers, financial institutions and others.

Master's program "Corporate Finance"

In a market economy, Ukraine efficient use of financial resources has become paramount. Rational problems entities depend primarily on the make informed financial decisions. For professionals of the financial sector is very important possession methodological tools of financial management, cash management, system analysis method of financial statements, profit management, and capital investments of intra-corporate forecasting and planning.

Areas of employment of graduates

Managers and assistants economic and financial departments of companies, associations, firms serving areas APK different ownership and so on.

Master's program "Financial Analyst in business"

The practice-oriented educational program in financial analysis is designed for young professionals wishing to gain new knowledge and skills in attracting investment and work in the financial markets, seeking to learn the techniques of financial analysts and meet best practice implementation of financial strategies of leading Ukrainian and foreign financial companies.

The goal is to train highly qualified professionals who possess knowledge and skills in financial analysis, able to work as financial analysts in commercial and investment banks, management companies, funds, and enterprises of the real sector of the economy, can predict the processes occurring in the financial system and enterprises of the real sector of the economy, able to participate in the development of recommendations to improve the management of enterprises in various industries t. h. and agro.

Areas of employment of graduates

CFOs, managers and analysts in commercial and investment banks, management companies, and enterprises of the real sector of the economy.

Master's program "Public Financial Management"

Master's program "Public Financial Management" is designed with the latest trends and future directions of Ukraine's economy, active development of the financial and economic relations and increasing demand for specialists in public finances. The purpose of the master's program is to train professionals who are able to solve the basic problems

of financial management at the state level, which include: improvement and development of public finance management, making qualified and scientifically based financial management solutions in public finance and taxation; implementation and organization of financial planning at a financial institution; monitoring of industries and areas of businesses, government agencies and organizations; predictive and analytical activities through the use of modern information technologies; providing information and financial security.

Areas of employment of graduates

State and local governments, public sector institutions; public non-profit organizations, charitable foundations; consulting, analytical, scientific and educational institutions; commercial organizations that cooperate with state authorities.

Practical training

Teaching and research farms NUBiP Ukraine; advanced enterprise, association, firm system of Ukraine agribusiness, financial institutions and others.

Estimated theme of master works

1. Loans to agricultural enterprises banks.
2. Settlement services for agricultural enterprises banks.
3. Cash flow management in the enterprise.
4. Management of financial stability of the company.
5. Insurance risk management system in the enterprise.
6. Insurance crop.
7. Mutual funds and their functioning in the international financial exchange market.
8. Features and prospects of on-line trading in global financial markets.
9. Development of long-term bank lending to agricultural enterprises.
10. Financial aspects of expert monetary assessment of agricultural land.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum for Master
in educational program "Finance and Credit"
(educational and professional program of master's training)

№ п/п	Name of discipline	Semester	Amount	
			hours	ECTS credits
1. MANDATORY TRAINING COURSE				
1	Tax management	1	120	4
2	financial management	1	120	4
3	Financial services market	1	120	4
4	Financial econometrics	2	90	3
5	Management of financial readjustment Company	2	90	3
6	Insurance management	2	120	4
7	Budget management	2	120	4
8	Banking management	1	120	4
9	Finance Nature	2	120	4
10	Global economy	1	120	4
11	Project financing	2	120	4
12	Mortgages	2	90	3
13	Treasury	1	90	3
Total with mandatory component			**1440**	**48**
2. SELECTIVE COURSES				
2.1. Disciplines by choice university				
1	Methodology and organization of scientific research with the basics of intellectual property	1	90	3
2	Agricultural policy	2	90	3
3	Business Foreign Language	1	150	5
Total elective University			**330**	**11**
2.2. Subjects chosen by the student				
2.2.1. *Master's program "Banking"*				
1	Banking and Management	1	180	6
2	Monetary policy and the National Bank	2	150	5
Total student's choice			**330**	**11**
2.2.2. *Master's program "Risk Management and Insurance"*				
1	Financial support insurance liabilities	1	180	6
2	Agrarian risks and their insurance	2	150	5
Total student's choice			**330**	**11**
2.2.3. *Master's program "Corporate Finance"*				
1	Corporate Finance	1	180	6
2	Behavioral Finance	2	150	5
Total student's choice			**330**	**11**
2.2.4. *Master's program "Financial Analyst in business"*				
1	Business Analyst	1	180	6
2	Business Valuation	2	150	5
Total student's choice			**330**	**11**
2.2.5*. Master's program "Tax consulting"*				
1	International taxation	2	180	6
2	Taxation of legal entities	1	150	5
Total student's choice			**330**	**11**
2.2.6. *Master's program "Public Financial Management"*				
1	Financial security state	1	180	6
2	Public Debt Management	2	150	5
Total student's choice			**330**	**11**
Total for the selective component			**660**	**22**
3. OTHER TRAINING				
1	Educational training		150	5

№ п/п	Name of discipline	Semester	Amount	
			hours	ECTS credits
2	Internship		300	10
3	Preparation and defense of master's work		150	5
Total			**600**	**20**
Total with educational program			**2700**	**90**

Annotations subjects curriculum

1. MANDATORY TRAINING COURSE

Tax Management. Taxes are very complicated financial categories as they relate and reflect virtually all aspects of economic relations entities independently. The capacity of the tax system depends on the effectiveness of governance in the tax area that requires highly skilled personnel, able to participate in the development of tax laws, to tax planning, and control the correctness of calculation and timely payment to the budget of taxes and obligatory payments.

The purpose of teaching this course - providing students with knowledge on taxation of necessary future specialists to manage in the field of taxation.

The objective is to study the theoretical and organizational principles of tax law and management; skills control of the tax authorities, ability to explain the provisions of tax laws to solve disputable issues, submit proposals for its improvement.

Financial Management. Objective: mastering the ways of solving issues of financial transactions acquainted with specific problems and contradictions of operation and cash flows methods and techniques of financial manager for the implementation of professional management of financial assets of industrial and economic activity.

The task - to learn the theoretical foundations of financial management; master the methodological tools of financial management; form the theoretical and practical knowledge about the management of financial relations arising in the course of operating and investment activity; master the basics of money management company; develop skills in analyzing financial statements; learn the basics of financial management during the bankruptcy.

Financial Services Market "Objective: preparing masters in financial management i analyze financial services with a level of training that will provide them a competitive advantage in the labor market.

Objectives: To form a systemic understanding of the relationships of different actors in the financial services market and the functioning of specialized financial institutions; learn to identify the needs of consumers of financial services in specific situations and opportunities to meet these needs different types of financial services; provide a comprehensive understanding of the role of financial services i mentioned various financial institutions in the financial market and its segments; develop skills in comparative analysis of the financial services industry with the definition of the advantages and disadvantages of different types of services; teach reasonably compare financial services and make their selection, taking into account specific needs of the consumer i financial and economic situation; show the role of state institutions in the financial services market; highlight the main priority directions of state policy in the field of regulation of financial relations in the financial services market.

Financial Econometrics. The study of economic processes (relationships) in Applied ekonometrytsi carry through mathematical (econometric) model. Construct and analyze these models using actual numerical values. One of the main objectives of

Applied Econometrics is the collection, processing and presentation of economic data in graphic form as tables, graphs, charts, analysis and forecasting of economic relationships.

Financial enterprises readjustment. The purpose of discipline is to develop the students theoretical and practical knowledge on issues related to financial recovery company, managing this process, the basics of crisis management in the enterprise. The theoretical part of the course aims at familiarization with the concept and essence of financial restructuring, forms, terms, rules and sources of funding reorganization of enterprises, management of financial reorganization, controlling and auditing curative.

The objective of the discipline is depth study of mechanisms of management of financial readjustment; acquisition of knowledge of economic substance and procedure of financial reorganization of enterprises; meet the challenges of decision-making on sanitation; mastering methodological approaches to programming and rehabilitation plan, identify the most effective mechanisms for its implementation; identify the most effective forms and mechanisms of financial recovery of the company, financing conditions and forms of the formation of internal reorganization and external sources; acquiring knowledge on controlling and its role in the reorganization of the enterprise, rules and methods of curative audit; study the role of the state in the process of sanation and state support for the financial reorganization of enterprises.

Insurance management. purpose of teaching this course, forming the students' knowledge of the preparation and implementation of management decisions that ensure the efficient formation and use of the capacity of insurance companies and the harmonization of the financial interests of insurance consumers, owners and staff of insurance companies, intermediaries and the state.

The objective is to acquire sustainable knowledge students the theory and practice of management by the insurance company; insurance services; risk assessment; settlement of insurance claims.

Budget Management. The program of the course covers the theoretical foundations of management budget process: the nature of intergovernmental relations, functions of management, stages of the budget process, the structure of organizations involved in the budget process and so on.

The aim of the course is to provide students theoretical and practical knowledge for disclosure capabilities, skills on the organization of the budget process in Ukraine and its management and execution of the state budget. Important here is the study of the nature of intergovernmental relations and the nature of their impact on society, the disclosure laws of construction and operation of the budget system, the theoretical foundations of system of financial regulation in a market economy.

Banking Management. Purpose: acquiring basic knowledge of management theory and practice of banking.

Objective: To clarify the financial statements of commercial banks; explore theoretical approaches to the management of banking risks, the bank's liquidity, financial condition assessment; management liabilities; active management and fee-brokerage bank

Finance Nature. Submission, generalization idea "finance - economy - ecology" runs through concept development financial nature, demand in causing an economic category due to the fact that the modern economy is recognized as an integrated system that interacts with natural systems.

Aim of the course - to submit an accessible form and help students learn the basics of finance, to understand the concept and essence of natural wealth as elements of national wealth, to analyze the concept of nature in the marketplace.

Global Economy. The purpose of the course is training highly qualified specialists through formation of students' understanding of the conditions and factors of development, mechanisms and tools of the global economy, the realization of their intellectual mission for balanced decision-making in the context of civilizational progress.

The objective of the discipline is to learn and play at the professional level systematic knowledge of the global economy and to master professional skills formation strategies of economic development under the current transformation processes of globalization: the nature and patterns of the global economy; tools and potential anti-cyclical adjustment of global economic processes; mechanisms of global markets; modern competitive leadership strategies of global corporations; processes and models of regionalization in global economic conditions; natural, technological innovation and human resources of the global economy; civilizational dimensions of global economic processes; directions and priorities of the Ukrainian economy under globalization.

Project financing. purpose of discipline is to form a theoretical and methodological framework necessary future professionals, fluent in practice organization and management of investment activity at the enterprises of different ownership and learn to plan, analyze and evaluate the effectiveness of business - plans for investment projects.

The study of educational material will increase the overall level of training, to form the skills of independent research and analytical study of problems from the standpoint of public and state needs and interests.

The object of study - a system of methods and activities of investment firms of different ownership and management.

Mortgages. In the course of this discipline are considered principles of construction and operation of the system of mortgage lending in countries with developed market economies.

The purpose of discipline is to form future professionals specialized knowledge of the organization of the mortgage credit institutions and financial principles of mortgage lending in general.

Tasks of the course is mastering the features of mortgage lending and the specific functioning mortgage banks. As a result of the discipline the student must obtain the necessary knowledge of the theory and practice of mortgage lending.

Treasury. The subject of discipline: financial relationships related to the formation, distribution and use of public financial resources necessary to state authorities to perform their tasks and responsibilities.

Purpose of the discipline is to expand and deepen the theoretical and practical knowledge of students on public finance management at the macro level and ensure the implementation of the State Budget of Ukraine, formation and budget execution, composition, structure and sources of appointment and role of finance in ensuring the execution of government functions authorities.

The task of discipline is to build an integrated system of knowledge about the treasury system of budget execution and the peculiarities of public finance in the modern world.

2. SELECTIVE COURSES

2.1. Disciplines by choice university

Methodology and organization of research with the principles of intellectual property. The aim of the discipline is formation of the system of knowledge in methodology, theory of method and research process, methodical support of scientific and research activity at the stages of preparation of a Master paper, formation of the ability to organize research of a specific issue using the whole complex of the traditional methods of

research including general and special methods. The main task of the theoretical part of the course is introduction to students the current concepts of research creation, the principles of methodology of scientific perception and methods of research. The main task of the practical part is the development of self-education ability, mastering skills of formation and application of perceived methodological position of research. In case of mastering the course students have to improve their skills of search, assortment and processing of scientific information, accurate formulation of a problem, aim, task, object, subject, methods of research. Introduction to students the principles of intellectual property and direction of them to gain knowledge and skills concerning registration of rights of ownership, their protection, commercialization, estimation and management are envisaged.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Subjects chosen by the student

2.2.1. *Master's program "Banking"*

Banking Management II. Managing equity, deposit and nedopozytnym fundraising. Bank lending: Policy and equipment loans, lending businesses and individuals. Investment banking function. Features of banking services to entrepreneurs in the agricultural sector.

Monetary policy and the National Bank. The formation of future professionals specialized knowledge of the organization of the central bank monetary policy implementation, the ability to use their knowledge in the performance of operations, credit related calculations, financing of investments and the provision of other services. Study of the National Bank of Ukraine, especially its functioning and main directions of monetary policy.

2.2.2. *Master's program "Risk Management and Insurance"*

Financial support insurance liabilities. Objective: To study the economic relations between business entities for financial provision of the insurers of obligations entered into contracts of insurance, calculation of insurance rates and the formation of insurance reserves.

Subject: Economic relations arising from insurance companies in the process of insurance.

Content modules: features of the financial activities of insurance companies, the financial performance of insurance companies calculate insurance rates, are forming insurance premium funds and insurance reserves, their purpose, formation and use of financial stability and solvency of insurance operations, the criterion of evaluation.

Agrarian risks and their insurance. Objective: theoretical knowledge and practical skills in conceptual frameworks insurance of agricultural risks, the formation of effective organizational-economic mechanism of insurance coverage farms agricultural sector.

Subject: Economic relations arising between subjects of the insurance market in the implementation of agricultural insurance.

Content modules: features of agricultural insurance, agricultural insurance experience in foreign countries, crop insurance and livestock insurance, farm buildings, machinery and other property.

2.2.3. Master's program "Corporate Finance"

Corporate Finance. Corporate finance business finances compared to other organizational forms are most difficult internal system of operation that requires special study. The purpose of the course "Corporate Finance (Corporate Finance)" is to master the mechanisms of formation, organization, planning and financial management of joint stock companies on the basis of theoretical and practical analysis of processes of financing and lending, summarizing the provisions of relevant laws and regulations, and experience of financial and business leading foreign and domestic corporations.

Behavioral Finance The program of discipline "behavioral finance" the essence and theory of behaviorism (modernism). The influence of the world economic mehatrendiv rozyvytku (globalization, financialisation, informatization, intellectualization, socialization) on the financial system as a management object. Reveals changes in financial management in the changing global environment.

All this must be future professionals to handle operating cash flows affect the agency conflicts and to be able to form a strategy for sustainable financial management.

2.2.4. Master's program "Financial Analyst in business"

Business Intelligence. The purpose of discipline is to train highly qualified professionals who possess knowledge and skills in financial analysis; able to work as financial analysts in commercial and investment banks, management companies, funds, and enterprises of the real sector of the economy; can predict the processes occurring in the financial system and the real economy enterprises both in Ukraine and in foreign countries; can participate in the development of recommendations for management decisions based on analysis of the financial condition of entities.

The main objective of the course is the ability to generate analytical conclusion of the submitted information and research, namely the study of the structure of the company; acquiring skills formation business model of the company; studying the place and role of the business analyst in the enterprise; mastering theoretical foundations of successful business decisions; definition of tasks, functions and structure of business process management in the enterprise; study of business process analysis and business plan of the company.

Valuation Business focuses on methodological issues of valuation and is based on a combination of theoretical and practical material. In the course explores the classic approaches to assessment and cost management companies, as well as modern trends of development methodologies evaluation. Particular attention is given to the use of methods of valuation in emerging capital markets.

2.2.5. Master's program "Tax consulting"

International Taxation. The purpose - formation system of knowledge in the field of taxation in the global economy and the nature of its development today.

The subject - the relationship between the actors of the world economy on the taxation of international economic activity.

Content modules: the nature, conditions and problems of international taxation; identify common features and differences in tax systems of different countries of the world; study the current tax policies of different countries of the world; determining the economic aspects and theories of the international tax relations.

Taxation of legal entities purpose - formation of theoretical knowledge and practical skills of tax entities.

The subject - theoretical and practical features of taxation of business entities sectoral approach.

Content modules: aspects of taxation of business entities, the tax industry, taxation mechanism of trading activity, especially taxation of construction companies, the specifics of taxation of agricultural producers, taxation of tourism, paying taxes, financial institutions, especially the taxation of non-residents tax relief individual activities.

2.2.6. Master's program "Public Financial Management"

The financial security of the state in the system of economic security plays an important role of the financial component, the level of which depends on the realization of national interests and sustainable economic development. The concept of financial security is important both for the state and for businesses and the public. Ensuring financial security is particularly acute during the financial crisis, accompanied by a partial loss of internal and external solvency instability of the national currency, reduction of income, inflation, decline in revenues to budgets of all levels and special funds and so on. Study of Financial Security provides the ability to act proactively and prevent crises that finance professionals can prevent the development of pre-crisis, ensuring efficient operation both at companies and in general at the national level.

The purpose of discipline "Financial Security" is to form a knowledge system for ensuring the financial security of the state as part of the economic and national security, as well as those of its functional elements that directly affect the level of the economic system of the state in terms of global transformations.

Public Debt Management. In modern conditions the national debt as a result of public credit is an integral part of the financial systems of most countries of the world. The accumulation of significant public debt, increasing debt pressure on the state budget, the periodic emergence of debt crises, deteriorating conditions in global financial markets transforming the management and maintenance of public debt to one of the priorities of financial policy.

The purpose of discipline "Public Debt Management" is the formation of students' theoretical knowledge and practical skills on debt management in Ukraine and in the world.

Training of masters of sciences in educational program "ACCOUNTING AND AUDIT" in specialty 071 "ACCOUNTING AND TAXATION" field of knowledge "Management and Administration"

Form of Training:	licensed number of persons:
– Full-time	180
– Part-time	180
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian, English
Qualification	Master's degree in accounting and taxation

The concept of training

Modern development of market relations requires from experts in accounting and auditing validity of professional knowledge to the world standards, creative thinking, intellectual potential for a wide selection of specific areas of practical work. This need to improve current systems of training in accounting and auditing is urgent need for restructuring curricula, targeting them for deepening the content and improve the quality of professional education, research teaching methods of major disciplines in training.

Master stage of training in accounting and auditing distinguish qualitatively new curricula and programs, innovative forms of educational process, which focused on providing a high level of theoretical knowledge, directly involved in the research and testing of their results in practice, mastery of scientific and methodological foundations of educational activities.

Master of accounting and auditing must be an expert with the general level of education and culture to the world standards, which has sufficient intellectual capacity to a wide selection of specific areas of practice, to be able to use modern techniques to investigate the object highlight system elements, define their essential parameters and characteristics, form a model system, make it rational management influence, make proposals for improving the activity of enterprises.

The defining features of the master should research approach to the analysis of the research subject, the ability to quantitatively and qualitatively assess the impact of object classification approach to economic evaluation and control solutions results.

Master of accounting and auditing must possess not only new methods of work, but also new ideas about the management system in which they must apply.

Masters in the specialty "Accounting and Audit" aimed at training high-level professionals who can effectively analyze production and financial activities of business entities of different ownership, assess the internal potential of the company from a position of increasing the efficiency of its production and sales activities, and compliance capabilities and threats to the environment, to explore domestic and foreign markets, to determine an estimate of his situation, ensuring rational strategic development of the company.

Master's program "Accounting and taxation of business entity activities"

Provides research trends and patterns of development of accounting in Ukraine in terms of its principles for reforming the international standards and requirements of the institutions of the European integration; methods and accounting organization of objects: non-current and current assets, equity, long-term and current biological assets, long-term and current liabilities, payments to the tax system, expenses and income for the activities; Financial Statements; managerial cost accounting and calculation of cost of production in crop, livestock, auxiliary industries; control, audit and analysis of real assets, liabilities and activities of processes using computer technology.

Areas of employment of graduates

Chief accountant, deputy chief accountant, senior accountant, the first category accountant, the second category accountant, accountant (with specialist degree) in agricultural business.

Master's program "Accounting and control support for business entity management"

Provides research system of economic control and directions of its reform, the organization of economic control with the use of computer technology, the method of its implementation, organization and control of the method: fixed assets, stocks, funds and payments, equity, long-term and current obligations' liabilities, costs and revenues, financial results; organization and methodology of internal control, including inventory; documenting the results of audits and inspections; implementation of audit and inspection of materials and order pecuniary damage.

Areas of employment of graduates

The auditor, assistant of auditor, senior accountant-auditor, accountant-auditor of the first category, accountant-auditor of the second category, accountant-auditor in agricultural enterprises

Master's program "Accounting and control in the public sector"

Provides research budget organizations accounting policies; accounting and control of revenues, expenditures and cash general and special funds of budgetary organizations; features reporting of budget organizations; features accounting and control of property, stocks, funds and accounts; use of computer technology in the accounting and budgetary control organizations.

Areas of employment of graduates

Chief accountant, deputy chief accountant, accountant (specialist with a diploma) in budgetary institutions.

Master's program "Strategic accounting and business and social analytics"

Provides research information and analytical system of socio-economic development of the financial sector and the financial corporations sector not as an indicator of adaptive ability of the enterprise to current economic conditions. The possibility to develop and implement a flexible development strategy of economic activities through the effective use of information in terms of post-industrial development becomes functional role of productive resources. The possibility of improving the accounting information using the possibilities of the theory of knowledge, based on analytical control functions.

Areas of employment of graduates

Chief accountant, deputy chief accountant, senior accountant, the first category accountant, the second category accountant, accountant (with specialist degree) of agricultural enterprise, researcher (information analyst), accounting analyst, analyst of consolidated information, analyst of lending.

Master's program "Tax Administration and Control"

Getting basic theoretical and practical knowledge on: taxation of business entities, tax planning and forecasting, tax optimization, its methods and techniques in the management of the activities of agricultural entities, corporate tax management to reduce the negative impact of taxation on their business operations and financial condition; acquiring skills on the tax administration of businesses and individuals to prepare qualified specialists for the tax authorities and corporate associations and enterprises processing agricultural sectors.

Areas of employment of graduates

Head of financial or economic unit, the head of a small business in agriculture, manager of financial activity, Inspector Tax Service, Customs Inspector, state tax inspector, consultant taxes and fees.

Practical training

Practical training is carried out on the basis of the following companies: NUBiP of Ukraine "Velykosnitynske educational and experimental farm named after O.V. MUZYCHENKO"; NUBiP of Ukraine "Agronomic Research Station"; NUBiP of Ukraine "Teaching and Research Farm "Vorzel"; NUBiP of Ukraine “Boyarka Forestry Experimental Station"; NUBiP of Ukraine Nemishaevo Agricultural College; Ltd Agroindustrial company "Mriya"; PJSC CB "PrivatBank"; other bases of practical training of university students from among leading institutions, enterprises, organizations of any ownership in Ukraine and abroad, with appropriate conditions for the practice of students in accordance with the requirements of education and professional training programs.

Proposed Topics for Master Theses

1. Accounting and analytical support in the management of fixed assets.
2. Accounting and analytical support in the management of current biological assets.
3. Accounting and analytical support in the management costs of agricultural enterprises.
4. Accounting, control and analysis of production costs of crop production.
5. Accounting and internal business control production of finished products.
6. Balance sheet of the bank, its preparation method and analysis.
7. Reporting budgetary institutions, organization and methods of assembly.
8. Accounting and internal business control equity.
9. Method of accounting and control of formation and use of income.
10. Accounting and internal business control efficiency of bank loans.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Accounting and Audit" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	hours
1. STANDARD ACADEMIC DISCIPLINES				
1	Global economy	1	90	4
2	Tax management	1	120	4
3	Accounting in business management	1	120	4
4	Financial analysis	1	120	4
5	Accounting organization	1	120	4
6	The organization and methodology of the audit	2	120	4
7	Strategic analysis in enterprise management	2	90	4
8	Applied econometrics	2	90	4
Total for standard part			**960**	**32**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of research with the basics of intellectual property	1	90	3
3	Agrarian policy	1	90	3
2	Business foreign language	1	150	5
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Accounting and taxation of business entity activities"				
1	Control of agricultural units' activity	2	90	3
2	Electronic document management	2	90	3
3	Accounting and reporting for small business	2	90	3
4	Accounting Forensic examination	2	90	3
5	Accounting and financial reporting by international standards	2	90	3
6	Accounting of FEA	2	90	3
Total (Disciplines offered by students)			**540**	**18**
2.2.2. *Master's program "Accounting and control support for business entity management"*				
1	Theory of financial control	2	90	3
2	Professional ethics of accountants and auditors	2	90	3
3	Control of agricultural units' activity	2	90	3
4	Accounting forensic examination	2	90	3
5	Electronic document management	2	90	3
6	Accounting and financial reporting by international standards	2	90	3
Total (Disciplines offered by students)			**540**	**18**
2.2.3. Master's program "Accounting and control in the public sector"				
1	Control of public sector institutions	2	90	3
2	Analysis of public sector institutions	2	90	3
3	Professional ethics of accountants and auditors	2	90	3
4	Accounting Forensic examination	2	90	3
5	Electronic document management	2	90	3
6	Reporting in public sector institutions	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	hours
Total (Disciplines offered by students)			**540**	**18**
2.2.4. Master's program "Strategic accounting and business and social analytics"				
1	Strategic Management Accounting	2	90	3
2	Innovation and investment analysis	2	90	3
3	Controlling	2	90	3
4	Macroeconomic analysis	2	90	3
5	Accounting and financial reporting according to international standards	2	90	3
6	Business social analysis	2	90	3
Total (Disciplines offered by students)			**540**	**18**
2.2.5. Master's program "Tax Administration and Control"				
1	Tax Accounting	2	90	3
2	Organization and management of tax supervisory agencies	2	90	3
3	Tax policy	2	90	3
4	Tax administration	2	90	3
5	Tax control	2	90	3
6	Electronic document management	2	90	3
Total (Disciplines offered by students)			**540**	**18**
Total for elective part			**870**	**29**
3. OTHER TYPES OF TRAINING				
1	Practical training	3	480	16
2	Preparation and defense of master's work	3	390	13
Total			**870**	**29**
Total for educational program			**2700**	**90**

Annotations for educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES
Educational and professional program of master's training

Global economy. Forming students' understanding of the conditions and factors of development, mechanisms and tools of the global economy, study of market relations among the global economic system, awareness of its intellectual mission for balanced decision-making in the general context of civilized progress.

Tax management. Theoretical and organizational principles of fiscal management. The accounting work in the bodies of DPS. Control and verification work of the DPS.

Accounting in business management. Study of the conceptual foundations use accounting as an information source for business management; acquiring skills building and transformation of the accounting system management.

Financial analysis. The study of organizational forms of financial analysis and its use in the management of information enterprises; methodology and organization of internal and external financial analysis solvency, liquidity, financial stability, cash and cash flow, capital efficiency of the company.

Accounting organization. Studying the principles and process accounting and establishing accounting and control and intelligence, targeted information support management decisions.

The organization and methodology of the audit. The study of the theoretical foundations of functioning as an independent audit of financial control in Ukraine; regulatory acts governing auditing and banking, practical skills in organization, planning and auditing procedures.

Strategic analysis in enterprise management. The study of the nature, trends

and role of strategic analysis at the enterprise, methods of analysis at the company, production program analysis methods, capital structure, financial programs and investments. Acquiring the skills of analysis and evaluation capacity of the enterprise as a factor of development strategy.

Applied Econometrics. The development of mathematical - statistical tools of econometrics, consisting of sections: classical linear model multiple regression and classical least squares; generalized linear model multiple regression and generalized least squares; models and methods of statistical analysis; time series and forecasting; system of structural equations.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the basics of intellectual property. The purpose of discipline: the development of knowledge on the methodology, theory method and the research process, methodological support research activities at the stages of writing a master's thesis, forming the ability to organize scientific research an issue using the whole complex of traditional methods of research, including general and special methods , The main objective of the theoretical part of the course is to familiarize students with modern concepts of scientific work, on the basis of the methodology of scientific knowledge and methods of research. The main task of the practical part - developing skills for self-education, development of skills formation and use of conscious methodological position of scientific research. As a result of the development of the course, students should improve their ability to search, selection and processing of scientific information in the exact formulation of the problem, goals, objectives, object, object methods. Is expected to introduce students to the basics of intellectual property and directing them to master knowledge and skills regarding registration of ownership, protection, commercialization, valuation and management.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state structures concerning regulation of the agricultural production of the country. Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

2.2. Disciplines offered by students

2.2.1. Master's program "Accounting and taxation of business entity activities"

Control of agricultural units' activity. Control of financial and business control equity and liabilities, control of revenues, expenditures and financial results.

Electronic document management. The study computer technology in modern accounting, analysis and audit, formation of skills aimed at obtaining systematic knowledge about the information technology used in accounting, and use this knowledge to solve specific problems in the field of accounting and tax accounting and auditing.

Accounting and reporting for small business. Forms of small businesses and job and organization of accounting for them. Accounting for a private entrepreneur. Chart of accounts and accounting in the form of small businesses. Accounting for funds and accounts. Accounting for inventory and fixed assets. Accounting for production, sales and financial results. Preparation and submission of financial and tax reporting.

Accounting forensic examination. The main provisions SBUs, research methods, output SBUs, methods of research operations cash, material values, wages, production and marketing of agricultural products, as well as payments for taxes.

Accounting and financial reporting by international standards. Conceptual framework of international financial reporting standards (IFRS). The main provisions of the IFRS. Sectoral features of IFRS accounting and special accounting rules for individual business transactions.

Accounting of FEA. Subject, tasks and content of the discipline**.** External contracts display information and features in the accounting system. Accounting for exports. Accounting for imports. Accounting barter and tolling operations. Accounting for investment transactions. Accounting for currency and financial transactions. Accounting transactions in enterprises with foreign investments.

2.2.2. Master's program "Accounting and control support for business entity management"

Theory of financial control. The essence and role of financial and economic control in the current economic conditions. The system of financial and economic control and its legal basis. Lines, forms, methods and instructional techniques, organizational provision of financial and economic control. Bodies of the state financial control in Ukraine, their characteristics and functions. Features of the organization and conduct of the audit of financial and business enterprises. The order of synthesis, review and implementation of audit results. Independent financial and economic control (audit) in Ukraine: the nature, methods and organization. Internal financial and economic control. The current state and prospects of development of financial and economic control in Ukraine and abroad.

Professional ethics accountant and auditor. The acquisition of theoretical knowledge of professional values and guidelines of professional codes of ethics; mastering practical skills in applying knowledge of ethical provisions in practice; acquaintance with the ways of solving ethical conflicts; the internal desire to adhere to laws and regulations, the Code of Ethics.

Control of agricultural units' activity. Control of financial and business control equity and liabilities, control of revenues, expenditures and financial results.

Accounting forensic examination. The main provisions SBUs, research methods, output SBUs, methods of research operations cash, material values, wages, production and marketing of agricultural products, as well as payments for taxes**.**

Electronic document management. The study computer technology in modern accounting, analysis and audit, formation of skills aimed at obtaining systematic knowledge about the information technology used in accounting, and use this knowledge to solve specific problems in the field of accounting and tax accounting and auditing.

Accounting and financial reporting by international standards. Conceptual framework of international financial reporting standards (IFRS). The main provisions of the IFRS. Sectoral features of IFRS accounting and special accounting rules for individual

business transactions.

2.2.3. Master's program "Accounting and control in the public sector"

Control of public sector institutions. Organization of internal controls in budget institutions. Internal control performance of budgetary institutions.

Analysis of public sector institutions. Formation of knowledge on methods of studying and evaluating the performance of budgetary institutions. Study methods and analysis organization based on the financial statements of budgetary institutions. Methods for comprehensive evaluation of the financial condition of budgetary institutions for solving economic problems.

Professional ethics accountant and auditor. The acquisition of theoretical knowledge of professional values and guidelines of professional codes of ethics; mastering practical skills in applying knowledge of ethical provisions in practice; acquaintance with the ways of solving ethical conflicts; the internal desire to adhere to laws and regulations, the Code of Ethics.

Accounting Forensic examination. The main provisions SBUs, research methods, output SBUs, methods of research operations cash, material values, wages, production and marketing of agricultural products, as well as payments for taxes.

Electronic document management. The study computer technology in modern accounting, analysis and audit, formation of skills aimed at obtaining systematic knowledge about the information technology used in accounting, and use this knowledge to solve specific problems in the field of accounting and tax accounting and auditing.

Reporting in public sector institutions. The concept of reporting of budget institutions. Lines of reporting of budget institutions. Structure and content of certain types of reporting. Tax reporting. Statistical and special reports.

2.2.4. Master's program "Strategic accounting and business and social analytics"

Strategic Management Accounting. The concept of strategic management and strategic management accounting. Costing by activity. Comprehensive cost management. Calculation of costs for the entire life cycle of the product. The cost of quality. The system of "just in time" and its impact on accounting. Future decisions on pricing. Economic pricing model. Pricing on a "cost plus". Pricing based on the cost of time and materials.

Innovation and investment analysis. Learning concepts, approaches and criteria, and comparison study of alternative solutions and projects based on a systematic approach in conditions most efficient use of available resources.

Controlling. The essence of controlling its role and importance in the economic activities of enterprises place in the administration. Object, its types and methodological tools. Oorhanizatsiya management accounting system controlling.

Macroeconomic analysis. The term "System of National Accounts" (SNA). Research subject SNA. Basic principles of the SNA. The transition to international statistical methodology and its purpose, integrating SNA different countries, the goal of creating SNA Ukraine. SNA role in the social economic statistics. InfoBase SNA in Ukraine: the use of continuous, selective and special surveys. SNA role as the only international standard accounting and analytical systems. Types and structure of economic classifications in the SNA.

Accounting and financial reporting by international standards. Conceptual framework of international financial reporting standards (IFRS). The main provisions of the IFRS. Sectoral features of IFRS accounting and special accounting rules for certain business transactions.

Business social analysis. The problems of the level and quality of life, economic activity, accessibility and quality of social services and education. In the population

targeted by socio-economic research is the work of enterprises, regional and municipal development, social activity of state and public organizations.

2.2.5. Master's program "Tax Administration and Control"

Tax Accounting. Tax records, its content and organization of the enterprise. Tax Accounting and tax payments.

Organisation and management of tax supervisory agencies. State Tax Service - element of the structure of public administration. Company management bodies State Tax Service. Organization of management in the state tax service. Maintenance Management State Tax Service. Organization of managerial work in the state tax service. Organizational and managerial problems of the State Tax Service. Work with taxpayers and public relations in the State Tax Service of Ukraine.

Tax policy. The theoretical basis of the tax policy. Forms and mechanisms of implementation of tax policy.

Tax administration. Legal principles of tax administration. Organization of the State Tax Service. Administration of taxes and fees.

Tax control. Tax control in the system of state regulation of the economy. Tax audit.

Electronic document management. The study computer technology in modern accounting, analysis and audit, formation of skills aimed at obtaining systematic knowledge about the information technology used in accounting, and use this knowledge to solve specific problems in the field of accounting and tax accounting and auditing.

Training of masters of sciences in educational program "STOCK EXCHANGE ACTIVITIES" in specialty 076 "ENTREPRENEURSHIP, TRADE AND EXCHANGE ACTIVITIES" field of knowledge "Management and Administration"

Form of training:	Licensed number of persons:
– Full-time	30
Duration of Training:	
– Full-time educational and professional program	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	master of Entrepreneurship, Trade and Exchange Activities

Concept of training

Fundamentality training in the educational program "Stock exchange activities" of specialty "Entrepreneurship, Trade and Exchange Activities" is manifested in their practice in different sectors of the economy, in particular, agriculture.

Currently, there is globalization in almost all sectors of the economy. In agriculture, Ukraine has successfully implemented new processes world-class, high-performance computer technology, more widespread and accessible information products and so on. As in industry and agriculture more attention is paid to the wide application of international projects that are not only able to selectively concentrate some advances in science and technology, but also affect the implementation of large scale agricultural production of both large and small producers, to ensure high efficiency sales activity.

Interdisciplinary knowledge of contemporary issues and trends in agricultural science, technology boom and its impact on the environment led to the need for highly qualified specialists in society not just on economics, marketing or finance, and professionals who have combined the qualifying these characteristics is required 'compulsory requirement for work in today's stock market.

All the above clearly points to the existing or potentially high demand for specialists in exchange activities for the agricultural sector. That is why to understand and solve the problems of relations between businesses and the market, both nationally and internationally, as well as compliance newest global trends in the distribution of resources and products through modern global technology organization is preparing the necessary relevant experts and, in particular, masters in the field of trading, which would possess knowledge about the implementation of modern technology in the exchange activities as well as knowledge of economics and finance, the legal regulation, management and marketing, security problems in agriculture and the national economy as a whole. That is urgent for the region and for the country is the organization of an integrated system of training in the field of exchange activities directly as a specific application of agricultural technologies to address problems of economic independence Ukraine.

The training of specialists of the exchange activity at level "Master" does not carry any higher educational institution of Ukraine that, based on today's needs for specialists of this sphere is unacceptable and naturally leads to serious loss of profits. In part, this problem is solved by means of educational programs of educational institutions that train specialists with in-depth knowledge in exchange activities within other economic fields. However, their knowledge does not apply to the agricultural sector, limited usually the

stock market, and therefore are not sufficient for working on the above areas, emphasizing the uniqueness of the profession.

Master's program "Stock exchange activities"

Lets prepare professionals who through effective use of the exchange market will minimize both productive and financial risks practically all spheres of economic activity.

Areas of employment of graduates

Employees of brokerage firms, dylynhovyh centers, investment companies and funds, asset management companies.

Master's program "Analysis of financial and commodity markets"

Graduates of this program will develop and implement a profession forecasts for the domestic and world markets as a whole and within specific product groups or financial instruments.

Areas of employment of graduates

Employees of brokerage houses, dealing centers, investment companies and funds, asset management companies, enterprises and organizations, in the structure of which is division on work with securities – stock market professionals and businesses and organizations that purchase or sale of goods in bulk – professionals commodity market.

Master's program "Commercial activity and trade"

The scope of this study program includes activities such as trading securities depository activities, evaluation activities, asset management and physical entities.

Areas of employment of graduates

Employees of stock exchanges, brokerage houses, dealing centers, investment companies and funds, asset management, clearing and depository institutions.

Practical training

All students of the department undergo practical training at the leading exchanges and well-known in Ukraine and abroad, companies operating in the stock markets. In particular, a "Ukrainian Exchange", "Ukrainian Agrarian Exchange", "Agrarian Exchange," company "Univer", "Art Capital" and others. Agreement on cooperation in practical training with such public organizations as the "National Association of Stock Exchange Ukraine" and "Union of Agrarian Exchanges of Ukraine".

Proposed Topics for Master Theses

1. International currency market FOREX: Status and Prospects.
2. Financial derivatives and diversification of their use stock market participants.
3. Methods of analysis and forecasting stock prices for financial markets.
4. Foreign currency exchange system in the world market.
5. Diversification of investments on the stock exchange financial market.
6. The development of electronic trading technology in global financial markets.
7. Exchange stock market in the financial system of the state.
8. Status and prospects of foreign exchange market
9. The development of the exchange market financial derivatives.
10. Day-Trading on stock exchanges.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Stock exchange activities" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	hours
1. STANDARD ACADEMIC DISCIPLINES				
1	Organization of Trading	1	120	4
2	Exchange commodity market	1	120	4
3	Exchange Stock Market	1	120	4
4	Analysis and forecasting the stock market	1	120	4
5	Pricing in the exchange market	1	90	3
6	Brokerage activities	2	90	3
7	Financial derivatives	2	120	4
8	Exchange electronic trading	2	120	4
9	International stock markets	2	90	3
10	Commercial activity	2	90	3
Total for standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Methodology and organization of research with the basics of intellectual property	1	90	3
2	Business foreign language	1	90	3
3	Agrarian policy	2	90	3
Total (Disciplines offered by University)			**270**	**9**
2.2. Disciplines offered by students				
2.2.1. Master's program "Stock exchange activities"				
1	Hedging futures and options	2	150	5
2	Trade stock tools	2	150	5
3	Clearing and settlement activities	2	150	5
Total (Disciplines offered by students)			**450**	**15**
2.2.2. Master's program "Analysis of financial and commodity markets"				
1	Fundamental analysis	2	150	5
2	Technical analysis	2	150	5
3	Simulations on the market	2	150	5
Total (Disciplines offered by students)			**450**	**15**
2.2.3. Master's program "Commercial activity and trade"				
1	Trading strategies	2	150	5
2	Commercial activities	2	150	5
3	Simulations on the market	2	150	5
Total (Disciplines offered by students)			**450**	**15**

№	Name of Academic Discipline	Semester	Number	
			hours	hours
Total for elective part			**720**	**24**
3. OTHER TYPES OF TRAINING				
1	Practical training	3	480	16
2	Preparation and defense of master's work	3	420	14
Total			**900**	**30**
Total for Educational program			**2700**	**90**

Annotations educational plan disciplines

1. STANDARD ACADEMIC DISCIPLINES

Organization of Trading. New theoretical principles and scientific approaches based on systems theory and organization; current concepts and trends, scientific substantiation of organizational structures and models; laws and principles of the conditions of their implementation, the unity of structure and organizational processes, the nature and content of synergy in the WTO.

Exchange commodity market. The course examines the basics of commodity exchange market, its infrastructure participants. We study the role and place of commodity exchange market in the national economy, its functions and tasks. Identify the features of commodity exchange market of Ukraine and prospects of its development.

Exchange stock market. The subject of the study discipline is a process of organization and functioning of the stock market exchange. The main objectives of discipline is learning the basics of organization and technology trade in the stock exchange markets; the acquisition of practical skills: conclusion and implementation of agreements on the exchange stock market; mastering the practice of speculative operations on the stock market exchange**.**

Analysis and forecasting the stock market. The course "Analysis and forecasting the stock market" system examines methods of assessing the situation on the stock market, the current operation and its prediction for the future. The purpose of the study course - to the future economic direction of specialist theoretical foundations and practical skills in the analysis and implementation of forecasting stock market conditions and effectively use this knowledge in their future activities.

Pricing in the exchange market. The purpose of discipline - to provide students with theoretical knowledge and practical skills on the formation of prices for agricultural products. Tasks of the course is to disclose problems: the theoretical foundations of pricing; legislative and legal regulation of pricing; organizational and economic mechanism of pricing; description of methods of regulation of pricing in Ukraine.

Brokerage activities. The subject of the study discipline is a mechanism of organization and technology brokerage activities. The purpose of teaching is to develop in-depth knowledge in the organization and efficient operation of brokerage mediation on the stock market. Ensuring the effective application of acquired skills immediately in practice**.**

Financial derivatives. The purpose of the study course - formation of students' modern economic thinking and system of specialized knowledge in the organization and functioning of term futures market. Studying discipline involves the two interrelated objectives: development of theoretical aspects of organization and technology futures trading and the acquisition of practical skills strategy and tactics of trading on global futures exchanges, by methods of assessment and forecasting commodity prices, financial instruments and foreign currency**.**

Exchange electronic trading. Discipline provides for the formation of knowledge and skills of students on introduction of computer technology in the stock market, based

on electronic technology exchange trading and use of participants in the exchange market. Objectives of the course: to master basic concepts stock ecommerce; read the new information technologies; acquire practical skills in the use of electronic technologies in the stock market.

Intellectual Property. Learning the basics of intellectual property, registration of ownership, protection, commercialization, valuation and management, research foundations, legal and economic aspects of intellectual property**.**

International stock markets. The purpose of teaching is to create a system of special knowledge of the problems and prospects of development of international relations in the field of trading. Of the course are: formation of a holistic understanding of the processes that characterize the international level of interoperability of national stock markets; mastery of new approaches to assess the evolutionary nature of international stock markets; mastering the culture of modern economic thinking in the field of trading with the position advanced world experience.

Commercial activity. The essence and main tasks of business and its legal framework, privatization of basic legal forms of management. Development proposals for rationalizing the management of trade problems further increase the efficiency of processes and customer service.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Methodology and organization of research with the basics of intellectual property. The purpose of discipline: the development of knowledge on the methodology, theory method and the research process, methodological support research activities at the stages of writing a master's thesis, forming the ability to organize scientific research an issue using the whole complex of traditional methods of research, including general and special methods , The main objective of the theoretical part of the course is to familiarize students with modern concepts of scientific work, on the basis of the methodology of scientific knowledge and methods of research. The main task of the practical part - developing skills for self-education, development of skills formation and use of conscious methodological position of scientific research. As a result of the development of the course, students should improve their ability to search, selection and processing of scientific information in the exact formulation of the problem, goals, objectives, object, object methods. Is expected to introduce students to the basics of intellectual property and directing them to master knowledge and skills regarding registration of ownership, protection, commercialization, valuation and management.

Business foreign language. The general aim of the program of teaching of foreign language for the professional purpose is formation students' professional linguistic competencies that will contribute to their efficient operating in cultural variety of training and professional environment. The methods of search of new information in another language sources, linguistic methods of analytical study of another language sources are learned. Students study published original literature in another language and increase their lexical and grammatical skills. Methods and linguistic peculiarities of annotation and synopsis of another language sources, the principles of translation of professional oriented another language sources are studied.

Agrarian policy. The discipline introduces the principles of formation of policy in agrarian sphere, gives the possibility to gain proficiency in methodical and methodological principles of the development and realization of the complex of actions concerning support and provision of the development of agriculture in the system of inter-branch links in national economy as well as estimate from the theoretic position practical actions of state

structures concerning regulation of the agricultural production of the country.

Both national and foreign experience is studied. In case of mastering the material students get the possibility to form their own view on professional base about processes and phenomena happening in agrarian sector of the state economy.

2.2. Disciplines offered by students

2.2.1. Master's program "Stock exchange activities"

Hedging futures and options. Students learn that the derivatives used as hedging tools (insurance risks). If you change the unfavorable market situation in the direction of hedging helps minimize possible losses. Derivatives with proper use can be an effective tool for augmenting funds for the acquisition of which is quite small initial investment. But in order to get them to trade on the stock market, you should understand all the pros (benefits) and disadvantages (risks).

Trade stock tools. The subject of discipline is the organization and regulation of securities trading on the stock market. Program courses include: securities on the stock market of Ukraine; securities traders and other participants of trading on the stock market; financial monitoring and financial calculations on the securities market. Aim of the course - the study of the process of trading in the stock the stock market.

Clearing and settlement activities. The course examines the activities of market participants to determine the mutual obligations under the contracts. The course involves the study of the clearing, its technological support, the rights and obligations of the participants. Students get practical skills calculations for a large number of agreements concluded, and with a significant number of contractors.

2.2.2. Master's program "Analysis of financial and commodity markets"

Fundamental analysis. It is an approach to the analysis of financial markets based on the study of financial and economic information that is likely to have an impact on the dynamics of asset or financial instrument. Feature of fundamental analysis is that it is extremely difficult to formalize. Fundamental analysis is used by investors to assess the value of the company (or shares), which reflects the state of the companies, the profitability of its operations. This analysis exposed the financial performance of the company.

Technical analysis. Provides prediction of price changes in the future based on an analysis of price changes in the past. It is based on time series analysis of prices - "charts". In addition to the price series used in technical analysis of trading volumes of information and other statistics. The most common methods of technical analysis used to analyze prices changing freely. In technical analysis developed many different tools and methods, but they are all based on a common assumption - by time series analysis using allocation trends may predict the behavior of prices in the future.

Simulations on the market. Discipline is merely applied aspect, which is the scenario conditions for the development of various situations that may arise in the market. Students learn to develop measures to address them, picking up a variety of economic instruments. Particular attention is paid to the possibility of reducing the negative effects of adverse situations with opportunities exchange market.

2.2.3. Master's program "Commercial activity and trade"

Trading Strategies. The aim of this course is to reveal elements of behavior on the market, its pricing strategy as the procurement of resources and the implementation of production. Attention is drawn to the fact that enterprises in developed countries in addition to its core activities, tend to get more and investment income, requiring the study

of behavior on the stock market.

Commercial activities. The theoretical basis of commercial business; various types of business entities in trade; successive stages of establishing their own business; basics of business planning; the state registration; licensing and patenting; features of entrepreneurial activity in wholesale and retail trade; ethical and responsible business to various groups in society.

Simulations on the market. Discipline is merely applied aspect, which is the scenario conditions for the development of various situations that may arise in the market. Students learn to develop measures to address them, picking up a variety of economic instruments. Particular attention is paid to the possibility of reducing the negative effects of adverse situations with opportunities exchange market.

FACULTY OF AGRICULTURAL MANAGEMENT

Dean - Candidate of economic sciences, professor Anatolii Ostapchuk

Tel .: (044) 527-85-73
E-mail: agromen_dean@nubip.edu.ua
Location: educational building 10, room 413, 525, 625

Faculty (ERI) organizes and coordinates educational process of master training in educational programs within specialtiess:

Specialty 075 "Marketing"

Educational program "Marketing"
The graduating department:
Marketing and International Trade
Tel .: (044) 527-89-78
E-mail: market_chair@nubip.edu.ua
Head - Doctor of Economics, professor Yaroslava Larina

Specialty 073 "Management"

Educational program "Management of organizations and administration"
The graduating department:
Management named after professor Yo.S. Zavadsky
Tel .: (044) 527-84-80
E-mail: manag@nubip.edu.ua
Head - Doctor of Economics, Professor Vasyl Horiovyi

Educational program "Management of foreign economic activity"
The graduating department:
Administrative Management and Foreign Economic Activity
Tel .: (044) 527-86-51
E-mail: worldagro_chair@nubip.edu.ua
Head - Doctor of Economics, professor Valerii Halushko

Educational program "Administrative Management"
The graduating department:
Administrative Management and Foreign Economic Activity
Tel .: (044) 527-86-51
E-mail: worldagro_chair@nubip.edu.ua
Head - Doctor of Economics, professor Valerii Halushko

Educational program "Management of investment activity and international projects"
The graduating department:
Production and investment management
Tel.: (044) 527-80-80
E-mail: prodinvestman@nubip.edu.ua
Head of Department – Corresponding Member of the National Academy of Sciences of Ukraine, Professor, Doctor of Economics Shynkaruk Lidiia

Training of masters of sciences in educational program "MARKETING" in specialty 075 "MARKETING" branch of knowledge "Management and Administration"

Form of Training:	Licensed number of persons:
– Full-time	60
– Part-time	60
Duration of training	
– Full-time educational and professional program	1.5 year
– Part-time	1.5 year
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of teaching	Ukrainian, English, German
Qualification of graduates	master degree in marketing

The concept of training

The program in the specialty is aimed at training marketing specialists able to work in the field of marketing, advertising, logistics, market research and forecasting, international marketing and trade. Masters in the specialty are able to form a company market strategy, ensure the competitiveness of enterprises, develop and implement marketing operational plans of a company; organize foreign economic activity of an enterprise in accordance with the international marketing principles; organize distribution systems such as “just in time”, “door to door” etc.; organize company communication policy and performance in an unstable environment; prevent adverse factors and crises; assess risk factors, measure their size and manage them when implementing marketing activities.

Master’s program "Logistics"

The aim of the master’s program is to train specialists in marketing logistics who are competent, professional and responsible to perform basic logistics functions, to facilitate the effective promotion of the goods from producer to consumer, to introduce new organizational and economic technologies in the field of marketing. The program provides training of highly qualified managers, able to creatively apply innovative methods in the field of logistics.

Areas of employment for graduates

Logistics companies and logistics divisions of large enterprises.

Master’s program "Advertising Management"

Training of specialists in advertising project management, organization and quality management of an advertising project and its implementation. The objective is to provide students with the knowledge of modern communication technologies, advertising projects management methods, standards and technology of development and implementation of promotional activities.

Areas of employment for graduates

Advertising agencies and advertising departments of enterprises and organizations.

Master's program "Commercial and intermediary activity"

The aim of the master's program is to train experts in marketing and intermediary activities with a high level of professionalism and culture, competence and responsibility, able to perform the basic functions of business, to use various marketing tools to promote goods from producer to consumer, introduce new organizational and economic technologies in the field of marketing.

Areas of employment for graduates

Businesses and organizations engaged in intermediary activity; marketing and sales departments of enterprises of different organizational and economic forms.

Master's program "International trade"

Specialists learn to analyze market conditions in a globalizing world economic environment, develop and evaluate the economic efficiency of international commercial transactions, apply marketing principles in international trade. The program aims to train specialists in international trade, able to perform the respective functions of trade on foreign markets, promote the effective promotion of products, introduce new organizational and economic technologies in the field of international trade.

Areas of employment for graduates

Marketing departments of international companies and joint ventures.

Practical training

Using case methods masters in marketing explore the specific characteristics of agricultural production as a commodity, mechanisms of formation and implementation of marketing strategies, pricing strategies and the peculiarities of marketing pricing, sales, advertising management. As potential leaders they learn to manage marketing departments, acquire knowledge of the practical aspects of the market and their impact on the development of the company, the competitive environment and the market on the whole, to determine the role of professional marketers in the economic system of the state in the increasing global competition, globalization and modern challenges.

Proposed themes for master theses

1. Development of product promotion strategies to the market.
2. Development of product marketing strategy.
3. Improvement of agricultural enterprise activity on the basis of market research.
4. Organization of marketing activity at the enterprise.
5. Organization of business on the basis of marketing.
6. Formation of communication policy of an enterprise on domestic (foreign) market.
7. Transportation management in modern transport logistics.
8. Rationale of marketing distribution policy.
9. Management of marketing activities at the enterprise.
10. Organization of marketing research on milk and dairy products market.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Marketing" (educational and professional program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Social responsibility	1	120	4
2	Strategic Marketing	1	120	4
3	Logistics management	1	120	4
4	Advertising management	2	120	4
5	Marketing Management	2	120	4
6	Forecasting methods in marketing research	1	120	4
7	Commercial activity of intermediary enterprises	1	120	4
8	Marketing planning	2	120	4
9	Management of enterprise competitiveness	1	120	4
Total standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the university				
1	Agricultural policy	1	120	4
2	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
3	Business foreign language	1	150	5
Total part offered by the university			**360**	**12**
2.2. Discipline chosen by a student				
2.2.1. Free chose disciplines				
1	Global economy	2	90	3
2	Company innovation development	2	90	3
3	Banking system	2	90	3
4	Financial market	2	90	3
5	Mortgage lending	2	90	3
6	Financial management	2	90	3
7	Human resources management	2	90	3
8	International Management	2	90	3
9	Product Innovation Policy	2	90	3
10	Psychology of management and conflict management	2	90	3
11	Business protocol and negotiating	2	90	3
12	Entrepreneurship	2	90	3
13	Stock market	2	90	3
14	Asset management	2	90	3
15	Technology of presentations and web-design	2	90	3
Total part free chose			**270**	**9**
2.2.2.1 Master's program "Logistics"				
1	Project Management	2	120	4
2	Mathematical models in logistics	2	120	4
3	Logistics in FEA	2	120	4
4	Transport Logistics	2	120	4
Total part of *master's program*			**540**	**16**

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
2.2.2.2. Master's program "International trade"				
1	Marketing research of foreign markets	2	120	4
2	International trade and world markets conjuncture	2	120	4
3	Logistics in FEA	2	120	4
4	International Business Transactions	2	120	4
Total part of *master's program*			**540**	**16**
2.2.2.3. Master's program "Commercial and intermediary activity"				
1	Electronic commerce	2	120	4
2	Merchandising	2	120	4
3	Direct sale technology	2	120	4
4	Retailing technology	2	120	4
Total part of *master's program*			**540**	**16**
2.2.2.4. Master's program "Advertising Management"				
1	Advertising projects management	2	120	4
2	Brand Management	2	120	4
3	Creativity in advertising	2	120	4
4	Psychology of Advertising	2	120	4
Total part of *master's program*			**540**	**16**
Total part chosen by a student			**750**	**25**
Total elective part			**1110**	**37**
3. OTHER FORMS OF TRAINING				
1	Production and pre-diploma practice	2,3	240	8
2	Writing and defense of master thesis		270	9
Total			**510**	**17**
Total in educational program			**2700**	**90**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Social responsibility. The aim of the discipline: to form students' fundamental knowledge of the theory and practice of social responsibility and appropriate professional competences.

Strategic Marketing. The aim of the discipline is to master theoretical and methodological principles of strategy formation and practical skills in strategic decision-making in marketing management and market development of an enterprise. The main tasks of the discipline is to provide theoretical training of students and formation of skills in strategic marketing analysis, market segmentation, positioning, development of general, competitive and functional strategies, searching and keeping competitive advantages.

Logistics Management. The aim is to master theoretical principles, the basic categories of logistics management and methodological aspects of organization and management of logistics activities in modern conditions.

Advertising management. The aim of discipline is to form a system of theoretical and applied knowledge of advertising management, strategy and tactics of advertising in Ukraine. The main tasks of the discipline are to study the issues of advertising planning, stages of creating advertising messages, the sphere of advertising management application, knowledge of the characteristics of the main participants of the process, to provide students with practical skills for marketing service. The student explore approaches to creating advertising, its movement on the market and evaluation of effectiveness.

Marketing Management. The discipline studies the system of administrative relations in marketing departments and their relationship with other business units. The

aim is the formation of the modern approaches to understanding marketing management abilities to achieve the transition to a new level and forms of consumption by situational market analysis, forecasting the evolution of consumer needs and strategic planning of stimulating goods and services movement, sales, providing increased entrepreneurial resistance on the domestic market. The main tasks of discipline are to provide competences in basic opportunities of marketing management for broad entrepreneurial activity in various organizations and environments.

Forecasting methods in marketing research. The aim of discipline is to develop students' knowledge and skills in the theory and methodology of forecasting market research of macro- and micro-markets, products / services. The discipline studies methodological and technological principles of research methods and processes and forecasting of economic entities and the conditions of the business environment. The program includes two modules: the theoretical foundations of forecasting for marketing research; quantitative forecasting methods in marketing research.

Commercial activities of intermediary companies. The discipline studies modern approaches to the possibility of commercial management of intermediary enterprises in order to transfer to modern technologies, strategies, purchase and sale tactics; the use and application of modern forms, methods of commercial transactions for the effective operation of business intermediary companies.

Marketing planning. The aim of the discipline is to provide knowledge and practical skills in drawing up marketing plans, managing the process of their implementation, forming and maintaining consumer demand for goods and services, identifying target segments, plan benchmarking. The objective of the discipline is to study phases, functional structure and information support of marketing planning system. The discipline studies marketing planning process and factors affecting it. The students learn methods and techniques to perform planning management in specific situations.

Management of enterprise competitiveness. The aim of the discipline is to deepen the theoretical knowledge, to master modern methods and practical skills of effective management of enterprise competitiveness based on marketing in modern business environment. The objectives of the course are: awareness of the role and importance of the problems of company competitiveness management; profound knowledge of the role and place of marketing in management of enterprise competitiveness; synthesis of theoretical knowledge and practical skills in forming competitive status of acompany and its management in specific practical situations.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by university

Agricultural policy. The discipline introduces future professionals to the basics of policy-making in agriculture. The students study both domestic and foreign experience and get an opportunity to form professional opinion about the processes and phenomena in the agricultural sector of the national economy.

Methodology and organization of scientific research with the principles of intellectual property. The aim of the discipline is to develop the system of knowledge of methodology, theory of method and research process, methodological support of research activities at the stages of writing master thesis, to form the ability to organize scientific research of problem using the whole complex of traditional methods of research, including general and special methods, laws and categories of dialectics, economic laws and categories of economic and statistical methods, economic-mathematical modeling etc. The main objective of the theoretical part of the course is to introduce students to modern concepts of research activities with the principles of scientific cognition and methods of

scientific research. The main objectives of the practical part are to develop abilities of self-education, development of skills: formation and use of conscious methodological position of scientific research. The learning outcomes are: improvement of skills in searching, selecting and processing scientific information, exact formulation of the problem, purpose, objectives, object, subject and methods of research. Students are expected to learn the principles of intellectual property and master the knowledge and skills regarding registration of ownership, protection, commercialization, evaluation and management.

Business foreign language. The overall objective of the program of foreign language teaching for specific purposes is to develop students' professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.

2.2. Disciplines chosen by a student

2.2.1. Free chose disciplines

Global economy. The aim of the discipline: to form students' understanding of the conditions and factors of development, mechanisms and tools of the global economy, awareness of their intellectual mission for efficient decision-making in the context of civilization progress.

Company Innovation development. The aim of discipline: to form knowledge, abilities and skills in developing professional competence to ensure the innovative development of economic systems, assess their innovation potential, substantiate and implement effective managerial decisions on the grounds of innovative principles.

Banking system. The purpose of discipline is mastering basic principles of banking operations at a level after finishing which they can best navigate in the issues of the banking system and continue to adapt new knowledge in the process of the specialty.

Financial market. The purpose of discipline is to enhance the knowledge and skills of students about the organization of operations on the financial market, the mechanism of its organization and the features of development the world global stock, the policy of Portfolio Investment. Tasks of the course - to submit in the required extent the theoretical material, which includes research and development of the domestic and foreign scientists; to give structural understanding of the principles in the financial relations between issuers, investors, professional participants, regulators bodies and self-regulatory organizations; to define a set of measures that ensuring optimum risk in the financial market

Mortgage lending. After studying the course "Mortgages" student should know: basic principles of mortgage lending; the theoretical foundations of the functioning and organization of the mortgage financial institutions; basic institutions that provide mortgage lending capacity; place, role, functions and tasks of mortgage banks; methodology of organization of bank mortgage operations. The student should be able to: use the acquired theoretical knowledge while working in financial institutions; analyze the activities of mortgage banks as a whole and its individual operations in particular.

Financial management. The aim of the discipline is to develop student modern economic thinking and the system of expertise knowledge in the field of finance management, practical skills of their application in various areas of financial activity.

Human resources management. The aim of the discipline is to form complex theoretical knowledge and practical skills of developing and implementing HR policy in modern organizations, rational selection of employees for positions and efficient teambuilding, performance evaluation, development and use of employees' potential.

International Management. The discipline studies world practice in management trends. Students examine management systems in different countries, compare and evaluate them from the position of their application in Ukraine.

Product innovation policy. The aim of the discipline is to develop a system of knowledge about the main directions in the strategic planning of the innovation process to create commercially profitable products. The main objectives of the discipline are to introduce students to the principles of product innovation marketing; effective application of research results to create competitive products; skills of using modern methods and techniques to generate ideas; functional and economic substantiations of conformity of new products to market requirements.

Psychology of management and conflict management. The aim of the discipline is to study the general laws, mechanisms of formation and development of cognitive mental processes, properties, states and formations in the process of management, under stress and conflict. The objective of the course is to form the system of theoretical and methodological knowledge on the problems of psychological science and practice, knowledge of the structural elements of the psyche - mental cognitive processes, properties, states and formations at the level of representation and interpretation for practical application and implementation in the professional activity of future managers.

Business protocol and negotiating. The discipline studies modern management requirements, in particular, business protocol and ethics as its important component, enterprise responsibility as the first step towards ethical conduct, preparation for negotiations, negotiating (the main stages and their characteristics), methods of negotiating, negotiation styles, analysis of the results of negotiations and implementation of the agreements, rules and regulations of business meetings, highlights of meeting arrangements, preparation of venues and meeting of delegations.

Entrepreneurship. This discipline gives knowledge about the laws that govern, on the one hand, by the relations of the economic property between entrepreneurs and employees, and on the other hand - the actions of entrepreneurs in the process of selecting resources for production, exchange, distribution and consumption of goods and services.

Stock market. The discipline gives students an idea of the basic tools of trade used in the global stock market. The marketing experts study the process of product pricing on the stock market and explore the factors affecting it.

Asset management. The purpose of discipline is to develop students modern economic thinking and system of special knowledge in the field of asset management of the companies and organizations, relevant competencies based on mastering basic theoretical positions and mastering the practical skills that allow to effectively carry out this activity.

Technology of presentations and web-design. The purpose of teaching is to prepare students for presentations, reports in front of the staff at various levels, training and teaching methods of designing websites in order to bring their ideas to the audience / consumer. The objective of discipline is learning the methods for creating presentations and websites, acquaintance with the basics of building a report.

2.2.2.1. Master's program "Logistics"

Projects Management provides knowledge of planning, organizing and managing resources for the successful completion of the objectives and tasks of a project. The main objective is: acquisition of skills to achieve the objectives and tasks of the project, adhering to the obligations of the predefined project constraints. Typical constraints are the scope and content of the project, the time, and budget. The minor though more ambitious objectives are: optimization, distribution and integration of tasks to achieve the predetermined goals.

Mathematical models in logistics. The aim of the discipline is to develop students' mathematical knowledge to solve problems in professional activities, analytical thinking skills and mathematical formulation of economic problems in management.

Logistics in FEA. The subject of the discipline is the general laws of development of logistics systems, characteristics and trends of management and optimization of material flows in foreign economic activity. The aim of the discipline is to form systemic knowledge of the conceptual bases of logistics, theory and practice of this direction and skills of independent work regarding up-to-date methods of managing material and other flows in modern conditions. The task of discipline is to provide students with deep theoretical knowledge on concepts, strategies and tactics in logistics; master methodological tools of development and implementation of logistics tasks; master the skills of logistics thinking and develop proposals on improving logistical systems and mechanisms of their functioning; skills of economic performance evaluation and the effects of logistics solutions in foreign economic activity.

Transport logistics. The discipline deals with characteristics of the global market of transportation and logistics services, transport and logistics strategy of the European Union, the problems of transport logistics, the choice of vehicle, drawing up routes, transport tariffs and fines, cargo transport characteristics, scheduling transportation. The aim of the discipline is to provide students with knowledge and skills regarding the components of modern transport logistics systems. The task of the discipline is to form students' competence in developing transport logistics in Ukraine.

2.2.2.2. Master's program "International trade"

Marketing research of foreign markets. The aim of the discipline is to develop students' knowledge and skills in the theory and methodology of marketing research of macro- and micro foreign market environment. The subject of the discipline is theoretical and practical basis of the organization of marketing research of foreign markets by business entities in order to assess changes in the conditions of world commodity markets and justification of effective management decisions. The program of the discipline includes two modules: the theoretical principles of marketing research of foreign markets; research of competitors and consumers in foreign markets.

International trade and world market conjuncture. The aim of the discipline is to develop students' knowledge and skills in the theory and methodology of conjuncture analysis and forecasting of marketing research of global commodity markets. The subject of discipline is theoretical and practical basis of organization of conjuncture research of changes in the conditions of world commodity markets by business entities. The program of the course includes two modules: the theoretical basis of conjuncture research in international trade; conjuncture research of world commodity markets.

Logistics in FEA. The subject of the discipline is the general laws of development of logistics systems, characteristics and trends of management and optimization of material flows in foreign economic activity. The aim of the discipline is to form systemic knowledge of the conceptual bases of logistics, theory and practice of this direction and skills of independent work regarding up-to-date methods of managing material and other flows in modern conditions. The task of discipline is to provide students with deep theoretical knowledge on concepts, strategies and tactics in logistics; master methodological tools of development and implementation of logistics tasks; master the skills of logistics thinking and develop proposals on improving logistical systems and mechanisms of their functioning; skills of economic performance evaluation and the effects of logistics solutions in foreign economic activity.

International Business Transactions. The aim of the course is to provide students with knowledge about preparation, conclusion and implementation of international commercial transactions based on the most important sources of legal regulation of international business developed by UNECE, UNIDROIT, UNCITRAL, ICC and business associations, as well as forms and methods of international commercial payments. The objectives of the discipline is to introduce students to the essence of international commercial agreements, principles of international agreements taken into account when drawing up contracts and simplification of procedures in international business; the use of practical skills to draw up contracts for the international sale of raw materials and manufactured goods, contracts in countertrade transactions, brokering, licensing, franchising, engineering, leasing, factoring services and production maintenance service; provide students with practical knowledge about methods of payment, their strengths and weaknesses, as well as international payment systems.

2.2.2.3. Master's program "Commercial and intermediary activity"

Electronic commerce. The discipline provides the essence, content and role of e-commerce in the modern sector of world and national economy. E-commerce tools, its scope and the main principles are considered regarding the global Internet. Special attention is focused on characteristics of basic forms and e-commerce projects (including electronic shopping, electronic auctions, electronic trading platforms) electronic payments, the specifics of providing individual services. The effectiveness of e-commerce and its legal support are analyzed.

Merchandising. The discipline provides coverage of such issues as: control of inventory in retail trade; effective product placement in stores; marketing communications at points of sale; the effectiveness of the sales staff. The aim of the discipline is to provide students with knowledge and skills on modern techniques, mechanisms and instruments of merchandising. The tasks of the course are aimed at developing students' competence as to: display of goods on the exposition equipment, distribution of promotional materials in retail locations, the possibility of presenting the maximum possible range of goods.

Direct sale technology. The discipline covers peculiarities of organization and planning of direct sales, the sequence of operations in the process of direct selling, methods and algorithms for decision making as to personal selling process in any form of economy. The aim of the course is to provide students with knowledge of efficient sales and service, up-to-date genuine industrial, institutional and scientific decision-making. The objectives of the course are to introduce students to the relevant categories of direct selling, the requirements for sales representatives, peculiarities of successful product presentation; the use practical skills in direct selling; instilling a desire to creatively improve the process of product selling in the current market conditions in Ukraine.

Retailing technology. The aim of the discipline is to develop knowledge and skills in sustainable construction of commercial enterprises, the ability to design commercial and technological processes, to introduce scientific and technological progress into trade. The task of the course is to understand and study the complex of issues that reveal the content and peculiarities of retailing. Particular attention is focused on the principles of trade, the factors that influence the effectiveness of trade and technological processes, methods of retail sale.

2.2.2.4. Master's program "Advertising Management "

Advertising project management. The discipline provides training in planning and managing advertising projects, particularly in the following areas: project environment affecting the project (internal and external factors), project drafting – setting goals,

objectives and strategies of the project, project planning – the system of measures for the project, technical performance – direct technical execution of project plan points, project management – monitoring of project implementation according to plan.

Brand management. The main role of brand management is to integrate the processes of creation, management and evaluation of brands aimed at increasing their value to consumers. The aim of the discipline is to provide students with theoretical knowledge and practical skills in brand creation and management, brand strategy realization in order to achieve the maximum business efficiency. The objective is to form competencies in the following areas: the nature and principles of brand management at an enterprise, the purpose and prerequisites for effective brand management; to teach students to create their own brands, manage brand assets, develop and support the brand strategy. The subject of the discipline covers methods and processes which the enterprise applies to create brands and manage their assets.

Creativity in advertising. The aim of the discipline is to provide students with knowledge of methods and technologies of creativity in advertising by means of media and graphic art, to form creative thinking, practical skills and abilities in advertising and the use of specialized and reference books on creativity in practical economic activity. The objective of the discipline is to learn the basic directions of creative activity in advertising; principles and methodological approaches to generation of new ideas in advertising from the positions of different creative schools; to be able to analyze the effectiveness of advertising messages in different media.

Psychology of advertising. The aim of the discipline is to provide students with theoretical knowledge and practical skills in the field of advertising psychology and in the dynamics of psychological processes of interaction in the system "advertising to consumer" to address the psychological challenges of designing effective advertising images of products (services); to form skills of creating and using special advertising psycho-technologies to promote products on the market. The task of the course is to teach students to form effective advertising images (image) of goods (services) in target groups, as well as provide methods of memorizing advertising messages, implement effective advertising influence on consumer behavior, arouse a desire to buy a product (service) advertised.

Training of masters of sciences in educational program "MANAGEMENT OF ORGANIZATION AND ADMINISTRATION" in specialty "MANAGEMENT" branch of knowledge "Management and Administration"

Form of training	Licensed number of students:
– full-time	60
– part-time	60
Duration of training	
– full-time educational and professional program	1.5 year
– full-time educational and research program	2 years
– part-time	1.5 year
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of teaching	Ukrainian
Qualification of graduates	master degree in management of organization and administration, manager (administrator) of an organization

The concept of training

The main task of training in management of organizations and administration is to teach masters to make their own decisions, to carry out scientific research activities in the relevant areas and to give practical recommendations on the current problems in the agro-industrial sector: development and implementation of economic policy, planning, forecasting, economic-organizational and research functions necessary for organization and rational use of material and technical potential of AIC entities; improvement of the efficiency and reliability of management, introduction of new progressive organizational forms; improvement of methodology of economic analysis, investment forecasting, elaboration of business-plans and justification of managerial decisions; appropriate practical application of the provisions of the legislation of Ukraine on the issues of financing, crediting and taxation of enterprises, institutions and organizations of the agro industrial complex.

Educational and professional program of master's training

Master's program "Management of enterprise strategic development"

Training of specialists for management and peopleware in large business groups and associations of integrated services of organizational and strategic development, the activity of which involves comprehensive diagnostics of the organizational systems, implementation of innovative approaches through proactive crisis management system by means of establishing effective institutional mechanism to ensure functioning of the subjects of corporate interaction.

Areas of employment for graduates

Managers of the structural divisions of enterprises in the agrarian sphere.

Master's program "Management on the market of goods and services"

Training of specialists for management of various organizations on the market, including the market infrastructure entities by creating competitive advantages of organizations and their products. Future masters obtain theoretical and practical skills in enhancing competitiveness of a specific product or services through the system of organizational measures, including motivation.

Areas of employment for graduates

Managers of the structural divisions of enterprises in the agrarian sphere.

Master's program "Quality Management"

The program trains specialists for developing the quality management system considering the objectives and policies in the information management of product quality, methods and analysis of quality indicators, improvement of the processes of quality assurance system functioning. Graduates will be able to improve the efficiency of economic activities by using modern approaches to management based on the quality management criteria as well as quality of the products and services offered by an enterprise or organization.

Areas of employment for graduates

Managers of the structural divisions of enterprises in the agrarian sphere.

Master's program "Management in the sphere of economic competition"

The discipline focuses on the study of theoretical aspects of management in the sphere of economic competition. Training of expert managers in the sphere of economic competition is caused by increasing competitive pressure on businesses that require a systemic approach to formation of a complex of measures to ensure competitiveness of enterprises.

Areas of employment for graduates

Managers of the structural divisions of enterprises in the agrarian sphere.

Master's program "Management of cooperative groups"

The study of theoretical aspects of managing various activities of co-operative forms in accordance with the needs of the national economy. The programme provides students with knowledge, skills and competences in planning, motivation, control, organization and coordination of a cooperative enterprise; effective decision-making in accordance with cooperative principles; planning needs in different types of resources and coordination of their use by the members of the cooperative; drawing up business plans; organization of collective work; coordination of team work and conflict management; introducing transparent relations; regulation of service processes; understanding the basic needs of cooperative members, customers, introducing the strategy of promoting new products and services through cooperatives; formation and development of organizational culture and consulting activities.

Areas of employment for graduates

Managers of the structural divisions of enterprises of cooperative integrated type.

Educational and research program of master's training

Master's program "Scientific approaches to efficient management in the market of goods and services"

The discipline studies the issues of formation and functioning of the system of management of the economic entities on the market of goods and services to provide effective responses to the needs of consumers using innovative approaches in management. Graduates will be able to apply the appropriate scientific methods of analysis and choice of optimal managerial decisions, to develop their own proposals and improve the existing approaches to the management on the market of goods and services.

Areas of employment for graduates

Post-graduate courses, organization of consulting services in the sphere of management.

Practical training

The future masters in management will be able to apply modern methods of management, will acquire knowledge of technological issues of enterprise functioning and the ability of self-control; clear personal goal-setting, problem-solving skills; ability to innovate; to influence others; knowledge of modern management approaches; ability to manage; ability to train and develop subordinates, manage an enterprise, knowledge of practical aspects of decision-making.

Proposed Topics for Master Theses

1. Improvement of the system of labor potential management of an enterprise.
2. Improvement of the system of manager's performance and evaluation of personal managerial qualities.
3. Management of entrepreneurial activity and ways of its improvement.
4. Improvement of organization and motivation of labor at the enterprise.
5. Improvement of the management system in the sector of animal husbandry.
6. Development of communications system in enterprise management.
7. Improvement of the process of adoption and implementation of managerial decisions.
8. Formation of enterprise competitive strategies.
9. Formation of quality management system of enterprise in agro industrial complex.
10. Development of the strategy of HR management at an enterprise.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Management of organizations and administration" (educational and professional program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Contract law	1	120	4
2	Business administration: management of organization	1	120	4
3	Psychology of management and conflict management	1	120	4
4	Business administration: corporate management	2	120	4
5	Business administration: change management	2	120	4
6	Business administration: project management	2	120	4
7	Business administration: quality management	2	120	4
8	Information systems and technologies in organization management	2	120	4
9	Investment management	2	120	4
Total standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the university				
1	Agricultural policy	1	120	4
2	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
3	Business foreign language	1, 3	150	5
Total part offered by the university			**360**	**12**
2.2. Disciplines chosen by a student				
2.2.1 *Free chose disciplines*				
1	Asset management	2	120	4
2	Business protocol and negotiating	2	120	4
3	Business game (Business management)	2	120	4
4	Tax system	2	120	4
5	Managerial Accounting	2	120	4
6	Banking	2	120	4
7	Financial management	2	120	4
8	Marketing management	2	120	4
9	International management	2	120	4
10	Public administration	2	120	4
Total part free chose			**240**	**8**
2.2.2.1. *Master's program "Management on the market of goods and services"*				
1	Market infrastructure management	3	120	4
2	Management of marketing communications and competitiveness	3	120	4
3	Management of enterprise potential	3	120	4
4	Management of enterprise activity on the market of goods and services	3	120	4
Total part of *master's program*			**480**	**16**
2.2.2.2. Master's program "Quality Management"				
1	Complex system of quality management of products and services	3	120	4
2	Information management of labour and product quality	3	120	4
3	Quality potential management	3	120	4
4	Corporate quality management	3	120	4
Total part of *master's program*			**480**	**16**
2.2.2.3. Master's program "Management in the sphere of economic competition"				
1	Management of enterprise competitiveness	3	120	4
2	Management of enterprise potential	3	120	4

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
3	Risk and economic security management	3	120	4
4	Business ethics and corporate social responsibility	3	120	4
Total part of *master's program*			**480**	**16**
2.2.2.4. Master's program "Management of enterprise strategic development"				
1	Management of enterprise organizational development	3	120	4
2	Crisis management	3	120	4
3	Diagnostics in management system	3	120	4
4	Management of enterprise innovation activity	3	120	4
Total part chosen of *master's program*			**480**	**16**
2.2.2.5. Master's program "Management of cooperative groups"				
1	Management of cooperative activity	3	120	4
2	Environment for cooperative business development	3	120	4
3	Management of cooperative members and customers interaction	3	120	4
4	Organizational support of cooperative activity	3	120	4
Total part of *master's program*			**480**	**16**
Total part chosen by a student			**720**	**24**
Total elective part			**1080**	**36**
3. OTHER FORMS OF TRAINING				
1	Production and pre-diploma practice	2,3	240	8
2	Writing and defense of master thesis		300	10
Total			**540**	**18**
Total in educational program			**2700**	**90**

Curriculum of Master training in educational program "Management of organizations and administration" (educational and research program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Contract law	1	120	4
2	Business administration: management of organization	1	120	4
3	Psychology of management and conflict management	1	120	4
4	Business administration: corporate management	2	120	4
5	Business administration: change management	2	120	4
6	Business administration: project management	2	120	4
7	Business administration: quality management	2	120	4
8	Information systems and technologies in organization management	2	120	4
9	Investment management	2	120	4
Total standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the university				
1	Agricultural policy	1	90	3
2	Methodology and organization of scientific research with the principles of intellectual property	1,3	90	3
3	Business foreign language	1,3	150	5
Total in cycle			**330**	**11**
2.2. Disciplines chosen by a student				
2.2.1 *Free chose disciplines*				
1	Asset management	2	120	4
2	Business protocol and negotiating	2	120	4

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
3	Business game (Business management)	2	120	4
4	Tax system	2	120	4
5	Managerial Accounting	2	120	4
6	Banking	2	120	4
7	Financial management	2	120	4
8	Marketing management	2	120	4
9	International management	2	120	4
10	Public administration	2	120	4
Total part free chose			**240**	**8**
2.2.2 Master's program "Scientific approaches to ensuring effective management on the market of goods and services"				
1	Market infrastructure management	3	120	4
2	Management of marketing communications and competitiveness	3	120	4
3	Management of enterprise potential	3	120	4
4	Management of enterprise activity on the market of goods and services	3	120	4
5	Management of financial reorganization and bankruptcy	4	120	4
6	Mathematical models in management and marketing	4	120	4
7	Business planning of innovative projects	4	120	4
8	International standardization and certification of technologies, raw materials and finished products	4	90	3
Total in master's program			**930**	**31**
Total part chosen by a student			**1170**	**39**
Total elective part			**1530**	**51**
3. OTHER FORMS OF TRAINING				
Production and pre-diploma practice			300	10
Pedagogical practice			150	5
Writing and defense of master thesis			450	15
Total			**900**	**30**
Total in educational program			**3600**	**120**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Contract law. The aim of the discipline is to give students a system of legal knowledge on drafting, execution and termination of various kinds of commercial contracts. The discipline studies: the main categories of contract law; order of drafting contracts, including commercial contracts; peculiarities of certain types of agreements in the sphere of economic activity; procedure of bringing contractual entities to responsibility for breach of contract.

Business Administration: **Management of organization.** The aim of the discipline is to master the theory and practice of effective management of an organization in the changing socio-economic environment. The objectives of the discipline are: to form contemporary systemic thinking and a complex of special knowledge in management of subsystems of an organization at all stages of its life cycle in relationship with the environment.

Psychology of management and conflict management. The aim of the discipline is to study the general laws, mechanisms of formation and development of cognitive mental processes, properties, states and formations in the process of management, under stress and conflict. The objective of the course is to form the system of theoretical and methodological knowledge on the problems of psychological science and practice,

knowledge of the structural elements of the psyche - mental cognitive processes, properties, states and formations at the level of representation and interpretation for practical application and implementation in the professional activity of future managers.

Business Administration: corporate management. The aim of the discipline is to introduce students to the theoretical basics of corporate management, institutional and information instruments to ensure functioning of the system of corporate management at enterprises.

Business Administration: change management. The aim of the discipline is to give practical knowledge and obtain practical skills in management process organization. The objectives of the discipline: understanding the essence of changes and the nature of their origin; formation of scientific outlook and knowledge of technologies and methods of managing change in organizations; study of the peculiarities of organization functioning under continuous change.

Business Administration: project management. The main aim of the discipline is to form appropriate practical skills in application of universal instruments of project design and implementation in order to achieve effective functioning and development of an organization. The objective of the discipline is to provide students with scientific and methodological basis to master the main tools of project management in an organization.

Business Administration: quality management. The aim of the discipline is to develop the system of knowledge on the theory and methodology of quality management, principles of formation and operation of quality management systems, to master the legal, institutional and economic issues of quality management. The main objective of the course is theoretical and practical training of students in quality management organization and functioning.

Information systems and technologies in organization management. The aim of the discipline is to develop in future managers the knowledge and skills in modern information systems and technologies, and practical skills of effective use of modern information technologies in the process of organization management.

Investment management. The aim of the discipline is to develop students' modern economic thinking and the system of expertise in the field of investment activity of enterprises, competences based on mastering the basic theoretical principles and practical skills to effectively manage an enterprise.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by university

Agricultural policy. The discipline introduces future professionals to the basics of policy-making in agriculture. The students study both domestic and foreign experience and get an opportunity to form professional opinion about the processes and phenomena in the agricultural sector of the national economy.

Methodology and organization of scientific research with the principles of intellectual property. The aim of the discipline is to develop the system of knowledge of methodology, theory of method and research process, methodological support of research activities at the stages of writing master thesis, to form the ability to organize scientific research of problem using the whole complex of traditional methods of research, including general and special methods, laws and categories of dialectics, economic laws and categories of economic and statistical methods, economic-mathematical modeling etc. The main objective of the theoretical part of the course is to introduce students to modern concepts of research activities with the principles of scientific cognition and methods of scientific research. The main objectives of the practical part are to develop abilities of self-education, development of skills: formation and use of conscious methodological position

of scientific research. The learning outcomes are: improvement of skills in searching, selecting and processing scientific information, exact formulation of the problem, purpose, objectives, object, subject and methods of research. Students are expected to learn the principles of intellectual property and master the knowledge and skills regarding registration of ownership, protection, commercialization, evaluation and management.

Business foreign language. The overall objective of the program of foreign language teaching for specific purposes is to develop students' professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.

2.2. Disciplines chosen by a student

2.2.1. Free chose disciplines

Asset management. The purpose of discipline is to develop students modern economic thinking and system of special knowledge in the field of asset management of the companies and organizations, relevant competencies based on mastering basic theoretical positions and mastering the practical skills that allow to effectively carry out this activity.

Business protocol and negotiating. The discipline studies modern management requirements, in particular, business protocol and ethics as its important component, enterprise responsibility as the first step towards ethical conduct, preparation for negotiations, negotiating (the main stages and their characteristics), methods of negotiating, negotiation styles, analysis of the results of negotiations and implementation of the agreements, rules and regulations of business meetings, highlights of meeting arrangements, preparation of venues and meeting of delegations.

Business game (Business Management). The main aim of the discipline is to develop students' knowledge of the basic principles, the main categories, modern concepts, theoretical principles and practical methods of managing the main enterprise activities and skills of developing operational strategy, creating and applying branch operational subsystems as a basis for achieving an organization's mission.

The tax system. The purpose of discipline - clarify the economic nature of taxes, their nature, functions, objectivity in market conditions; disclosure of the contents of tax policy, tax system, tax mechanisms and their components, learning practical mechanism for the application of certain taxes and duties, development of requirements to fill tax returns and tax calculation mechanism.

Managerial Accounting. The main objectives of the discipline is to study the principles and methods of management accounting, its place and role in the management of the company; acquiring skills to apply appropriate methods and techniques is a process of cost accounting and calculation in order to take effective management decisions

Banking. The purpose of discipline is mastering basic principles of banking operations at a level that after training they can best navigate the issues of the banking system will continue to adapt new knowledge in the process of the specialty.

Financial management. The aim of the discipline is to develop in students the modern economic thinking and the system of expertise in the field of business finance management, and practical skills in various areas of financial activity.

Marketing Management. The discipline studies the system of administrative relations in marketing departments and their relationship with other business units. The aim of the discipline is to form modern understanding of marketing management opportunities to achieve transition to a new level and forms of consumption by means of situational market analysis, forecasting consumer needs evolution, strategic planning of goods and services movement stimulation, organization of sales, providing increased

entrepreneurial resistance on domestic market. The main objectives of the discipline is to provide fundamental knowledge in marketing management to ensure and expand of entrepreneurial activity in specific organizations and environments.

International Management. The discipline studies world practice in management trends. Students examine management systems in different countries, compare and evaluate them from the position of their application in Ukraine.

Public administration. The aim of the discipline is to master the theoretical knowledge on public administration and acquisition of practical skills as to the application of the laws, principles, methods, technologies and procedures when managing public entities; acquisition of skills and competencies to perform the functions of a manager (expert) of public administration, including public authorities and local government.

2.2.1. Master's program "Management on the market of goods and services"

Market infrastructure management. The aim of the course is to master the theory of the commodity market infrastructure as a major part of the market economy, the practical skills in managing its activities to promote, store and sell goods and services to meet the needs of customers, the ability to find and implement decisions on intensification and efficiency in this sector. The objective of the course is to know the nature of commodity market infrastructure and its role in market economy, types and conditions of effective management by individual elements of commodity market infrastructure.

Management of marketing communications and competitiveness. The aim of the discipline is to form scientific understanding and expertise in theory and methodology of marketing, development of skills and abilities to perform management functions at an enterprise based on marketing to meet the requirement of customers and ensure the efficient operation of an enterprise.

Management of enterprise potential. The aim of the discipline is to increase the efficiency of organizational structures through the proper use of different levels of management principles and tools by managers, creation of an integrated system of administrative management of an organization.

Management of enterprise activity on the market of goods and services: The main aim of the discipline is to develop modern management thinking and the system of expertise in management, to form a conceptual understanding of the principles of the organization systemic management; to acquire skills of analyzing internal and external environment, make appropriate management decisions.

2.2.2. Master's program "Quality Management"

Complex system of quality management of products and services. The aim of the discipline is to form students' system of knowledge about theory and methodology of quality management, principles of formation and operation of quality management systems for different types of goods (products and services), study of legislative and regulatory, organizational and economic issues on quality management of goods (services). The main objectives of the course are to learn quality management terminology; to study the problem of quality at present and its impact on the national economy; to study the domestic and international experience in product quality management for its further development; to create and implement product quality systems; to use methodological principles of management: general approaches to product quality, principles and techniques.

Information management of labour and product quality. The aim of the discipline is to develop basic knowledge and skills to manage information resources in the field of quality. The objective of the discipline is to provide knowledge on theoretical and

methodological principles of information quality management; the main provisions of information quality management; information as a resource of quality development; essence and basic principles of a systematic approach to information processing and use in quality management.

Quality potential management. The main task of the discipline is to form students' sustainable theoretical knowledge of quality management potential, to be able to develop measures to improve the system of quality potential management. The main task is to give an idea about the nature of the main categories of quality potential management; to explain the process of quality potential formation; to study the system of quality potential management, its regulatory basis; to consider formation of a comprehensive and qualification level of quality potential.

Corporate quality management. The aim of the discipline is to develop the system of knowledge about basic principles, categories, methods and tools of quality management in modern companies, summarizing the main achievements of theory and practice in the field of quality management; to show the need to apply these achievements in all areas of corporation activity; to form an idea of the systemic organization of quality management processes in a corporation that meets international standards. The objective: to cover the major theoretical principles of a modern concept of quality management in a corporation; to explain the purpose and the mechanism of classical and modern methods and tools of quality management in the current activities of corporations.

2.2.3. Master's program "Management in the sphere of economic competition"

Management of enterprise competitiveness. The discipline aims to teach students to assess the competitiveness of enterprises, to identify factors of its formation. Future specialists will be able to determine the competitiveness of any company, as well as obtain the knowledge to develop a system of improvement measures.

Management of enterprise potential. The aim of the discipline is to increase the efficiency of organizational structures through the proper use of different levels of management principles and tools by managers, creation of an integrated system of administrative management of an organization.

Risk and economic security management. The discipline studies theory, ontology and epistemology of risk and economic security; the essence, perception and systemic risk analysis in the economy and business; a system of objective and subjective quantitative estimates of risk and economic security, methods of risk management and modeling of economic risk and economic security; the concept of game theory; multi-game and multi-criteria game models of economic problems, game hierarchical models of justification of making multi-purpose and multi-criteria decisions.

Business ethics and corporate social responsibility. The object of the disciplines is business communication, the subject is its moral and psychological aspects, ethical and psychological mechanisms. This new discipline includes various branches of sciences (ethics, psychology, philosophy, sociology) and practices (administration, management, etc.). The most significant components are ethics, psychology and management of science which deal with human nature and human behavior (from different viewpoints) and factors affecting the vital activities of people and their interaction.

2.2.4. Master's program "Management of enterprise strategic development"

Management of enterprise organizational development. The course aims to help students master a wide range of issues related to organizational peculiarities of functioning and development of modern enterprises (restructuring, business process

reengineering, virtual business and other new organizational types) and their specific integration activities.

Crisis management. The course aims to form the system of knowledge and skills of crisis management - crisis recognition and diagnostics, forecasting the aftereffects of crises and their impact on enterprise functioning, identify opportunities for prevention and provision of company operation in crisis, elimination of crisis, adoption and implementation of crisis management decisions.

Diagnostics in management system. The course aims to provide knowledge about the use of methods and tools of economic diagnostics in enterprise management. The main objectives of the course are: to study the peculiarities of industrial and economic activity of domestic enterprises and justification of preconditions and factors that significantly impact the internal economic mechanism of every enterprise; generalization and systematization of knowledge in mastering the skills of economic diagnostics in different directions to ensure effective management.

Management of enterprise innovation activity. The aim of the course is to give students the latest knowledge in strategic management of enterprise innovative development and acquisition of practical skills in development of risk management system in order to optimize the level of risk in the enterprise innovation activity.

2.2.5. Master's program "Management of cooperative groups"

Management of cooperative activity. The course aims to help students master a wide range of issues related to the peculiarities of management of cooperative enterprises: to perform basic and special functions of management, adherence to the principles and the use of management methods, formation of communication systems, establishing leadership relations, decision-making, formation of favorable conditions for cooperative development.

Environment for cooperative business development. The aim of the discipline is to provide knowledge to identify, analyze and regulate environmental factors that affect the development of cooperatives. The discipline studies the issues of legal, social and economic support of coordinated teamwork in the units of cooperative type at international, national, regional and local levels.

Management of cooperative members and customers interaction. The aim of the discipline is to develop theoretical knowledge and practical skills of organization and support of successful relationship between the members of a cooperative; facilitate organizational culture, resolve the consequences of conflicts between the parties. The students do detailed analysis of the conditions and effects of cooperative marketing concept of targeting on the consumer, study peculiarities of the application of marketing mix in cooperative organizations.

Organizational support of cooperative activity. The main aim of the discipline is to provide students with the knowledge for creating cooperatives and organization of their activity at various stages of development. The discipline covers the peculiarities of the legal regulations of the cooperative and organization of accounting, financial, production and other subsystems of this type of organization, sharing the authorities and responsibilities in the team, organizational and management structure.

2.2.6. Master's program "Scientific approaches to ensuring effective management on the market of goods and services"

Market infrastructure management. The aim of the course is to master the theory of the commodity market infrastructure as a major part of the market economy, the practical skills in managing its activities to promote, store and sell goods and services to

meet the needs of customers, the ability to find and implement decisions on intensification and efficiency in this sector. The objective of the course is to know the nature of commodity market infrastructure and its role in market economy, types and conditions of effective management by individual elements of commodity market infrastructure.

Management of marketing communications and competitiveness. The aim of the discipline is to form scientific understanding and expertise in theory and methodology of marketing, development of skills and abilities to perform management functions at an enterprise based on marketing to meet the requirement of customers and ensure the efficient operation of an enterprise.

Management of enterprise potential. The aim of the discipline is to increase the efficiency of organizational structures through the proper use of different levels of management principles and tools by managers, creation of an integrated system of administrative management of an organization.

Management of enterprise activity on the market of goods and services: The main aim of the discipline is to develop modern management thinking and the system of expertise in management, to form a conceptual understanding of the principles of the organization systemic management; to acquire skills of analyzing internal and external environment, make appropriate management decisions.

Management of financial reorganization and bankruptcy. The aim of the discipline is to teach students to determine the nature of the financial reorganization and bankruptcy, prepare and implement the mechanism of reorganization plan of the debtor, to operate such categories as pre-trial reorganization, in-court reorganization, bankruptcy; formation of students' theoretical and methodological principles to apply the knowledge and skills of reorganization and bankruptcy, determination of the curative ability of an enterprise and evaluation of procedures of reorganization and liquidation of the debtor.

Mathematical models in management and marketing. The aim of the discipline is to provide students with mathematical knowledge to solve problems in professional activity, analytical thinking skills and mathematical formulation of the economic problems arising in the process of management.

Business planning of innovative projects. The main aim of the discipline is to provide students with modern theoretical principles and practical skills of innovation management of an organization. The main tasks are theoretical training of students and formation of skills in innovation management of an organization.

International standardization and certification of technologies, raw materials and finished products. The aim of the discipline is to provide students with the scientific and theoretical principles, methodological and organizational issues of standardization and certification of technologies, raw materials and finished products. The objectives of the discipline: to learn the basics of standardization and certification of product quality indexes, evaluation methods and prospects of international standardization and certification, to develop abilities to use normative and technical documents to solve practical problems of certification of technologies, raw materials and finished products.

Methodology and organization of scientific research. The main objective of the theoretical part of the course is to introduce students to modern concepts of research activities with the principles of scientific cognition and methods of scientific research. The main objectives of the practical part are to develop abilities of self-education, development of skills: formation and use of conscious methodological position of scientific research.

Training of masters of sciences in educational program "MANAGEMENT OF FOREIGN ECONOMIC ACTIVITY" in specialty "MANAGEMENT" branch of knowledge "Management and Administration"

Form of training	licensed number of students:
– full-time	125
– part-time	60
Duration of training	
– full-time educational and professional program	1.5 year
– full-time educational and research program	2 years
– part-time	1.5 year
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of teaching	Ukrainian, English
Qualification of graduates	master degree in management of foreign economic activity, manager (administrator) of foreign economic activity

The concept of training

The main task of training masters in foreign economic activity is to provide international and joint enterprises and organizations in the field of agribusiness with specialists able to perform the planning and forecasting the activity of foreign economic entities (subdivision); forecasting the dynamics of demand for export and import products; development and justification of the areas and means of expanding markets economic entities; make effective management decisions in the process of foreign economic activity; organize foreign economic activity of the entity to achieve its mission; manage the quality and competitiveness of domestic products on the world market; organize business on international markets; monetary and financial management of foreign economic activity; organization of promotional activities of foreign economic activity; form the company image on the international market; monitor implementation of foreign operations; report on foreign economic activity.

Educational and professional program of master's training

Master's program "International business management"

Combines the study of business disciplines in the global context with understanding of cultural and social processes in different countries. Graduates will be able to perform managerial work, considering the economic and cultural diversity of the real market entities. In addition to basic knowledge in the field of foreign economic activity graduates will obtain skills in market analysis, decision making, project management; understand the specific features and other cultures, which will enable them to work in different countries in a multinational, multicultural environment.

Areas of employment for graduates

Managers of structural units at the international enterprises and departments of foreign economic activity of domestic enterprises of agrarian sector.

Master's program "International commercial activity"

Provides training of specialists, able to understand the constantly changing situation on the international market and skillfully apply the benefits of the world market; organize and carry out international transactions; assess the economic efficiency of foreign economic operations; independently develop foreign trade contracts and conduct negotiations with foreign companies; carry out foreign economic activities using the basic forms and methods of foreign economic activity.

Areas of employment for graduates

Managers of structural units at the international enterprises and departments of foreign economic activity of domestic enterprises of agrarian sector.

Educational and research program of master's training

Master's program "Research of the world conjuncture of agricultural market"

The training program for researchers to develop techniques of short- and long-term forecasting of foreign economic activity indexes and the strategy for entering foreign market, considering the factors influencing the development of foreign trade, tariff and non-tariff instruments of regulating export-import operations. The program provides knowledge on the analysis of the factors which form market conjuncture and examine its agricultural segment.

Areas of employment for graduates

Postgraduate course, analytical subdivisions of international enterprises and organizations on the agricultural market.

Practical training

Master students get skills in modern management methods applied in international trade, primarily, by joint ventures and international corporations. Much attention is paid to the activity of domestic enterprises and organizations operating on the world market. Considering the peculiarities of commercial operations in the partner countries, students learn to apply the knowledge obtained during the course in various situations that may arise when concluding international agreements.

Proposed theme for master thesis

1. Trade and economic cooperation between Ukraine and the countries - EU members.
2. Foreign economic security of the state in conditions of European integration of Ukraine.
3. Organizational and economic mechanism of creation and operation of joint ventures in Ukraine.
4. International leasing in the conditions of market transformation of Ukraine.
5. Marketing strategies of European companies and the experience of their implementation in Ukraine.
6. Risk Management in the process of an enterprise entering foreign markets.
7. World trade of agricultural products and prospects of Ukrainian export development.
8. The export potential of grain sector of Ukraine.
9. Ukrainian Foreign Trade of agro-food production in globalizing world economy.
10. Competition on agricultural global markets.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Management of foreign economic activity" (educational and professional program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	International private law	2	120	4
2	Management of FEA	1, 2	210	7
3	International marketing	1	150	5
4	Investment management	2	120	4
5	Information systems and technologies in FEA management	2	120	4
6	International credit-settlement and currency transactions	1	120	4
7	Organization and techniques of FEO	1	120	4
8	International economic activity	2	120	4
Total standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the university				
1	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	120	4
Total part offered by the university			**360**	**12**
2.2. Disciplines chosen by a student				
2.2.1 *Free chose disciplines*				
1	Business game (Business management)	2	120	4
2	Assets management	2	120	4
3	Tax system	2	120	4
4	Managerial Accounting	2	120	4
5	Banking	2	120	4
6	Financial management	2	120	4
7	Marketing management	2	120	4
8	Corporate management	2	120	4
9	Psychology of management and conflict management	2	120	4
10	Stock market	2	120	4
Total part free chose			**240**	**8**
2.2.1. *Master's program "International business management"*				
1	International business	3	120	4
2	Strategies in international business	3	90	3
3	International customs regulations	3	90	3
4	Business protocol and negotiating	3	90	3

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
5	World agriculture and food resources	3	90	3
Total part of *master's program*			**480**	**16**
2.2.2. *Master's program "International commercial activity"*				
1	International commercial activity	3	120	4
2	Logistics in FEA	3	90	3
3	Risk management in international commercial activity	3	90	3
4	Business protocol and negotiating	3	90	3
5	World agriculture and food resources	3	90	3
Total part of *master's program*			**480**	**16**
Total part chosen by a student			**720**	**24**
Total elective part			**1080**	**36**
3. OTHER FORMS OF TRAINING				
1	Production and pre-diploma practice	2,3	240	8
2	Writing and defense of master thesis		300	10
Total			**540**	**18**
Total in educational program			**2700**	**90**

Curriculum of Master training in educational program "Management of foreign economic activity" (educational and research program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	International private law	2	120	4
2	Management of FEA	1, 2	210	7
3	International marketing	1	150	5
4	Investment management	2	120	4
5	Information systems and technologies in FEA management	2	120	4
6	International credit-settlement and currency operations	1	120	4
7	Organization and techniques of FEO	1	120	4
8	International economic activity	2	120	4
9	Methodology and organization of scientific research	4	90	3
Total standard part			**1170**	**39**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the university				
1	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
2	Business foreign language	1	150	5
3	Agricultural policy	2	120	4
Total part offered by the university			**360**	**12**
2.2. Disciplines chosen by a student				
2.2.1 *Free chose disciplines*				
1	Business game (Business management)	2	120	4
2	Assets management	2	120	4
3	Tax system	2	120	4
4	Managerial Accounting	2	120	4
5	Banking	2	120	4
6	Financial management	2	120	4
7	Marketing management	2	120	4
8	Corporate management	2	120	4
9	Psychology of management and conflict management	2	120	4

10	Stock market	2	120	4
Total part free chose			**240**	**8**
2.2.2. Master's program "Research on the world conjuncture of agricultural market"				
1	International commercial activity	3	120	4
2	Logistics in FEA	3	90	3
3	Risk management in international commercial activity	3	90	3
4	Business protocol and negotiating	3	90	3
5	World agriculture and food resources	3	90	3
6	Mathematical models in management and marketing	4	120	4
7	Organization and regulation of foreign economic activity	4	120	4
8	Models in planning and forecasting FEA	4	120	4
9	International business	4	120	4
Total in master's program			**960**	**32**
Total part chosen by a student			**1200**	**40**
Total elective part			**1560**	**52**
3. OTHER FORMS OF TRAINING				
1	Production and pre-diploma practice	2,4	300	10
2	Pedagogical practice	3	150	5
3	Writing and defense of master thesis		420	14
Total			**870**	**29**
Total in educational program			**3600**	**120**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

International private law. The aim of the discipline is to provide students with the system of legal knowledge on drafting, execution and termination of various kinds international. The discipline studies: basic categories of international private law; order contract drafting, in particular international contracts; peculiarities of certain types of agreements in international activities; procedure of bringing contractual entities to responsibility for breach of contract.

Management of foreign economic activity. The aim of the discipline is to develop students' managerial thinking, system of knowledge and practical skills to manage foreign economic activity (FEA). The student will master practical skills of international management process, application of various tools and technology of management when considering specific situations in foreign economic activity.

International Marketing. The aim of the discipline is to provide students with theoretical and practical knowledge in the field of international marketing activities to achieve commercial goals in international business. The subject of the discipline is a set of principles integrated systemic management of international marketing activities at an enterprise and realization of the basic functions of marketing in international business.

Investment management. The aim of the discipline is to develop students' modern economic thinking and the system of expertise in the field of investment activity of enterprises, competences based on mastering the basic theoretical principles and practical skills to effectively manage an enterprise.

Information systems and technologies in management of FEA. The aim of this course is to develop a system of specialized knowledge and obtain practical skills using information systems and technologies in foreign economic activity of enterprises, introduction to techniques and methods of the manager's activity and the means of processing foreign economic information and up-to-date software.

International credit-settlement and currency transactions. The aim of the discipline is to form students' ability to carry out credit-settlement and currency

transactions. The task of the course is to master theoretical knowledge and practical skills of carrying out credit - settlement and currency transactions when dealing with foreign economic activities of exporters and importers.

Organization and techniques of FEO. The aim of the discipline is to provide students with a system of knowledge of objective laws, conditions, processes and specific peculiarities of foreign economic activities, and practical skills of their application. The course focuses on development of students' holistic understanding of processes in foreign economic activity and formation of students' practical skills to apply data base to analyze the global economic environment in order to choose the strategy of entering foreign markets.

International economic activity. The aim of the discipline is to provide future managers with basic and special knowledge of the problems and prospects of international economic relations for professional use. The course focuses on development of students' holistic understanding of processes that characterize international level of interaction of national economies and formation of students practical skills to carry out independent analysis of global economic processes.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by university

Methodology and organization of scientific research with the principles of intellectual property. The aim of the discipline is to develop the system of knowledge of methodology, theory of method and research process, psychology, methodological support of research activities at the stages of writing graduate and postgraduate thesis. The discipline also involves formation of culture and skills of doing research, practical implementation of the results. The discipline is important in conditions of intensive market development of objects of intellectual property, making them an essential factor of enterprise competitiveness and the economy on the whole. The objective of the discipline is to form a complex of theoretical knowledge on intellectual property as a significant economic-legal category of information society.

Business foreign language. The overall objective of the program of foreign language for specific purposes is to develop students' professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.

Agricultural policy. The discipline introduces future professionals to the basics of policy-making in agriculture. The students study both domestic and foreign experience and get an opportunity to form professional opinion about the processes and phenomena in the agricultural sector of the national economy.

2.2. Disciplines chosen by a student

2.2.1. Free chose disciplines

Business game (Business Management). The main aim of the discipline is to develop students' knowledge of the basic principles, the main categories, modern concepts, theoretical principles and practical methods of managing the main enterprise activities and skills of developing operational strategy, creating and applying branch operational subsystems as a basis for achieving an organization's mission.

Asset management. The purpose of discipline is to develop students modern economic thinking and system of special knowledge in the field of asset management of the companies and organizations, relevant competencies based on mastering basic theoretical positions and mastering the practical skills that allow to effectively carry out this activity.

The tax system. The purpose of discipline - clarify the economic nature of taxes, their nature, functions, objectivity in market conditions; disclosure of the contents of tax policy, tax system, tax mechanisms and their components, learning practical mechanism for the application of certain taxes and duties, development of requirements to fill tax returns and tax calculation mechanism.

Managerial Accounting. The main objectives of the discipline is to study the principles and methods of management accounting, its place and role in the management of the company; acquiring skills to apply appropriate methods and techniques is a process of cost accounting and calculation in order to take effective management decisions

Banking. The purpose of discipline is mastering basic principles of banking operations at a level that after training they can best navigate the issues of the banking system will continue to adapt new knowledge in the process of the specialty.

Financial management. The aim of the discipline is to develop in students the modern economic thinking and the system of expertise in the field of business finance management, and practical skills in various areas of financial activity.

Marketing Management. The discipline studies the system of administrative relations in marketing departments and their relationship with other business units. The aim of the discipline is to form modern understanding of marketing management opportunities to achieve transition to a new level and forms of consumption by means of situational market analysis, forecasting consumer needs evolution, strategic planning of goods and services movement stimulation, organization of sales, providing increased entrepreneurial resistance on domestic market. The main objectives of the discipline is to provide fundamental knowledge in marketing management to ensure and expand of entrepreneurial activity in specific organizations and environments.

Psychology of management and conflict management. The aim of the discipline is to study the general laws, mechanisms of formation and development of cognitive mental processes, properties, states and formations in the process of management, under stress and conflict. The objective of the course is to form the system of theoretical and methodological knowledge on the problems of psychological science and practice, knowledge of the structural elements of the psyche - mental cognitive processes, properties, states and formations at the level of representation and interpretation for practical application and implementation in the professional activity of future managers.

Corporate management. The aim of the discipline is to introduce students to the theoretical basics of corporate management, institutional and information instruments to ensure functioning of the system of corporate management at enterprises.

2.2.2.1. Master's program "International business management"

International business. Objective: to provide students with knowledge about the specifics of functioning of modern international business and peculiarities of analytical approaches to studying foreign economic environment and formation of strategies of enterprise behavior on foreign markets. The students learn the theoretical categories and principles of international business as well as drafting and conclusion of international agreements (contracts).

Strategies in international business. The main aim of the discipline is to provide students with the theoretical basis of modern strategic management and practical skills for making strategic decisions in management and development activities of an enterprise on the international market. The main tasks are: theoretical training of students and formation of skills in strategic management of an enterprise.

International customs regulations. The aim of the course is to make students aware of the place of the law regulating international customs relations in the system of

international law, norms and values of their relationship with their practical application by the relevant authorities. The objective of the course are: to introduce students to the major sources of international customs regulation; to master the most important regulations, ability to apply them; knowledge of the principles of regulation and the ability to use the content when solving specific problems and issues.

Business protocol and negotiating. The discipline studies modern management requirements, in particular, business protocol and ethics as its important component, enterprise responsibility as the first step towards ethical conduct, preparation for negotiations, negotiating (the main stages and their characteristics), methods of negotiating, negotiation styles, analysis of the results of negotiations and implementation of the agreements, rules and regulations of business meetings, highlights of meeting arrangements, preparation of venues and meeting of delegations.

World agriculture and food resources. The main aim of the course is to provide the deep study of laws of development of world agriculture, systematized and generalized knowledge of agricultural economy of individual countries and regions in the context of global trends of development of agricultural production and international relations.

2.2.2. Master's program "International commercial activity"

International commercial activity. The aim of the course is to provide the formation of the system of knowledge and skills of prospective traders in establishing effective business in the international market of goods and services. The objective of the course is to teach future professionals to form optimal proportions between production and related business areas, to ensure effective circulation of goods and services, establish a dynamic balance of the market. The challenge of course is to study scientific and theoretical principles of international commercial activity in the global market of goods and services in the field of commercial services, management of commercial activities.

Logistics in FEA. The aim of the discipline is to form systemic knowledge of the conceptual bases of logistics in FEA, theory and practice of this direction and skills of independent work regarding up-to-date methods of managing material and other flows in modern conditions.

Risk management in international commercial activity. The aim of the discipline is to provide students with knowledge of terminology of risk theory in international business, means of risk assessment, methods of risk measuring under uncertainty and protection against them. Objective: to extend and deepen the knowledge of qualitative and quantitative characteristics of economic processes taking risk into account; to master methods and techniques of construction, analysis and application of mathematical economic models that take risk into account; to study the basic methods and ways for assessing and optimizing risk; to learn the strategies of international risk management.

Business protocol and negotiating. The discipline studies modern management requirements, in particular, business protocol and ethics as its important component, enterprise responsibility as the first step towards ethical conduct, preparation for negotiations, negotiating (the main stages and their characteristics), methods of negotiating, negotiation styles, analysis of the results of negotiations and implementation of the agreements, rules and regulations of business meetings, highlights of meeting arrangements, preparation of venues and meeting of delegations.

World agriculture and food resources. The main aim of the course is to provide the deep study of laws of development of world agriculture, systematized and generalized knowledge of agricultural economy of individual countries and regions in the context of global trends of development of agricultural production and international relations.

2.2.3. Master's program "Research of the world conjuncture of agricultural market"

International commercial activity. The aim of the course is to provide the formation of the system of knowledge and skills of prospective traders in establishing effective business in the international market of goods and services. The objective of the course is to teach future professionals to form optimal proportions between production and related business areas, to ensure effective circulation of goods and services, establish a dynamic balance of the market. The challenge of course is to study scientific and theoretical principles of international commercial activity in the global market of goods and services in the field of commercial services, management of commercial activities.

Logistics in FEA. The aim of the discipline is to form systemic knowledge of the conceptual bases of logistics in FEA, theory and practice of this direction and skills of independent work regarding up-to-date methods of managing material and other flows in modern conditions.

Risk management in international commercial activity. The aim of the discipline is to provide students with knowledge of terminology of risk theory in international business, means of risk assessment, methods of risk measuring under uncertainty and protection against them. Objective: to extend and deepen the knowledge of qualitative and quantitative characteristics of economic processes taking risk into account; to master methods and techniques of construction, analysis and application of mathematical economic models that take risk into account; to study the basic methods and ways for assessing and optimizing risk; to learn the strategies of international risk management.

Business protocol and negotiating. The discipline studies modern management requirements, in particular, business protocol and ethics as its important component, enterprise responsibility as the first step towards ethical conduct, preparation for negotiations, negotiating (the main stages and their characteristics), methods of negotiating, negotiation styles, analysis of the results of negotiations and implementation of the agreements, rules and regulations of business meetings, highlights of meeting arrangements, preparation of venues and meeting of delegations.

World agriculture and food resources. The main aim of the course is to provide the deep study of laws of development of world agriculture, systematized and generalized knowledge of agricultural economy of individual countries and regions in the context of global trends of development of agricultural production and international relations.

Mathematical models in management and marketing. The aim of the discipline is to provide students with mathematical knowledge to solve problems in professional activity, analytical thinking skills and mathematical formulation of the economic problems arising in the process of management.

International customs regulations. The aim of the course is to make students aware of the place of the law regulating international customs relations in the system of international law, norms and values of their relationship with their practical application by the relevant authorities. The objective of the course are: to introduce students to the major sources of international customs regulation; to master the most important regulations, ability to apply them; knowledge of the principles of regulation and the ability to use the content when solving specific problems and issues.

Organization and regulation of foreign economic activity. The discipline studies the essence of regulating this activity by public authorities and non-governmental bodies of economic management in compliance with the Constitution and laws of Ukraine. The description of principles and functions of national and international organizations involved in the process of regulation of foreign economic activity is given. The discipline focuses on the use of management techniques, in particular, the essence of tariff (economic) and non-

tariff (organizational and administrative) methods of regulation, the scope and peculiarities of their application.

Models in planning and forecasting of FEA. The discipline teaches that in order to make the right decision, one needs more than just experience, qualification and intuition. It is important to be able to apply them effectively and correctly, to choose the best method. The knowledge of statistics, mathematics and computer technology are of great help. Modeling in FEA enables managers to receive a process model, the decision on the development and management of which he is to take. Exploring this model and experimenting with it by trying various combinations of influence factors the manager is able to choose the optimal solution from a set of all possible ones.

International business. Objective: to provide students with knowledge about the specifics of functioning of modern international business and peculiarities of analytical approaches to studying foreign economic environment and formation of strategies of enterprise behavior on foreign markets. The students learn the theoretical categories and principles of international business as well as drafting and conclusion of international agreements (contracts).

Methodology and organization of scientific research. The main objective of the theoretical part of the course is to introduce students to modern concepts of research activities with the principles of scientific cognition and methods of scientific research. The main objectives of the practical part are to develop abilities of self-education, development of skills: formation and use of conscious methodological position of scientific research.

Stock market. The discipline provides students with knowledge of the basic tools of trade used in the global stock market. Future experts use the case study of stock market to explore product pricing process and the factors affecting it.

Training of masters of sciences in educational program "ADMINISTRATIVE MANAGEMENT" in specialty "MANAGEMENT" branch of knowledge "Management and Administration"

Form of training	Licensed number of students:
– full-time	50
– part-time	50
Duration of training	
– full-time educational and professional program	1,5 year
– part-time	2 year
Credits ECTS:	
– educational and professional program	90
Language of teaching	Ukrainian, English, German
Qualification of graduates	manager (administrator) in administrative management

The concept of training

The specialization focuses on training highly qualified managers able to manage agricultural business applying deep professional knowledge and skills, modern computer technologies, innovation methods and foreign languages. Experts may occupy executive positions in companies and organizations of agro-industrial production as well as in central and local government bodies.

Educational program "Administrative Management" is the highest level of business qualification of a manager and most prestigious education program in the world of business. The specialization provides training of senior managers of new generation, competitive in the labor market and capable of creative professional and innovative management in global competitive environment. The specialization provides students with integrated knowledge system, combining fundamental economic education with practical skills of management decision-making, teamwork, conducting negotiations and presentations in professional activity in the field of business management.

Educational and professional training program

Training of specialists for management of the effective production process in agricultural business entities by implementing intensive production technologies, cost reduction, increase of economic efficiency and enhancement of international cooperation in technology exchange and export-import operations. Training of top managers and systems analysts able to make strategic decisions in terms of risk**,** continuous development and improvement of business in a competitive environment.

Areas of employment for graduates

Managers of enterprises and structural divisions in the agrarian sphere including enterprises with foreign investments. Managers of enterprises and structural divisions in the agrarian sphere.

Practical training

The future graduates in specialty "Administrative management" acquire business knowledge of technological issues at specific enterprises and ability to choose methods and tools of market environment evaluation and develop options for strategic behavior of enterprises. Considering the branch characteristics of master programs, students learn to

apply their knowledge in any situations that may arise in agricultural production. All production problems are solved from the standpoint of organizational and HR aspects.

Proposed theme of master thesis

1. Outsourcing of human resources in the system of enterprise management.
2. Social aspects of management in agricultural enterprises.
3. Forming strategies of advertising management of an enterprise.
4. Management of crop production at an enterprise.
5. Management of organic production in Ukraine.
6. Management of personnel business career.
7. Enterprise innovation management.
8. Conflict in the context of enterprise management.
9. Product quality management.
10. The system of enterprise labor potential management.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Administrative Management" (educational and professional program of master's training)

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1. STANDARTD ACADEMIC DISCIPLINES				
1	Business-management	1	150	5
2	Economics of production	1	150	5
3	Analysis and finances of an enterprise	1	150	5
4	Economic information science	1	90	3
5	Methodology of social empirical research	1	120	4
6	Planning and organization of an enterprise	2	150	5
7	Strategies of international agricultural marketing	2	150	5
8	Project management and evaluation	3	150	5
9	Quantitative methods of decision making	3	90	3
10	Strategic management	3	90	3
Total standard part			**1260**	**42**
2. ELECTIVE TRAINING DISCIPLINES				
2.1. Disciplines offered by the university				
1	Agricultural policy	2	150	5
2	Methodology of scientific research	3	90	3
3	Business foreign language	1, 2	150	5
Total part offered by the university			**390**	**13**
2.2. Disciplines chosen by a student				

№ п/п	Discipline	Semester	Number of	
			hours	credits ECTS
1.	Methods of administrative activity	1	90	3
2.	Management of enterprise activities	1	90	3
3.	Management consulting	2	150	5
4.	Legal principles of administrative activity	3	90	3
5.	International agribusiness	2	90	3
6.	Chief administrative officer	3	90	3
7.	Automated accounting system	3	90	3
8.	Human resources management	2	90	3
9.	Management of FEA	2	90	3
10.	International economic activity of Ukraine	3	90	3
Total part chosen by a student			**690**	**23**
Total elective part			**1080**	**36**
3. OTHER FORMS OF TRAINING				
1	Production and pre-diploma practice	1,2	180	6
2	Writing and defense of master thesis		180	6
Total			**360**	**12**
Total in educational program			**2700**	**90**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Business management. The objective of the discipline is to provide students with knowledge of objective laws, conditions, processes and specific features of economic activity and agricultural development, agricultural trade, and skills of their practical application to determine the optimal organization of an enterprise. Students learn about important for business enterprise management techniques and personnel work, and determine their impact on entrepreneurial success through applied programs and business games.

Economics of production. The course provides students with knowledge and skills in practical economics. Students will be able to describe the production and technical alternatives in livestock and crop production, critically analyze and evaluate the results in the context of overall economic and social development. The main aim of the course is to give students knowledge of objective laws, conditions, processes and specific features of economic activity and agricultural development, agricultural trade, and skills of their practical application.

Analysis and finances of an enterprise. The main aim of the course is to provide students with systemic knowledge about the use of analytical tools and instruments of accounting, economic analysis and controlling in enterprise management.

Economic Information science. The objectives of the course are to master basic concepts of computer science, to study computer hardware and software, to acquire practical skills of working on the up-to-date computers, to master modern software packages for solving economic problems, acquire practical skills in computer networks.

Methodology of social empirical research. The students master the methods of scientific cognition of social research, methods and techniques of solving specific social problems independently.

Planning and organization of an enterprise. The discipline provides students with knowledge of basic economic relationships at the level of an enterprise and general production. The main objective of the course, which logically extends the courses in economics of production and business management, is to provide students with knowledge of objective laws, conditions, processes and specific features of economic

activity and agricultural development, and acquisition of skills for their practical application in order to determine the optimal organization of an enterprise.

Strategies of international agricultural marketing. The main aim of the discipline is to give the theoretical principles of modern strategic marketing management and practical skills to making strategic decisions in the management of marketing activities and development on the foreign and domestic market. The main objectives in the process of teaching are: theoretical training of students and mastering skills in strategic marketing management.

Project management and evaluation. The students master the basic concepts and categories, methods and techniques to evaluate selection of decision projects; study the instructional materials in economic planning, the main sources of information in the discipline.

Quantitative methods of decision making. The aim of the discipline is to form the system of theoretical knowledge and practical skills to using mathematical tools in economic studies in modern information environment that enables increase of research effectiveness and reliability of the results, to apply an integrated approach to the analysis of economic processes and management decisions.

Strategic management. The students master the basic concepts, categories and methodological tools of development and implementation of the strategy of the organization. The main aim of the discipline is to develop modern management thinking and the system of expertise knowledge in management, form a conceptual understanding of the basics of systemic organization management; acquire skills of analyzing internal and external environment, make appropriate management decisions.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by the university

Agricultural policy. The discipline introduces future professionals to the basics of policy-making in agriculture. The students study both domestic and foreign experience and get an opportunity to form professional opinion about the processes and phenomena in the agricultural sector of the national economy.

Methodology of scientific research. The discipline introduces students to the basic methods and techniques of scientific research. Students learn to use scientific approaches in their future activities, exploring important processes and phenomena.

Business foreign language. The overall objective of the program of foreign language teaching for specific purposes is to develop students' professional language competences that will contribute to their effective functioning in diverse cultural, educational and professional environment.

2.2. Disciplines chosen by a student

Methods of administrative activity. The aim of the discipline is to increase the efficiency of organizational structures through the proper use of different levels of management principles and tools by managers, creation of an integrated system of administrative management organization.

Management of enterprise activities. The main aim of the discipline is to develop students' knowledge of the basic principles, main categories, advanced concepts, theoretical principles and practical management of the main business activity, and skills in developing operational strategies, creation and use of branch operational subsystems as the basis for achieving the organization's mission.

Management consulting. The system of professional training aims to provide students with knowledge and skills in organization of management consulting and advisory

services, and organization of consulting activities of administrators and managers in agricultural service. Future specialist learn the basic principles and functions of consulting; communication processes in information and advisory service; the effective methods of information sharing; modern information technologies.

Legal principles of administrative activity. The aim of the discipline is to train specialists in management, working under the rule of law and market economy; The student will explore the totality of legal norms that regulate social relations and are formed when the executive authorities ensure the implementation and protection of rights, freedoms and lawful interests of individuals and legal entities, as well as in the process of public governance of economic**,** socio-cultural, administrative and political development of the state.

International agribusiness. The aim of the discipline is to provide students with systemic knowledge of objective laws, conditions, processes and specific features of external economic activities, and skills of their practical use. The objective of the course is to develop students' holistic conception of processes in foreign economic activity and formation of practical skills to use the acquired knowledge about the application of data base for the analysis of the global economic environment in order to choose the strategy of entering foreign markets.

Chief administrative officer. The purpose of the discipline is to introduce students to the peculiarities of future profession, its content and objectives of managerial activities, the role of managers of various levels in management of modern enterprises, peculiarities of organization of training specialists for management.

Automated accounting system. The aim of the discipline is to form complex knowledge and practical skills in the proper theoretical application of accounting using computer technology, to master modern methods of rational use of technical equipment in the workplace of an accountant, explore the prospects of information technologies in agricultural production and the use of new forms and methods of accounting.

Human resources management. The aim of the discipline is to form complex theoretical knowledge and practical skills in developing and implementing personnel policies in modern organizations, rational selection of employees for positions and forming effective teams, evaluation and development of workers and purposeful use of their potential.

Management of foreign economic activity. The aim of the discipline is to develop students' managerial thinking, system of knowledge and practical skills to manage foreign economic activity (FEA). The student will master practical skills of international management process, application of various tools and technology of management when considering specific situations in foreign economic activity.

International economic activity of Ukraine. The aim of the discipline is to develop the system of special knowledge of the problems and prospects of international economic relations for basic and special education and practice in the specialty. The objective of the course is to develop a holistic understanding of the processes that characterize international level of interaction of national economies and formation of students' skills to use the acquired knowledge for independent analysis of global economic processes.

Training of masters of sciences in educational program "MANAGEMENT OF INVESTMENT ACTIVITY AND INTERNATIONAL PROJECTS" in specialty 073 "MANAGEMENT" branch of knowledge 07 "Management and Administration"

Form of training:	Licensed number of persons:
– Full-time	40
Duration of Training:	
– educational and professional program	1,5 year
– educational and research program	2 year
Credits ECTS:	
– educational and professional program	90
– educational and research program	120
Language of teaching	Ukrainian, English
Qualification	Specialist of projects and programs management in material (intangible) production; head of project and program in material (intangible) production

The concept of training

The training in educational program, which aimed at training professionals to develop investment policies of companies and project management, search international programs and grants and determination of investment sources, are due by the need of agro production in project-managers, coordinators and heads of project, investment managers and analysts, heads of investment departments and investment consultants. The opportunities of writing projects and obtaining diploma in leading educational establishments of Poland and diploma of NULES of Ukraine according to the double degree programs open for students.

Educational and professional program of master's training

Master's program "Management of investment activity"

The aim of the master's program is preparing of professionals in management investment activities, which able to efficiently develop and substantiate the concept of the project, estimate its effectiveness, taking into account risk factors and uncertainties, perform a feasibility study and develop a business plan, estimate and select the most effective investment instruments, develop calculation and budget of project and provide its implementation, form a project team, control the project realization and manage change.

Areas of employment of graduates

Graduates can work as project-managers, coordinators and heads of investment and business-project, investment managers, analysts and consultants, heads of investment departments of enterprises of different economic branch and area of activities, in investment companies and investment departments of large enterprises.

Educational and research program of master's training

Master's program "Management of investment activity"

The aim of the master's program is providing of fundamental theoretical and practical training of highly qualified personnel for the professional activities of research and innovation trends in investment activity at the state, territory, region, industry, enterprises.

Areas of employment of graduates

Graduates can continue studies in postgraduate, work teachers in higher educational institutions of II and III accreditation levels and also work as project-managers, coordinators and heads of investment and business-project, investment managers, analysts and consultants, heads of investment departments of Ukrainian enterprises of different economic branch and area of activities, in investment departments of large international companies

Practical training

Future specialists in projects and programs management in material (intangible) production learn the features of investment activity, acquire practical skills of development -plan project, analysis of the financial state of business entities and determination of investment directions, estimation of quantitative and qualitative characteristics of investment projects, optimization of investment portfolio management, estimation of investment attractiveness and selection of concrete projects by the example of the development of real investment projects.

Proposed Topics for Master Theses.

1. Strategic analysis of the factors influencing on investment agricultural sector.
2. The role of government in stimulating investment activity of manufacturing enterprises.
3. Estimation of investment attractiveness of the region (enterprise).
4. Organization of pre-investment researches on organic products market.
5. Modeling investment strategy of agricultural enterprise.
6. Developing of strategic directions and forms of investment activity of enterprise.
7. Planning investment activity of enterprise.
8. Management efficiency of investment activity of corporation.
9. Forming business-strategy of enterprise.
10. Management of investment project implementation at the enterprise.

Educational and professional program of master's training

Master's program "*Management of international projects*"

The aim of the master's program is training of specialist in managing international projects, which will possess the knowledge and practical skills of finding information about international programs and grants, preparing and submission project applications and project management on base of using international project standards. The program provides for training of qualified personnel, which able to creative professional activities and implementation of innovative methods in the management international projects.

Areas of employment of graduates

Graduates can work as project-managers, coordinators and heads of international investment and business-project, investment managers, analysts and consultants, heads

of investment departments of Ukrainian enterprises of different economic branch and area of activities, in international companies.

Practical Training

Future masters learn the basic requirements for writing and implementation projects, directions grant of international organizations and governments. As potential leaders they learn to manage international projects, gaining knowledge of the practical aspects of finding sources of funding on base of the analysis of international programs and grants, negotiating with potential partners in the difficult investment environment by example of preparing real international projects.

Proposed Topics for Master Theses

1. International programs and grants as a source of project funding.
2. Development of business-plan of international project for agricultural enterprises.
3. Development of the project for agricultural enterprises.
4. Management of the project cost.
5. Risk management and changes in the project.
6. Management of project realization agricultural enterprise.
7. Development of strategies funding for innovative projects.
8. Financial substantiation of programs at the stage of pre-project researches.
9. Management efficiency of investment projects of agricultural enterprises
10. Risk management in investment projects of agricultural enterprises.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Management of investment activity and international projects" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Investment management	1	120	4
2	Macroeconomic analysis and investment strategy	1	120	4
3	Controlling innovations	2	120	4
4	International programs and grants	1	120	4
5	Project approach in business management	2	120	4
6	Financial sources of business projects	2	120	4
7	Management of project and project risks	1	120	4
8	Marketing activities management	2	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
9	Creative technologies in HR management	1	120	4
Total for standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the University				
1	Agricultural policy	1	90	3
2	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
3	Business foreign language	1,2	180	6
Total (Disciplines offered by University)			**360**	**12**
2.2. Disciplines offered by students				
2.2.1. Free chose disciplines				
1	Changes management	2	120	4
2	Business process management	2	120	4
3	Information systems and technologies in management	2	120	4
4	Methodology of economic research	2	120	4
5	Modern quality management systems	2	120	4
6	Crisis management	2	120	4
7	Social investment	2	120	4
Total part free chose			**240**	**8**
2.2.2.1. Master's program "Management of investment activity"				
1	Management of international projects and innovations	2	180	6
2	Coaching	2	120	4
3	Business game "Investment policy of agro-industrial enterprises"	1	180	6
Total (Disciplines offered by students)			**480**	**16**
2.2.2.2. Master's program "Management of international projects"				
1	Business game "Strategic project management"	2	180	6
2	Project management of Start-Up	2	120	4
3	Forming, management and development of a project team	1	180	6
Total (Disciplines offered by students)			**480**	**16**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Production practice	2	180	6
2	Pre-diploma practice	3	60	2
3	Preparation and defense of master's thesis	3	300	10
Total			**540**	**18**
Total for educational program			**2700**	**90**

Curriculum of Master training in educational program "Management of investment activity and international projects" (educational and research program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Investment management	1	120	4
2	Macroeconomic analysis and investment strategy	3	120	4
3	Controlling innovations	2	120	4
4	International programs and grants	1	120	4
5	Project approach in business management	2	120	4
6	Financial sources of business projects	2	120	4
7	Management of project and project risks	1	120	4

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
8	Marketing activities management	2	120	4
9	Creative technologies in HR management	1	120	4
Total for standard part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by the University				
1	Agricultural policy	1	90	3
2	Methodology and organization of scientific research with the principles of intellectual property	1	90	3
3	Business foreign language	1,2	180	6
Total part offered by the university			**360**	**12**
2.2. Discipline offered by a students				
2.2.1. Free chose disciplines				
1	Changes management	2	120	4
2	Management of organizations	2	120	4
3	Information systems and technologies in management	2	120	4
4	Psychology of management and conflictology	2	120	4
5	Modern quality management systems	2	120	4
6	Risk Management	2	120	4
7	Social investment	2	120	4
Total part free chose			**240**	**8**
2.2.2. *Master's program "Management of investment activity"*				
1	Business process reengineering	3	90	3
2	Management of international projects in agribusiness	2	90	3
3	Business game "Project management of Start-Up»	3	90	3
4	Management of cost and structure capital	3	90	3
5	Business-modeling	3	120	4
6	Forming, management and development of a project team	3	90	3
7	Crisis management	3	90	3
8	Philosophy of innovations	3	90	3
Total (Disciplines offered by students)			**750**	**25**
Total for elective part			**1350**	**45**
3. OTHER TYPES OF TRAINING				
1	Research and production practice	2	180	6
2	Pre-diploma practice	4	120	4
3	Pedagogical practice	4	90	3
4	Research practice	4	300	10
5	Preparation and defense of master's thesis	4	480	16
Total			**1170**	**39**
Total for educational program			**3600**	**120**

Annotation of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Investment management. Tasks, functions and organizational providing of investment management. Methods investment analysis. Investment planning. The principles forming, methods development and evaluation of investment strategy. Features of real investment. Types of investment projects. Risk evaluation of real investment projects. Forming program of real investment. Management of investment projects. The structure of the real investment project. Optimization of risks and evaluation of real investment project. Features of the financial investment. Policy management of financial investments. Evaluation of effectiveness and risks of financial instruments. Managment of financial investments portfolio.

Macroeconomic analysis and investment strategy. Macroeconomic analysis and its place in the sciences. System of National Accounts as a tool of macroeconomic analysis. Analysis of economy sectors. Analysis of macroeconomic imbalances. Analysis of macroeconomic policy. Analysis of macroeconomic factors. Analysis of the effectiveness of strategic investment tools. Investment strategy of the enterprise and the principles of its development. The methods of investment strategy development. Forming of strategic aims of investment activity. Justification of strategic directions and forms of investment. Evaluating of investment strategy effectiveness.

Controlling innovations. Objects of controlling innovation. Budgeting as a tool of operational controlling innovation. Economic calculations in controlling innovation and innovative projects. Methods of management decision making in controlling innovation at enterprise. Development trends of controlling innovation.

International programs and grants. Research grants. State fund for fundamental research, Grants of NATO, U.S. Civilian Research & Development Foundation**,** Funds of European governments. Grants of International Agency for the development of culture, education and science (IADCES). Structural funds of EU. Scholarships for study and research. International European innovative scientific and technical program Eureka. International Visegrad Fund. Eurasia Foundation.

Project approach in business management. Business Management Systems and their combination. The project ideology and benefits of project approach to the business organization. The principles of project activities. Identification of the problems, which affect to success of projects. Model project-oriented behavior of business. The development of applied principles of project approach in business management.

Financial sources of business projects. The main groups of financial sources of business-projects. Methods of financing projects international practice. Advantages and disadvantages of project financing. Conditions of sustainability schemes of project financing. Projects with state participation. Public-private partnership. Sources financing of Project Start-Up. Venture funds. Business angels. Financial intermediation. The optimal structure of financing sources of business projects.

Management of project and project risks. The essence of project management. Technical and socio-cultural aspects of project management. Main project management processes and their relationships. Project participants. The stages of project development. Planning project costs, methods and means of evaluation. Types, causes and consequences of project risks. Identification, evalution and methods of risks minimization at different phases of the project. Development of measures for risks minimization.

Marketing activities management. Marketing activities management in the system management. Functions of marketing activities management. Trends and concepts of marketing activities management. The marketing activities of the enterprise as a process. Organization and management stages of marketing activities. Tasks and stages of marketing activities organization. The organizational structure of marketing activities management. Cross-functional coordinating of enterprise departaments in the implementation of marketing functions. Marketing strategic planning. Control as a means of increasing the efficiency of marketing activities. Managing marketing tools.

Creative technologies in HR management. The using of creative technologies in personnel management in the contexts of external and internal environment: organizational culture, climate, socialization and mentoring; development managers in the contditions of globalization. Managing individual factors: social perception, evalution qualification, skills, mentality, introspection, emotion and attitude to the organization. Motivation: needs, design offices, satisfaction career development. Theories of equality, expectations and establishing goals. The involvement of staff and improve efficiency. Management of group factors and

social processes: effective groups and team, decision-making, management of conflicts and negotiations, communication in the era of digital technology. Managing of organization efficiency. Modern leadership: situational, contextual and behavioral theory, transactional and charismatic leaders. Making of creative enterprises, which capable to transformation on base of new experiences and requirements of a competitive business environment.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Agricultural policy. The main categories of agricultural policy. State regulation of agricultural production, essence and aims of agricultural policy. The economic consequences of using specific instruments of regulation the domestic agricultural sector. Measures of regulation domestic agricultural markets. Measures of regulation foreign trade of agro-food production. Main approaches evalution of state support level for the agricultural sector and regulation of the global agro-food system in WTO. Agricultural policy of some foreign countries and blocs (US, EU). Features of forming and main directions of Ukraine agricultural policy.

Methodology and organization of scientific research with the principles of intellectual property. Science and research in the world today. Specificity research activities, the types and characteristics of scientific research. Characteristics of general methodology research. Characteristics of the stages and presentation of scientific research results. Information retrieval technologies in the research. Method of preparation and design of publications, technology writing. Intellectual property: concept, features. The main institutions of intellectual property law. Sources of intellectual property law. Objects and subjects of intellectual property law. Personal moral and intellectual rights of property. The using of intellectual property. Protection of intellectual property rights.

Business foreign language. Professional lexical and grammatical minimum. Written business communication. Verbal communication within the theme of the program.

2.2. Disciplines offered by students

2.2.1. Free chose disciplines

Changes Management. Theoretical bases of changes management. Nature of appearance and classification changes. Organizational perfection as a basis for organizational changes. Individual changes. Team changes. Models and approaches to organizational changes. Conditions, elements and factors of organizational changes efficiency. The role of leadership in changes management. Matrix relationships: organization and the type of leadership. Problems of guidance in changes management. Structural changes. The essence of restructuring. Strategic analysis and reasons for changes. Critical factors of changes success. Projects of changes management in organizations. Monitoring and analysis of changes. Changes management in the strategic development of the organization.

Business process management. Features of the process approach to management. Modern techniques of modeling business processes. Methods of analysis and control of the flow of business processes. Detrmination of deficiencies business processes and increasing reserves of their efficiency. The principles of improving business processes.

Information systems and technologies in management. The role of information systems and technologies in project management. Methods and methodology of information systems designing in project planning . The system and methodological aspects of modeling in project management. Requirements for the project team, its

manager and systems analyst. Structural analysis tools. CASE-technologies. Diagrams data streams. Context diagrams. Professional and non-professional project management systems. Modern software for project management Microsoft Project 2010. Resources project in MS Project. Enhanced functions of MS Project. Primavera software package. ConceptDraw software. MS Visio software. Project Expert Software. CRM systems.

Methodology of economic research. The principles and bases of economic research methodology. Dependence of economic research methodology of the research object. The structure research. Subjective and objective in economic knowledge. The system of economic knowledge and its subsystems. The philosophical and general scientific principles in economic research. Research methodology of neoclassical analysis. The concept model and formalization methods in economic theory. Mathematical modeling in economics. The first models of economic processes. Economic behavior and institutional direction methods. Statistical and structural methods of economic processes research. Input-output in the structural analysis of economy. The laws of economic evolution and research methods of functioning economic systems.

Modern quality management systems. Principles of construction and functioning of modern quality management systems. Legal, organizational and economic aspects of quality management. Quality problems today. Main concepts and categories of quality management. Management quality products at the enterprises. The national quality management experience. International experience quality management. Total quality management (TQM). Systematic approach to quality management. The system of quality standards ISO 9000. Systems of environmental and labor safety management. Common approaches and practices of quality. Statistical methods of quality management. Economic and legal aspects of quality management. Certification of quality systems. Audit of quality.

Crisis management. General concepts of crisis. Classification crises. Cyclical character of the crisis. Methodology recognition crisis. The aim and tasks of crisis management. The sustainability of enterprise and crisis. Transition periods of enterprise development. The crisis as a turning point in development. The control and early signs of a future crisis. The issue of crisis management and differentiation management technologies. Functional and crisis management. Scheme management by crisis. The role of innovation in crisis management. The situational approach to management in a crisis situation. The organization of works to resolve the crisis.

Social investment. The role of social investment in the economy. The relationship of socio-economic and investment state policy. Social investment projects. Social projects management. Features financing of social projects. Risks of social investments and methods its minimization. Social investment and social security.

2.2.2.1. Master's program "Management of investment activity"

Management of international projects and innovation. Basic provisions of development and analysis of international projects. International standards and certification in project management. Planning and preparation of project decisions. The main forms of structure projects. Project financing and management of cost projects. Criteria of efficiency and methods for evaluating of international projects. Management of implementation and quality of international projects. Management of resources distribution and risks in international projects. Characteristics and types of innovation. Factors of impact to innovative activities. Planning of innovative activities The main types of innovativeprojects. Management of innovative projects. Stages and resource providing for innovative projects. Evaluation of efficiency innovative projects. Features of international innovative projects. The state innovation policy in Ukraine.

Coaching. Features of coaching in a business environment. The difference between coaching and counseling. Coaching methods for diagnostics, prediction and correction of process management interaction. Algorithm and technique of coaching session. Identification patterns of behavior, which creates issue of achieving the aim. Moving to creation of specific plan of actions. Features of coaching during activities. Evaluation of coaching efficiency.

Business game "Investment policy of agro-industrial enterprises". Business game as a tool modeling of management decisions making as for investment policy forming of agro-industrial enterprises. Creation several teams of players to solve a specific problem as for investment policy forming of agro-industrial enterprises. Search and justification of choice of the best alternatives for investment activity and forming investment strategy of enterprises, determination of their implementation mechanisms. Forming of investment projects portfolio. Evaluation of efficiency investment policy of agro-industrial enterprises. The presentation of the results.

2.2.2.2. Master's program "Management of international projects"

Business game "Strategic project management". Business game as a tool modeling of management decisions making as for strategic project management. Creation several teams of players as for strategic alternatives forming and justification of choosing one of its in management of specific project. Primary conditions of business game: competitive position of enterprise, trends market of enterprise, the strengths and weaknesses of enterprise and its competitors, determination of competitive advantage and enhancing their opportunities, efficiency of inserting project in development strategy. Determination of conditions and variants of resource providing of the project and selecting of the best variant. The presentation of the results.

Project Management of Start-Up. Start-up projects as technology of innovation implementation. Creation of Start-up companies. Teams of Start-up projects. Innovation for creation Start-up projects. Resources of Start-up. Sources of financing of Start-up projects implementation. Projects management Start-Up in development of business. Creative technologies in Start-Up projects.

Forming, management and development of a project team. The necessity and principles of a project team forming. Methods and organizational aspects of team forming. The main characteristics of a project team. Organization of team interaction. Psychological features of project team management. Management a international project team. Conflict management.

Educational and research program of master's training
2.2. Discipline offered by a students
2.2.1. Free chose disciplines

Changes Management. Theoretical bases of changes management. Nature of appearance and classification changes. Organizational perfection as a basis for organizational changes. Individual changes. Team changes. Models and approaches to organizational changes. Conditions, elements and factors of organizational changes efficiency. The role of leadership in changes management. Matrix relationships: organization and the type of leadership. Problems of guidance in changes management. Structural changes. The essence of restructuring. Strategic analysis and reasons for changes. Critical factors of changes success. Projects of changes management in organizations. Monitoring and analysis of changes. Changes management in the strategic development of the organization.

Management of organizations. Essence and classification of organizations. The tasks projecting of organizations. The structure of management organization. Principles of organizational structure and methods of management organization. Strategic management in the organization. Marketing-management. Innovative management. Staff management. Financial management. Operational management. Environmental Management. Information systems of provading management. Efficiency of management. Manager as a professional head of the organization. Manager model.

Information systems and technologies in management. The role of information systems and technologies in project management. Methods and methodology of information systems designing in project planning . The system and methodological aspects of modeling in project management. Requirements for the project team, its manager and systems analyst. Structural analysis tools. CASE-technologies. Diagrams data streams. Context diagrams. Professional and non-professional project management systems. Modern software for project management Microsoft Project 2010. Resources project in MS Project. Enhanced functions of MS Project. Primavera software package. ConceptDraw software. MS Visio software. Project Expert Software. CRM systems.

Психологія управління та конфліктологія. Мета навчальної дисципліни полягає у вивченні загальних закономірностей, механізмів становлення та розвитку психічних пізнавальних процесів, властивостей, станів та утворень в процесі управлінської діяльності, в умовах стресу і конфлікту. Завдання дисципліни – сформувати систему теоретико-методологічних знань з проблем психологічної науки і практики, пізнання структурних елементів психіки – психічних пізнавальних процесів, властивостей, станів і утворень на рівні відтворення і тлумачення для практичного застосування та втілення в процесі фахової діяльності майбутнього управлінця.

Psychology of management and conflict management. The aim of the discipline is to study the general laws, mechanisms of formation and development of cognitive mental processes, properties, states and formations in the process of management, under stress and conflict. The objective of the course is to form the system of theoretical and methodological knowledge on the problems of psychological science and practice, knowledge of the structural elements of the psyche – mental cognitive processes, properties, states and formations at the level of representation and interpretation for practical application and implementation in the professional activity of future managers.

Modern quality management systems. Principles of construction and functioning of modern quality management systems. Legal, organizational and economic aspects of quality management. Quality problems today. Main concepts and categories of quality management. Management quality products at the enterprises. The national quality management experience. International experience quality management. Total quality management (TQM). Systematic approach to quality management. The system of quality standards ISO 9000. Systems of environmental and labor safety management. Common approaches and practices of quality. Statistical methods of quality management. Economic and legal aspects of quality management. Certification of quality systems. Audit of quality.

Risk management. The theoretical bases of risk management. Features of risk management in macroeconomics. Classification of risks. Methods of risk evaluation. Organization of risk management. Role of risk management in business management. Organization management of risk. Identification of risk factors. Approaches to the implementation of risk management in the enterprise. Strategies and methods for effective risk management. Complex risk management. Financing of risk: financing sources, cost structure as for risk. Methods of risk management, feasibility, advantages. National level of risk management. The main types of risks in foreign trade. Risk management in the

business sector. Features of identification of business risks. Methodical tools of risk evaluation. Main methods of risks reducing. Insurance in risk management.

Social investment. The role of social investment in the economy. The relationship of socio-economic and investment state policy. Social investment projects. Social projects management. Features financing of social projects. Risks of social investments and methods its minimization. Social investment and social security.

2.2.2. Master's program "Management of investment activity"

Business process reengineering. Organizational, methodical and informational components of business process reengineering. Methods reengineering business processes. Roles and resources in business process reengineering. The conditions for success and consequences of business process reengineering. Implementation of reengineering in agricultural enterprises activities.

Management of international projects in agribusiness. The main forms of international projects in Agro-industrial complex. International programs and grants as a sources of finansing projects in Agro-industrial complex. Preparation and filling in application forms for international project. Features implamantation of international projects in Agro-industrial complex: project planning, management of risk and time, management of cost and quality projects.

Business game "Project management of Start-Up». Business game as a tool of modeling situation of management decisions making as for Start-Up projects implamentation. Creation of several teams players. Primary conditions of business game: area of Start-Up project implementation, limiting of the implamentation terms and financial resources of the project. Development Start-Up project with describing the specific situation, trends of markets of goods or services of projects, their price characteristics, policy of distribution and promotion. Considering of conditions and financing variants of projects, determination of features project management of Start-Up, their efficiency and commercialization opportunities. The using of creative technologies in project management of Start-Up. Discussion of several variants of Start-Up project for choise the best. The presentation of the results.

Management cost and structure capital. Problems valuation of domestic enterprises cost using of modern world methodical tools of financial management. The formating of enterprise capital. Cost-oriented enterprise management: choice of models and procedures for determining enterprise cost; monitoring of cost changes; determination drivers (factors) of value creation; revealing accurate interrelation between cost and business-strategies of enterprise; development and justification of resource providing of value creation; determination of coordination mechanisms of interests of owners and managers of businesses; development of system of results measurement and material stimulation. The cost of the main sources of capital. Bases of structure capital theory. Interrelation between the firm cost and cost of it capital. System of Interrelation indicators of structure, average cost of capital and enterprise cost.

Business-modeling. Business process and its components. Methods of business processes analysis. Etalon and reference models of business processes. Tools (software) for modeling business processes. Converting business processes models. Examples of converting of business processes models.

Forming, management and development of a project team. The necessity and principles of a project team forming. Methods and organizational aspects of team forming. The main characteristics of a project team. Organization of team interaction. Psychological features of project team management. Management a international project team. Conflict management.

Crisis management. General concepts of crisis. Classification crises. Cyclical character of the crisis. Methodology recognition crisis. The aim and tasks of crisis management. The sustainability of enterprise and crisis. Transition periods of enterprise development. The crisis as a turning point in development. The control and early signs of a future crisis. The issue of crisis management and differentiation management technologies. Functional and crisis management. Scheme management by crisis. The role of innovation in crisis management. The situational approach to management in a crisis situation. The organization of works to resolve the crisis.

Philosophy innovation. The origins of modern philosophy innovation. The philosophical aspects of the phenomenon innovation. The genesis and essense of innovation in socio-cultural and philosophical aspects. The social basis of innovation. Key aspects of the innovation process. Destructive base of innovative ambitions. Co-evolution of rational innovation and socio-cultural traditions. Commercialization of scientific researches. National features of innovation. Forming of innovative culture.

FACULTY OF INFORMATION TECHNOLOGY

Dean – Dr.Sc. in Pedagogics, associate professor Olena Glazunova

Tel.: (044) 527-83-51
E-mail: o-glazunova@nubip.edu.ua
Location: Building 15, room 212

Faculty organizes and coordinates educational process of master training in educational programs within specialties:

Specialty 051 "Economy"

Educational program "Economic Cybernetics"
Graduating department:
Economic Cybernetics
Tel.: (044) 527-85-67
E-mail: ciber_chair@nubip.edu.ua
Head of department – Ds.Sc. in Economics, professor, Andrii Skrypnyk

Specialty 122 "Computer science"

Educational programs "Information Managing Systems and Technologies"
"Computer Ecological and Economic Monitoring"
Graduating department:
Computer Sciences
Tel.: (044) 527-87-23
E-mail: iusprog@nubip.edu.ua
Head of department – Ph.D. in Information Technologies, associate professor Bella Golub

Training of masters of sciences in educational program "ECONOMIC CYBERNETICS" in specialty 051 "ECONOMY" branch of knowledge "Social and Behavioral Sciences"

Form of training:	Licensed number of students:
– full-time	25
Duration of Training:	
– full-time educational and professional program	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of teaching	Ukrainian
Qualification of graduates	Master in economic cybernetics

The concept of training

Master in economic cybernetics should have knowledge in economics, analysis and economic systems behavior research, the theory and practice of decision-making, market development modeling, management, marketing, economic and legal relations. The course is based on a knowledge from the special mathematical disciplines, theoretical and professional knowledge of modern information technologies and use of computer technology in the economy. The knowledge learned on the course make possible to develop systems of models for socio-economic studying phenomena on practice and for research purposes, to create and use static and dynamic expert systems for business processes in agriculture.

Master's program "Risk assessment in agriculture"

Risk management is a sub-field of business and management that deals with identifying and preventing possible damaging outcomes within an organization. Risk managers help with the process of decision making in many different areas, such as corporate risk and compliance, cyber and IT risks, workplace safety risks, risk in banking and financial services, regulatory and operation risk management, strategic risk consultancy and legal risk management.

This program helps students develop a comprehensive understanding of enterprise-wide management for all foreseeable threats. Our graduates are well-prepared to tackle the organizational challenges relating to: risk assessment, response, communication and monitoring, regulatory compliance, and crisis management.

The program explores the individual elements of organizational risk management utilizing the emerging enterprise risk management principles and standards. Students have the opportunity to attain a comprehensive and deep understanding of how leading organizations successfully deal with both upside and downside risks in a manner that increases companies value and assures the continuity of operations.

Areas of employment for graduates

The Master's program "Risk assessment in agriculture" provides an in depth understanding of risk and their application in practice both for financial and non-financial organizations. This program is designed to provide you with the skills to excel in a role as a risk manager, risk and insurance manager, risk analyst or clinical risk manager within a variety of organizations and sectors.

Master's Program "Ecological and Economic Modeling"

The master's program aims to study the principles of environmental management based on modern modeling approaches to rural development. The basis of the master's program is depth study of optimization methods using objective functions are not limited profit agricultural enterprises and take into account environmental and social aspects of rural development. It is essential to develop analytic and algorithmic thinking for the construction and use of mathematical models and solve real issues of development of Ukrainian agriculture. In addition to optimization techniques much emphasis on statistical methods for processing big dates, that is needed to assess the actual performance of agricultural production and the state of the environment.

Areas of employment for graduates

Masters in "Ecological and Economic Modeling" are detected in the world as analysts of different fields of activity, experts in the field of prediction and simulation of economic and ecolological processes. Therefore, they can be employed as: head of research center of economic, financial and accounting information processing, head of information technology department, administrator of tasks and systems, database administrator, computer systems analyst etc.

Practical training

Aimed at the mastering of basic methods of: scientific problem formation, evaluation of necessary information data sets, conducting of analytical, optimization and forecasting developments based on information technology and estimation of economic effects of their implementation in practice and research.

Proposed Topics for Master Theses

1. Agricultural risks in terms of incompleteness institutional changes.
2. Risks evaluation of full scale agricultural sector taxation.
3. 4. Real risks evaluation of agricultural sector crediting.
4. Influence of agriculture manager risk aversion on business structure.
5. Risk assessment of innovation in the agricultural business.
6. Ecological and economic component modeling of the agricultural innovative proceses.
7. Size dependent farm optimization problem modeling in agricultural sector.
8. Sustainable economic growth and longtime optimization.
9. The use of financial and tax reporting in the environmental and economic modeling.
10. The methodology of forecasting key indicators of regional socio-economic development.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Economic cybernetics" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Business Process Modeling	1	120	4
2	Global Economy	1	120	4
3	Developing of Web applications	2	120	4
4	Applied Econometrics	1	120	4
5	Intellectual Data Analysis	2	120	4
6	Modeling and Forecasting in environmental management	2	120	4
Total for standard part			**720**	**24**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Business Foreign Language	1	90	3
2	Agrarian Policy	1	90	3
3	Global Information Resources	2	90	3
4	Methodology and organization of research on the basics of intellectual property	1	90	4
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1. Master's program "Risk assessment in agriculture"				
1	Electronic Commerce	1	120	4
2	Big Data Analytics	2	90	3
3	Modeling with R	2	120	4
4	Innovation agriculture risk	2	120	4
5	Financial management models	2	120	4
6	Risk management models	2	120	4
Total (Disciplines offered by students)			**690**	**23**
2.2.2. Master's program "Ecological and Economic Modeling"				
1	Electronic Commerce	1	120	4
2	Big Data Analytics	2	90	3
3	Modeling with R	2	120	4
4	Ecological and Economic Risks	2	120	4
5	Models of environmental management	2	120	4
6	Ecological and Economic Modeling	2	120	4
Total (Disciplines offered by students)			**690**	**23**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Practical training		240	8
2	Pregraduation practice		360	12
3	Preparation and defense of Master's work		300	10
Total			**900**	**30**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Business Process Modeling. The concept and relevance of a business process. The dimensions of model quality and their measurement. The process of modeling and modeling methods. The social dimensions of the modeling process: roles, group behavior, consensus building. The Business Model Canvas: A Tool for Entrepreneurs and Innovators. The Customer Segments. The Value Propositions. Channels and Customer Relationships. Revenue Streams and Key Resources. Key Activities and Key Partnerships. The Cost Structure. Presenting the Business Model.

Global Economy. The economic nature of global transformations. Of the global economy. Regulatory institutions of the global economy. Political economy of the global economic cycle. Mechanisms of functioning of global markets. Competitive leadership of global corporations. The process of the global economy. Technological resources of global economic development. The human resources of the global economy. Civilization dimensions of global economic processes. Global context of Ukrainian economy.

Developing of Web Applications. The concepts complete application creation in the web-environment. Languages HTML, JAVASCRIPT, PHP. Creation of dynamic web-sites. Basic concepts of information and its presentation in a web-environment. The principles of the databases using in a web-environment, the possibility of web-sites creation by using a variety of software tools and their combinations.

Applied econometrics. Investigation of current economic problems in the incompleteness of institutional transformations conditions. Models of domestic food market construction in the open economy country. Effectiveness of different forms of agribusiness modeling by econometric methods. Forecasting trends of the world economy, and its influence on the development of national agricultural production

Intellectual Data Analysis. Basic concepts. Model complexity. Linear classifier. The problem of linear resolution. The method of support vectors. Gradient methods of teaching the first and the second grade. Gradient methods of teaching first and second grade. Stochastic learning methods. Matrix algorithms for classification. General principles of self-organization of systems. Reducing dimension models. Dynamic classifiers. Optimization models. Fuzzy classifiers. Bayesian solution. Algorithmic composition.

Modelling and forecast in environmental sphere. The use of simulation in the study and design of complex systems. Classification of mathematical models according to the properties of the processes modelled. The order of development of mathematical models in the field of environmental management. The principle of material balance. Probabilistic models of the application. Linear regression models. Models Monte Carlo. Types and methods of forecasting. Tools for simulation and prediction.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Business Foreign Language. Vocabulary and grammar of a foreign language necessary for working with foreign literature in order to be able to obtain professional information from foreign sources, and to conduct interviews dialogue. Phonetic rules of a foreign language: 2000 lexical items. Grammatical material.

Agrarian policy. The economic essence, nature and main components of agricultural policy, certain measures of financial and credit, tax and price policies in the agricultural sector. Theoretical foundations of agricultural policy and agricultural policy of foreign countries and their blocs. Features of formation and main directions of Agrarian Policy of Ukraine.

Global Information Resources. Information and copyright. Intellectual property. Internet as a source of scientific information. Finding information on the Internet. Search engines: universal and specialized. Internet space scientific information. Agricultural resources in the web. Resources FAO, network AgroWeb. Finding and presenting data. Presentation of research data.

Methodology and organization of research on the basics of intellectual property. Organizational structure of the scientific team. Planning of research. Conducting research and experimental design in the research work. Intellectual Property Law as the results of human creativity. Intellectual property. State System of Intellectual Property. The international intellectual property system. The right of intellectual property as an investment and goods. Valuation of intellectual property. Protection of intellectual property rights.

2.2. Disciplines offered by students

2.2.1. Master's program "Risk assessment in agriculture"

Electronic Commerce. Introduction to e-business. Place of electronic commerce in the information sector. Information Security in e-business. Payment systems in the Internet. Financial systems in the Internet. Marketing in Electronic Commerce. Advertising in the Internet. Submitting of the web-site to directories and Web-site indexing by search engines. Affiliate programs.

Big Data Analytics. The concept of large data (Big Data). Structured and unstructured data. Relational and non-relational databases and data warehouses. Technology processing large amounts of data Introduction to Hadoop and typical examples of use. System Architecture Hadoop. Working with HDFS – distributed file system Hadoop. MapReduce: methodology and technology of distributed computing. Hadoop and data warehouse, application data storage Apache Hive; Apache Pig - a platform for analyzing large data sets; HBase – DBMS for processing large data sets. The use of large data analysis technology in business.

Modeling with R. R language essentials. The R environment. Probability and distributions. Simple linear regression. Residuals and fitted values. Prediction and confidence bands. Correlation. Multiple regression. Model specification and output. Model search. Linear models. Nonlinear curve fitting. Self-starting models.

Innovation agriculture risk. Agricultural production risks classification. Quantitative evaluation methods of agricultural risks. Financing agricultural innovation in terms of macroeconomic instability. The innovation impact on the scale of the risk assessment. Liquidity (farms, households, businesses) and advisory function. Wood innovative solutions and riskless return in the agricultural business. Methods of risk reducing in agricultural innovation.

Financial management models. The essence of financial management. Balanced scorecard model. Diagnostic model company with the financial statements. Methods of diagnostics company with financial ratios. Situational analysis in decision making. Methods and models of monitoring of the company. Portfolio modeling. Financial risk management models. The business plan of the project. Technology of business process modeling.

Risk management models. The Nature of Risk: Losses and Opportunities. Risk Measurement and Metrics. Risk Attitudes and Expected Utility Theory. Risk Management: Fundamental Tools. The Evolution of Risk Management: Enterprise Risk Management. Risk Management: Advanced Tools. Risk Modeling.

2.2.2. Master's program "Ecological and Economic Modeling"

Electronic Commerce. Introduction to e-business. Place of electronic commerce in the information sector. Information Security in e-business. Payment systems in the Internet. Financial systems in the Internet. Marketing in Electronic Commerce. Advertising in the Internet. Submitting of the web-site to directories and Web-site indexing by search engines. Affiliate programs.

Big Data Analytics. The concept of large data (Big Data). Structured and unstructured data. Relational and non-relational databases and data warehouses. Technology processing large amounts of data Introduction to Hadoop and typical examples of use. System Architecture Hadoop. Working with HDFS file system - rozpodilenoyu Hadoop. MapReduce: methodology and technology of distributed computing. Hadoop and data warehouse, application data storage Apache Hive; Apache Pig - a platform for analyzing large data sets; HBase - DBMS for processing large data sets. The use of large data analysis technology in business.

Modeling with R. R language essentials. The R environment. Probability and distributions. Simple linear regression. Residuals and fitted values. Prediction and confidence bands. Correlation. Multiple regression. Model specification and output. Model search. Linear models. Nonlinear curve fitting. Self-starting models.

Ecological and economic risks. Sustainable development conception and using opportunities for modern agricultural production development. The function of social welfare in applications to the problem of environmental management. Optimization model of environmental management. Global model biomass optimization. Comprehensive environmental and climate model to assess the potential of agriculture.

Models of environmental management. Displaying general laws of nature, society and simulation in environmental condition and theoretical knowledge of it; Analysis tools, the methods of quantitative assessment and modeling of environmental management; methodological approaches to research in environmental economics.

Ecological and Economic Modeling. Optimization models in the economy and agricultural production. Models in conditions of macroeconomic instability. Accounting for the risks of state regulation. Optimization models taking into account weather and climate risks. Panel econometric models. External environment factor in optimization models. Macroeconomic and microeconomic models with regard to externalities.

Training of masters of sciences in educational program "INFORMATION MANAGING SYSTEMS AND TECHNOLOGIES" in specialty 122 "COMPUTER SCIENCE" branch of knowledge "Information technology"

Form of training:	Licensed number of students:
– full-time	25 persons
Duration of Training:	
– full-time educational and professional program	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of teaching	Ukrainian
Qualification of graduates	Analyst of computer systems, researcher (computing systems)

The concept of training

The educational program on this specialty gain knowledge and skills for the development of software; system design and data management, using network solutions, hardware platforms and software products of leading world manufacturers; ability to select programming technology, the relevant needs of specific systems and develop applications in various subject areas; the ability to build efficient computational algorithms; ability to develop integrated information solutions for enterprises and companies, including the design of computer networks, computer systems alternative to the assessment of resources required for their implementation; possession of modern methods of designing programs and software systems, development of optimal solutions for the software, algorithms, procedures and operations.

Master's program "Data science"

The main practical purpose of professional activities in the science of data identify patterns in the data, extract knowledge from the data in aggregate form. The object of experts with educational program "Data science" is the development of algorithms; mathematical modeling; design and development of computer information processing technology and research data, provides support to the apparatus of mathematical statistics, artificial intelligence, machine learning, often without downloading data to the model.

Areas of employment for graduates

On their workplaces graduates can address issues related to the management and maintenance of complex information systems. In addition, they can analyse the problem domain at the system level, design and create database and data warehouses, develop applications and software for the implementation of control systems, computer systems, service applications etc. Graduates of this master's program can work at the positions of: computer systems analyst, computer systems engineer, designer of computer systems, software engineers, databases programmer, applications programmer, systems programmer, database administrator etc.

Master's program "Information Managing Systems and Technologies in agro-industrial and environmental field"

The concept of this master programs direction is in need of training of specialist with skills of designing, building and managing of information systems by using modern technologies of collaborative development, programming, testing, protection and exploitation of managing information systems. Also, master program aimed to train students to use technologies and methods of system analysis and decision-making during creation of large and complex systems using of artificial intelligence systems and software, and computer automated systems.

Areas of employment for graduates

On their workplaces graduates can address issues related to the management and maintenance of complex information systems. In addition, they can analyse the problem domain at the system level, design and create database and data warehouses, develop applications and software for the implementation of control systems, computer systems, service applications etc. Graduates of this master's program can work at the positions of: computer systems analyst, computer systems engineer, designer of computer systems, software engineers, databases programmer, applications programmer, systems programmer, database administrator etc.

Practical training

Practical training of masters in "Information managing systems and technologies" aims to capture general methodological issues of construction and operation of automated data processing, their development and effectiveness, methods and techniques of construction and maintenance of information management systems in application areas and research.

Proposed Topics for Master Theses

1. Corporate knowledge database processing on the example of land cadastre: methods and approaches.
2. Geospatial biodiversity assessment system based on fuzzy model.
3. Intelligent classification of crops using satellite data of medium distinction.
4. Farmer's distributed information system.
5. Regression approach in the evaluation of crop acreage.
6. Agricultural monitoring system based on Google Earth technology.
7. The monitoring of crops system using the mobile devices.
8. Information and software decision support system administration in the poultry house.
9. Information and analysis service of decision support in HR management department on the example of universities and its subdivisions.
10. Management Information System of agricultural enterprises with artificial intelligence core.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master's training in educational program "Information managing systems and technologies" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Modelling and forecast in environmental sphere	2	120	4
2	Object modelling and designing of complex systems	1	120	4
3	Organization of data warehousing	1	120	4
4	Development of WEB applications	2	120	4
5	Safety and reliability of computer systems	2	120	4
6	Data Mining Technology	2	120	4
Total for standard part			**720**	**24**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Business Foreign Language	1	90	3
2	Agrarian policy	1	90	3
3	Methodology and organization of research on the basics of intellectual property	1	120	4
4	Special sections of mathematics	1	120	4
Total (Disciplines offered by University)			**420**	**14**
2.2. Disciplines offered by students				
1	RS and technology processing geospatial data	1	120	4
2	Intellectual environmental monitoring systems	2	120	4
3	Principles of distributed and network programming	1	120	4
Total (Disciplines offered by students)			**360**	**12**
2.2.1. Master's program "Data science"				
4	Patterns of object-oriented design and programming	2	90	3
5	Methods of expert systems	2	90	3
6	Big Data Technologies	2	120	4
Total for *Master's* program			**300**	**10**
2.2.2. Master's program "Information Managing Systems in agro-industrial field"				
4	Global Information Resources	2	90	3
5	Information systems management	2	90	3
6	Robotic control systems	2	120	4
Total for Master's program			**300**	**10**
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Scientific-pedagogical practice		240	8
2	Research on the topic of master's thesis		360	12
3	Preparation of Master's work		240	8
4	Defense of Master's work		60	2
Total			**900**	**30**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Modelling and forecast in environmental sphere. The use of simulation in the study and design of complex systems. Classification of mathematical models according to the properties of the processes modelled. The order of development of mathematical models in the field of environmental management. The principle of material balance. Probabilistic models of the application. Linear regression models. Models Monte Carlo. Types and methods of forecasting. Tools for simulation and prediction.

Object modelling and designing of complex systems. Object-oriented analysis and design. Presentation of subject areas. Iterative software development technology of complex systems. Fundamentals of object-oriented programming. Domain model. Object Model.

Datacentres Organization. Models database. Query language. Physical storage, access methods and query processing. Transaction management, concurrency control and crash recovery. Security database. Parallel and distributed databases. Data warehousing and data mining. Concepts and Data Model OLAP. The structure of OLAP-cube. Deployment Services Analysis Services. Determination submission of data sources in the project services Analysis Services.

Development of WEB applications. Characteristics of Internet services. Roles and responsibilities of clients and servers for various applications in the WWW. Basic protocols necessary for creating and web-work programs, Hypertext Markup Language version 4.01, Cascading Style Sheets version 2.1, the application of internal and external CSS, and browser document model as an example MS IE8, language Java Script: syntactic foundation interaction volume, scripts in external files, the technology of AJAX. Extension Hypertext Markup Language – micro formats. Introduction to language PHP, the skills of designing and programming web applications in PHP.

Safety and reliability of computer systems. Elements of reliability theory. The basic definition of reliability and their contents. Methods of ensuring reliability. Reliability and control devices of computer systems. Information redundancy as a panacea control. Ensuring reliability computing processes.

Technology Data Mining. DataMining Technology, Data Mining techniques for solving classification, regression, associative search rules clustering. Use DataMining the construction of analytical systems.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Business Foreign Language. Orientation in modern information flow to improve foreign language skills. Communication skills and knowledge of English during communicating on professional subjects. Various life situations of business communication in foreign languages, training of future specialists in scientific research, continuing education.

Agrarian policy. The economic essencecharacter and main components of agricultural policy, specific measures of financial and credit, tax, pricing in the agricultural sector. Theoretical principles of agrarian policy and agrarian policy of some foreign countries and blocs. Features of formation and main directions of Agrarian Policy of Ukraine.

Methodology and organization of research on the basics of intellectual property. The organizational structure of the scientific team. Planning of research. Conducting research and experimental design in the research work. Intellectual Property

Law as the results of human creativity. Intellectual property. State System of Intellectual Property. The international intellectual property system. Protection of intellectual property. The right to intellectual property as an investment and goods. Valuation of intellectual property. Protection of intellectual property rights.

Special sections of mathematics. The main aim of this course is to learn more and focus on different mathematical methods and in-struments, which be extremely useful in data analysis, modeling and applied monitoring tasks.

2.2. Disciplines offered by students

RS and technology processing geospatial data The general concept of remote sensing. Electromagnetic radiation. Classification of remote sensing methods. Sensory systems and remote sensing sensors. Descramble object characteristics. Getting remote sensing data. Data Formats. Standardization in the field of remote sensing. Preliminary processing of remote sensing data. Geo-referenced images and transformation. image Classification

Intellectual environmental monitoring systems. The purpose of studying the discipline "Intellectual computer monitoring systems" is to format the skills in solving problems that are difficult to formalize. To provide the knowledge on assessing the status and trends in the development of information systems (monitoring); the information technologies for solving management tasks are related to the use of artificial intelligence tools and techniques; the means to develop and to use an intelligent information systems in various applied fields.

Principles of distributed and network programming The main aim of this course is the learning of fundamentals of designing distributed program sys-tems (including multi-user information systems) and their implementation through the use of modern software development. Special attention is paid to the role of standards of information sharing, storing and visualization.

2.2.1. Master's program "Data science"

Frameworks of object-oriented modeling. Design patterns that can be implemented in standard object-oriented languages.

Methods of expert systems Object-oriented analysis and design. Presentation of subject areas. Iterative software development technology of complex systems. Fundamentals of object-oriented programming. Domain model. Object Model.

Big Data Technologies. Big Data technologies let to handle large volumes of information accumulated by organizations and receive more informed management decisions on their base, better understand their customers and business processes. Introduction to large data systems. Description features data in real time. The use of tools. The ability to expand their knowledge and skills beyond traditional databases.

2.2.2. Master's program "Information Managing Systems in agro-industrial field"

Global Information Resources. Information and copyright. Intellectual property. Internet as a source of scientific information. Finding information on the Internet. Search engines: universal and specialized. Internet space scientific information. Agricultural resources in the web. Resources FAO, network AgroWeb. Finding and presenting data. Presentation of research data.

Information systems management. Using of the Library ITIL, which is developed under a model of quality management information services (Information Technology

Service Management – ITSM, IT Service Management). Decisions on management of ICS HP, IBM, Microsoft.

Robot-technic Systems of Management. Purpose, classification and problems of robot control systems. Structure, the basic components of robotic control systems. Intelligent robotic systems. The system of perception and recognition of information. Knowledge management system, problem solving and formation control actions. The system of environmental impact. Principles of robots and robotic systems. System design, manufacturing, robotics control systems. Applications robots and robotic systems in the agro-industrial complex.

Training of masters of sciences in educational program "COMPUTER ECOLOGICAL AND ECONOMIC MONITORING" in specialty 122 "COMPUTER SCIENCE" branch of knowledge "Information technology"

Form of training: – full-time	Licensed number of students: 15 persons
Duration of Training: – full-time educational and professional program	1,5 years
Credits ECTS: – educational and professional program	90
Language of teaching	Ukrainian
Qualification of graduates	Analyst of computer systems, researcher (computing systems)

The concept of training

Specialists in computer ecological and economic monitoring are professionals in information systems. They can assess the environmental effects of large-scale research, development and technology programs; perform an economic assessment of investment in environmental security projects using computer technology; create and exploit geographic information systems using modern software and hardware; accumulate and process interacting flows of GIS data from various monitoring models.

Educational and professional program of master's training

Master's program "Computer monitoring environmental and economic processes"

The concept of the master's program consists of trained professionals with the skills of design, development and implementation of information systems for environmental monitoring with the help of modern technology of collaborative development; programming, testing, protection and operation of information systems; use technologies and methods of system analysis and decision-making in the creation of large and complex systems; operation of artificial intelligence and automated software. Graduates of this master's program will be knowledgeable in the methods of previous research of subject area for the construction of ecological-economic models of objects and systems; in the representation and processing of information in the form of environmental and economic systems; in solving environmental and economic problems with the help of special algorithms for the effective decision of problems; in the development and implementation of mechanisms for efficient processing of very large scale databases of the environmental and economic purposes.

Areas of employment for graduates

Graduates of master's program can work managers in the field of ecological and economic monitoring; developers of software and hardware for creating ecological and economic models at different levels; database administrators; experts on environmental impact assessment and certification of enterprises of all activities (energy, petroleum, chemical, metallurgy, agriculture, food, etc.).

Practical training

Practical training for masters aimed at learning the basic methods techniques of research production problems according to the educational program "Computer Ecological and Economic Monitoring", to the general issues of construction and operation of

monitoring systems according to environmental parameter, to the assess the necessary information systems, to the analytical, optimization and forecasting developments based on information system for monitoring and calculation of the expected economic effects of external factors on the environmental consequences.

Proposed Topics for Master Theses

1. Evaluation of agricultural crops based on ground measurements and statistical approach.
2. Predictive models yield of spring crops based on data fusion techniques.
3. Ensemble approach to classification of land cover.
4. Evaluation acreage of winter wheat based on ground and remote measurements.
5. Evaluation of agricultural risks based on a statistical approach.
6. Drought risk assessment by the largest likelihood.
7. Simulation of humus content in the soil by ground and remote sensing.
8. Evaluation of forest areas based on geospatial intelligence.
9. Models cascade for estimating moisture content in vegetation.
10. The methods of data fusion to assess biodiversity.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master's training in educational program "Computer ecological and economic monitoring" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Modelling and forecast in environmental sphere	2	120	4
2	Object modelling and designing of complex systems	1	120	4
3	Organization of data warehousing	1	120	4
4	Development of WEB applications	2	120	4
5	Special sections of mathematics	1	120	4
6	IT monitoring of environmental and socio-economic processes	1	120	4
Total for standard part			**720**	**24**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Business Foreign Language	1	90	3
2	Agrarian policy	1	90	3
3	Methodology and organization of research on the basics of intellectual property	1	120	4
4	Global Information Resources	3	90	2

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total (Disciplines offered by University)			**390**	**13**
2.2. Disciplines offered by students				
2.2.1. Master's program "Computer monitoring environmental and economic processes"				
1	Data Mining Technology	2	120	4
2	Hardware and software for collecting and processing environmental information	2	90	3
3	Intellectual environmental monitoring systems	2	120	4
4	Robot-technic Systems of Management.	2	120	4
5	RS and technology processing geospatial data	1	120	4
6	Simulation modeling of environmental processes	2	120	4
Total (Disciplines offered by students			**690**	**23**
Total for elective part			**1080**	**36**
3. OTHER TYPES OF TRAINING				
1	Scientific-pedagogical practice		240	8
2	Research on the topic of master's thesis		360	12
3	Preparation of Master's work		240	8
4	Defense of Master's work		60	2
Total			**900**	**30**
Total for educational program			**2700**	**90**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Modelling and forecast in environmental sphere. The use of simulation in the study and design of complex systems. Classification of mathematical models according to the properties of the processes modelled. The order of development of mathematical models in the field of environmental management. The principle of material balance. Probabilistic models of the application. Linear regression models. Models Monte Carlo. Types and methods of forecasting. Tools for simulation and prediction.

Object modelling and designing of complex systems. Object-oriented analysis and design. Presentation of subject areas. Iterative software development technology of complex systems. Fundamentals of object-oriented programming. Domain model. Object Model.

Organization of data warehousing. Models database. Query language. Physical storage, access methods and query processing. Transaction management, concurrency control and crash recovery. Security database. Parallel and distributed databases. Data warehousing and data mining. Concepts and Data Model OLAP. The structure of OLAP-cube. Deployment Services Analysis Services. Determination submission of data sources in the project services Analysis Services.

Development of WEB applications. Characteristics of Internet services. Roles and responsibilities of clients and servers for various applications in the WWW. Basic protocols necessary for creating and web-work programs, Hypertext Markup Language version 4.01, Cascading Style Sheets version 2.1, the application of internal and external CSS, and browser document model as an example MS IE8, language Java Script: syntactic foundation interaction volume, scripts in external files, the technology of AJAX. Extension Hypertext Markup Language – micro formats. Introduction to language PHP, the skills of designing and programming web applications in PHP.

Special sections of mathematics. The main aim of this course is to learn more and focus on different mathematical methods and in-struments, which be extremely useful in data analysis, modeling and applied monitoring tasks.

IT monitoring of environmental and socio-economic processes. Objectives, targets, legal and regulatory framework of EE monitoring. Compilation of information model observation. Analysis IT network monitoring. Equipment and operation of information systems for monitoring applications. Software and network tools and platform information technology infrastructure businesses. Geographic information systems and technology monitoring of space distributed objects and processes. Management of monitoring data. IT and GIS of spatial analysis and modeling of performance monitoring of ESEP. Models of the structure and relationship of events and dynamics of ESEP. Bold space-time anomalies of ESEP. Assessment of the object of observation and identification of its information model. Forecasting changes in the state of the object. Standards information interaction systems. Integration of IT monitoring of ESEP.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Business foreign language. Orientation in today's information flow serves as improving foreign language skills; improving communication skills and foreign language skills to communicate on professional topics; forming ideas about the realities of life in the foreign-language countries; developing the ability to behave appropriately in different situations of life in the business communication.

Agrarian policy. The economic essencecharacter and main components of agricultural policy, specific measures of financial and credit, tax, pricing in the agricultural sector. Theoretical principles of agrarian policy and agrarian policy of some foreign countries and blocs. Features of formation and main directions of Agrarian Policy of Ukraine.

Methodology and organization of research on the basics of intellectual property. The organizational structure of the scientific team. Planning of research. Conducting research and experimental design in the research work. Intellectual Property Law as the results of human creativity. Intellectual property. State System of Intellectual Property. The international intellectual property system. Protection of intellectual property. The right to intellectual property as an investment and goods. Valuation of intellectual property. Protection of intellectual property rights.

Global Information Resources. Information and copyright. Intellectual property. Internet as a source of scientific information. Finding information on the Internet. Search engines: universal and specialized. Internet space scientific information. Agricultural resources in the web. Resources FAO, network AgroWeb. Finding and presenting data. Presentation of research data.

2.2. Disciplines offered by students

2.2.1. Master's program "Computer Monitoring of Environmental Economics"

Technology DataMining. DataMining Technology, Data Mining techniques for solving classification, regression, associative search rules clustering. Use DataMining the construction of analytical systems.

Hardware and software for collecting and processing environmental information Architecture modern distributed systems of collection and processing. Classification of sensors automatically collect environmental data. Algorithms automatically gathering and initial processing. Real time operating system. Research and programming languages. Local area network. Algorithms analytical data processing subsystem upper level. Drafting the collection and processing of environmental information.

Intellectual environmental monitoring systems. The purpose of studying the discipline "Intellectual computer monitoring systems" is to format the skills in solving problems that are difficult to formalize. To provide the knowledge on assessing the status and trends in the development of information systems (monitoring); the information technologies for solving management tasks are related to the use of artificial intelligence tools and techniques; the means to develop and to use an intelligent information systems in various applied fields.

Robot-technic Systems of Management. Purpose, classification and problems of robot control systems. Structure, the basic components of robotic control systems. Intelligent robotic systems. The system of perception and recognition of information. Knowledge management system, problem solving and formation control actions. The system of environmental impact. Principles of robots and robotic systems. System design, manufacturing, robotics control systems. Applications robots and robotic systems in the agro-industrial complex.

RS and technology processing geospatial data The general concept of remote sensing. Electromagnetic radiation. Classification of remote sensing methods. Sensory systems and remote sensing sensors. Descramble object characteristics. Getting remote sensing data. Data Formats. Standardization in the field of remote sensing. Preliminary processing of remote sensing data. Geo-referenced images and transformation. image Classification

Simulation modeling of environmental processes. IT simulation. Discrete and continuous random variables in models of ecological processes. Imitation modeling of man-made and natural disasters. The assessment of the genetic inheritance of dominant and recessive traits for future generations of organisms. Modeling language (GPSS, SIMULA).

FACULTY OF HUMANITIES AND PEDAGOGY

Dean – Professor Vasyl' Shynkaruk, Doctor of Philological Sciences

Tel.: (044) 527-80-83
E-mail: pedagogy_dean@twin.nubip.edu.ua
Location: Academic Building 3, Room 101

Faculty organizes and controls educational process of preparation for the Masters educational programs according to the specialties:

Speciality 231 "Social work"

Educational program "Social work"
Graduate department of:
Social Pedagogy and Information Technologies in Education
Tel.: (044) 527-80-73
E-mail: socpedagogy@ukr.net
Head of Department – Associate professor Lesya Viktorova, Doctor of pedagogical sciences

Speciality 035.04 "Philology (german languages and literature) (including translation)"

Educational program "English and other foreign language"
Graduate Department of:
Germanic languages and translation
Tel.: (044) 527-85-95
E-mail: krgm@ukr.net
Head of Department – Professor Oleksandr Malykhin, Doctor of Pedagogical Sciences

Educational program "German and other foreign language "
Graduate Department of:
Foreign Philology and Translation
Tel.: (044) 527-88-46
E-mail: kifip@ukr.net
Head of Department – Professor Svitlana Amelina, Doctor of Pedagogical Sciences

***Speciality 073* "*Management*"**

Educational program "Management of Educational Institution"
Graduate Department of:
Teaching Methods and Management of Educational Institution
Tel.: (044) 527-83-56
E-mail: metods_chair@twin.nauu.kiev.ua
Head of Department – Associate professor Mykola Pryhodiy, Doctor of Pedagogical Sciences

Speciality 011 "Education and Educational Science"

Educational program "Pedagogy of Higher School"

Graduate Department of:

Pedagogy

Tel: (044) 527-83-55

E-mail: pedagogic@ukr.net

Head of Department – Associate professor Ruslan Sopivnyk, Doctor of Pedagogical sciences

Training of masters of sciences in educational program "SOCIAL WORK" in specialty 231 "SOCIAL WORK" branch of knowledge "Social work"

Form of Training:	Licensed number of persons:
– Full-time	50
– Part-time	50
Duration of Training:	
– Full-time educational and professional program	1,5 year
– Part-time	1,5 year
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	social educator

The Concept of Training

The training of social educators is determined by the state's demand for specialists engaged in social and educational assistance, support, protection and rehabilitation of all categories of children and youth. Professional activity of specialists in Social Pedagogy includes finding solutions for social and educational problems connected with the process of socialization of children and young people; organizing their social protection; consulting on social and educational issues; organizing their leisure activities; assisting in education to those whom it may concern.

Master's program "Social and Pedagogical Activity in Rural Areas"

The need for training social educators for rural areas is determined by a low level of social development of rural children. It requires strengthening an impact of psychological specific technology for educational work with rural children and youth, as well as introducing modern research outcomes in the existing rural community. These approaches are implemented in Master's degree program *Social and Educational Activity in Rural Areas*.

The mentioned program involves the study of a complex of subjects aiming to organize the professional social and educational work that focuses on social and educational assistance, support, protection and rehabilitation of rural children and youth. The obtained qualification provides graduates with employment in preschool and secondary schools, centers of children education, cultural centers and art schools, social services and educational clubs, children and community organizations; children custody and services for minors; special closed-type institutions for children; governmental centers and social work services, centers of social protection and assistance, employment centers, institutions of preventive education and penitentiary system etc.

Areas of employment of graduates

Alumni can work for different functional social organizations of all ownership types, as well as for educational, cultural, scientific, consulting organizations and institutions, at subdivisions of the state and municipal departments on family and youth issues: as pension inspectors; researchers (social protection, social sphere); teachers-methodologists; university academic staff; researchers (in other fields of study); lecturers; teachers of professional educational institutions; methodologists; state inspectors,

supervisors of centers, associations, clubs; directors of social services and centers; consultants of specialized services centers; analysts.

Practical Training

Practical training is carried out according to the educational process schedule directly on authorized practice bases, including: district centers of social services for families, children and youth; departments on work with street children; education and health centers; local centers of social services; preschool educational institutions; schools of I-III levels; social and psychological rehabilitation centers.

Proposed Topics for Master Theses

1. Peculiar Features of Social and Educational Work with Children with Special Needs in Rural Areas.
2. Peculiar Features of Leisure Activity Organization for Adolescents in Rural Areas.
3. Preparation of Rural Youth for Family Life.
4. Training Social Educators for Work with Rural Youth at Social Services Centers for Children, Family and Youth.
5. Social and Pedagogical Conditions of Resocialization of Juvenile Offenders from Rural Areas in Penitentiary System Centers.
6. Peculiar Features of Social and Educational Work for Child Rights Protection in Rural Areas.
7. Peculiar Features of Social and Educational Activity of Social Services Centers for Children, Family and Youth with Orphans and Children Deprived of Parental Care in Rural Areas.
8. Forms of Organization of Social and Educational Work with Risk Group Children in Rural Areas.
9. Organization of Leisure Activities for Teens in Recreation Zones in Rural Areas.
10. Peculiar Features of Communicative Activities of Social Educators Working with Rural Youth.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training
in educational program "Social Work"
(educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Organization of Social Services Activity	1	90	3
2	Social Youth Policy of Ukraine and Sociology of Rural Youth	1	90	3
4	Social Work in Ukraine	1	90	3
5	Legislative Framework for Socio-Pedagogical Activity and Fundamentals of Intellectual Property	1	90	3
6	Family Social Support	2	90	3
7	Psychological and Pedagogical Therapy	2	90	3
10	Pedagogy of Higher School	1	90	3
11	Management of Social and Pedagogical Systems and Management of Social and Pedagogical Work	2	90	3
Total for standard part			**1140**	**38**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines offered by University				
1	Social policy	1	90	3
2	Methodology and Organization of Scientific Research	2	90	3
3	Business Foreign Language	1	150	5
Total (Disciplines offered by University)			**330**	**11**
2.2. Disciplines offered by students				
2.2.1. Master's program "Social and Pedagogical Activity in Rural Areas"				
1	Organization of Work with Different Social Groups Practical and social work in laboratories Innovative technologies in social work	2	180	6
2	Culture of Speech and Business Communication Technologies of designing and social work estimation Examination of psychologic and sociological tools	1	90	3
3	Legal Framework for Educational Institution Farming policy	1	90	3
4	Advertising and Information Technologies in the Social Sphere IInformation technologies in social and pedagogic researches	1, 2	270	9
5	Manager of Educational Institution Computer Science	2	90	3
Total (Disciplines offered by students)			**720,0**	**24**
Total for elective part			**1050**	**35**
3. OTHER TYPES OF TRAINING				
1	Academic Practice	3	180	6
2	Production Practice	3	30	1
3	Preparation and defense of master's work	3	300	10
Total			**510**	**17**
Total for educational program			**2700**	**90**

Annotations of the disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Organization of Social Services Activity. The issues of social protection of youth, support, educational theory of principles, contents, methods, ways and means for social work and social services.

Social Youth Policy of Ukraine and Sociology of Rural Youth. Actual problems of the theory and practice of the social youth policy in Ukraine, the structure of social policy, social security, social protection in the social policy, the system of humanitarian policy.

Social Work in Ukraine. Theoretical principles, content and organization of social work, forms and methods of social work with different categories of clients, ethical principles of activity and ethical code of practice of a social worker.

Legislative Framework for Socio-Pedagogical Activity and Fundamentals of Intellectual Property. Characteristics of main legislative documents for implementation of social and pedagogical work, theoretical and practical problems of the legislative framework for social and educational activities.

Family Social Support. The technology of family social support, its objectives and tasks, organization of social support for families of different types.

Psychological and Pedagogical Therapy. Psychological diagnostics, psychological correction, psychological advice and psychotherapy, psychological culture of thinking.

Pedagogy of Higher School. The main problems of pedagogy of higher education: characteristics of the educational process, fundamentals of didactics, training process technology, development and socialization, personality psychology of the student and the teacher, student groups, psychological and educational patterns of the educational process.

Management of Social and Pedagogical Systems and Management of Social and Pedagogical Work. Social and pedagogical features of the management process in education, styles of administration and communication, management optimization program.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines chosen by University

Social policy. Historical way of formation and development of social policy. Theoretical foundations of formation and social policy realization. Mechanisms of social policy. History of social policy. Civilization and social policy. Social policy, its instruments and institutions. Social policy reforms. Society structure and social reforms.

Methodology and Organization of Scientific Research. Social and pedagogical research, research methods, organization of scientific research, scientific data processing.

Business Foreign Language. Development of knowledge and skills in reading professional and scientific literature, speaking using the structure “manager-subordinate”, “subordinate-manager”, abstracts and text annotation.

2.2. Disciplines chosen by students

2.2.1. Master's programme "Social and Pedagogical Activity in Rural Areas"

Organization of Work with Different Social Groups. Current problems of social and educational work with different social groups, methods, planning and organization of work of social educators.

Practical and social work in laboratories. Studies the aspects of practical social work in laboratories, its components and methods of work in them.

Innovative technologies in social work. Social and political innovations include new forms of social movements organization and political parties, helping the unemployed, pensioners, children, health protection organizations etc.

Culture of Speech and Business Communication. Communication as a social phenomenon, functions of communication, the importance of nonverbal communication in business relationships, shapes and styles of business communication, requirements for communication.

Technologies of designing and social work estimation. Studies the peculiarities of modern project approach usage in social problems solution, orientation on obtaining successful results with minimum time spending and money expenses.

Examination of psychologic and sociological tools. Studies scientific, regulatory and training materials to implement one of the essential areas of psychological services.

Legal Framework for Educational Institution. The constituent documents of educational institution, state registration and state regulation of educational institution activity, types and procedures of legal liability, the system of education regulations, laws and regulations on safety management and civil protection.

Farming policy. Studies totality of measures as to agrarian sector development which are provided by state in the sphere of agrarian relations , concerning land ownership and use being the principal means of production in agriculture, the component of state general economic policy.

Manager of Educational Institution. Organizational principles of educational institution top manager work, duties and responsibilities of educational institution administrative service, management of disciplinary relations, institution management technology.

Information technologies. Studies means and methods of gathering, storage and transmission of information.

Information technologies in social and pedagogic researches. Studies the peculiarities of information technologies usage in social and pedagogic researches.

Advertising and Information Technologies in the Social Sphere. Specific usage of advertising and information technologies in the social sphere, strategy and technology of social educator interaction with the media, advertising specificity of social educators and institutions.

Resources support of social and pedagogic work. Studies the peculiarities of resource support of social workers engaged in social and pedagogic activity.

Diagnostics of social groups. Studies complex of methods which help determine the level of social welfare / failure and social health of certain social environment (microsocium).

Professiology. Work content to identify capabilities, knowledge and skills of a professional to perform specific work efficiently or to be able to cope with specific activity, a complex of measures and technical means for competence estimation and assessment.

Farming policy. Studies totality of measures as to agrarian sector development which are provided by state in the sphere of agrarian relations , concerning land ownership and use being the principal means of production in agriculture, the component of state general economic policy.

Labour resources and labour market. Studies the problems of workforce demand and supply.

Computer science. Studies the means and ways of getting, preserving and transferring the information with the help of computers.

Training of masters of sciences in educational programs "ENGLISH AND OTHER FOREIGN LANGUAGE", "GERMAN AND OTHER FOREIGN LANGUAGE" in specialty 035.04 "PHILOLOGY (GERMAN LANGUAGES AND LITERATURE) (INCLUDING TRANSLATION)" branch of knowledge "Human sciences"

Form of Training:	Licensed number of persons:
– full-time	20
– extramural	20
Term of study	
– full-time educational and professional program	1,5 year
– Part-time	1,5 year
Credits	90 ECTS
Language of teaching	Ukrainian, German, English
Qualification of graduates	philologist-researcher, translator (German/English), teacher of higher educational institution

The Concept of Training

The training of philologists-researchers, translators and foreign language teachers of higher educational institutions is determined by the state's demand for specialists engaged in translation and interpreting of scientific literature in agrobiology, environmental protection, economics, engineering and technology, as well as documentation in the field of food quality and safety, exploring contemporary issues of foreign philology and translation, teaching foreign languages at higher educational institutions.

Master's program "Translation Activity in Agroindustrial and Environment Protection Branches"

The Master's degree program combines the study of the theoretical and methodological foundations of translation, linguistic and social bases of translation, discourse features of scientific and technical communication (agricultural aspect) in foreign and native languages; assimilation of models and algorithms for translation process, taking into account the peculiarities of the industry; mastering the ways of adequate reproduction of various types of terminology that is typical for professional agricultural literature; overcoming translation difficulties with verbal and extralinguistic factors; integrative development of all types of speech activity of the dominant pragmatic, intercultural and professional competence; formation and improvement of translation competence in the areas of agriculture and the environment.

According to the program, Master of Science students are trained to be competent in professional activities that require general humanitarian education and socio-economic, psychological, pedagogical and professional knowledge. The educational content provides the cycle of humanitarian, social and economic training (intellectual property, rhetoric, professional labour protection, civil protection, intercultural communication, Ukrainian language for translation), professional and practical training (pedagogy of higher school, psychology of higher education, teaching methodology of translation in higher education, methodology and organization of scientific research, communication strategies of the first foreign language, communication strategies of the second foreign language, theory of translation, translation techniques (the first foreign language), translation techniques (the

second foreign language), information technology in translation activity, comparative typology of the first foreign and Ukrainian languages, actual problems of translation, translation editing of texts on agricultural issues, interpretation and translation of specialized texts).

Master degree students in Translation are also prepared as researchers who are able to do research in linguistics, translation, literature, present research outcomes on translation and foreign philology at different levels. Moreover, they get education as specialists in implementing social and cultural communication (activities outside educational institutions: communication with native speakers, etc.); organizing and conducting educational work with students at higher educational institutions).

Employment of Alumni

Alumni can work as translators at different organizations and institutions and as teachers of German and English languages at higher educational institutions of I-IV levels of accreditation.

Practical Training

Practical training is carried out according to the educational process schedule directly on authorized practice bases, including: institutions and enterprises of agricultural and environmental profiles of all forms of ownership that have departments of translation; research institutes and laboratories, higher educational institutions of I-IV levels of accreditation.

Topics Proposed for Master Theses

1. Editing Texts on Landscape Architecture and Forestry after Automated Systems Translation.
2. Structural and Semantic Characteristics of Terms in Veterinary Sanitarian Expertise, Sanitation, Hygiene and Animal Production in the Aspect of Translation.
3. Contextual Solution of Polysemy of Term Units in the Texts on Production in Pig, Sheep and Horse Breeding.
4. Typology of Business Correspondence in the German and Ukrainian languages.
5. Principles of Legal Terminology Reproduction of Foreign Codes in Land Management and Land Law in the Ukrainian Language.
6. Diachronic Aspects of Professional Terminology Research.
7. Structural Analysis of Terminology Clusters in Texts on Physiology, Pharmacology and Immunology of Animals in the Aspect of Translation.
8. Typology of Stylistic Means in English Advertising Texts on Agricultural and Consumer Issues.
9. Transformation of Syntax Constructions in Texts on Agricultural Management, Marketing and Information Support of the AIC.
10. English-Ukrainian Translation of Official and Business Documentation for International Trade, Exchange Activities and Agricultural Economics.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational programs "English and other foreign language", "German and other foreign language" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Pedagogy and Psychology of Higher School	1, 2	90	3,0
2	Methods of Teaching Translation at Higher School	2	90	3,0
3	Communication Strategies of the First Foreign Language	1, 2	270	9,0
4	Theory of Translation	1, 2	180	6,0
5	Text	1, 2	90	3,0
6	Translation Techniques (the first foreign language)	1, 2	270	9,0
7	Communication Strategies of the Second Foreign Language	1, 2	210	7,0
Total compulsory part			**1200**	**40**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines chosen by University				
1	Methodology and Organization of Scientific Research with Fundamentals of Intellectual Property	1	90	3,0
2	Rhetoric and Cross-Cultural Communication	1, 2	120	4,0
3	Comparative Typology of the First Foreign and Ukrainian Languages	2	90	3,0
4	Legal Framework for Educational Institution	1	90	3,0
Total part chosen by University			**390**	**13**
2.2. Disciplines chosen by students				
2.2.1. *Master's program "Specialization Social and Pedagogical Activity in Rural Areas"*				
1	Information Technologies in Translation	2	120	4
	Farming policy			
	Management			
	Labour sociology			
	Foreign Economic Activity Management			
2	Translation Techniques (the second foreign language)	1, 2	180	6
3	Translation Editing of Texts on Agricultural Issues	2	90	3
4	Interpreting and Translation of Specialized Texts (horticulture and forestry; ecology and agronomy; veterinary medicine and animal science; agrarian law; quality, standardization and certification of production; agricultural machinery, agricultural mechanization and electrification)	2	90	3
5	Manager of Educational Institution	2	90	3
Total part chosen by students			**570**	**10**
Total elective part			**960**	**32**
3. OTHER FORMS OF TRAINING				
Introductory (professional) internship			60	2,0
Practical training (assistance)			90	3,0
Practical training (translation and technology)			60	2,0
Practical (graduate) training			60	2,0

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
State examination in Theory and Practice of Translation (the first foreign language)			30	1,0
State examination in Theory and Practice of Translation (the second foreign language)			30	1,0
Master's thesis preparation and defense			210	7,0
Total			**720**	**24**
Total for educational programs			**2700**	**90**

Annotations of the disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Pedagogy and Psychology of Higher School. Higher school and pedagogy of higher school of Ukraine today. The student and the lecturer as the subjects of pedagogical interaction. Principles of higher school didactics. Organizational forms and methods of teaching. Monitoring and assessment of knowledge and skills of students. Organization of education at higher educational institutions. Subject, tasks and methods of psychology of higher school. Developmental characteristics of students. Psychological foundations of interactive learning. Teaching and learning styles and their correction. Learning motivation of students. Psychological theories for effective methods of teaching at higher educational institutions.

Methods of Teaching Translation at Higher School. Didactic basics of translation. Translator professional competence. Content of translation training. Teaching translation and training translators at the higher educational institutions of Ukraine. Working out syllabi for basic foreign languages (department of translation). Organization of self-education of students.

Communication Strategies of the First Foreign Language. Basic complex of topics for conversations and communicative situations to improve linguistic, educational, strategic, pragmatic, intercultural and professional competence of students.

Theory of Translation. Bases of the theory of translation. Translation within interlingual communication. The problem of determining what translation is. Functions of a verbal message. Pragmatic basis of translation. Hermeneutic and normative aspects of translation. Problematic issue of modeling and evaluating quality of translation. Invariant and the unit of translation.

Text linguistic. History of translation and development of theoretical views on it. Lexical and grammatical peculiar features of sentence structures in Ukrainian while translating from a foreign language.

Translation Techniques (the first foreign language). Consecutive Ukrainian interpreting of German texts into Ukrainian, Ukrainian texts in German, translation of excerpts into Ukrainian. Verbal and written summarization in Ukrainian, German. Listening comprehension and translation of excerpts of original texts.

Communication Strategies of the Second Foreign Language. Basic complex of topics for conversations and communicative situations to improve linguistic, educational, strategic, pragmatic, intercultural and professional competence of students.

Actual problems of translation. Studies the actual problems of translation based on moder requirements.

Informational support of translation. Studies Informational environment of translation. Using information technology at stages of: preparation, understanding,

interpreting of English scientific texts, information and reference searching, composing translation text and selection of translation equivalents, checking the translation.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines chosen by University

Methodology and Organization of Scientific Research with Fundamentals of Intellectual Property. General description of methodology. Forms and methods of empirical and theoretical knowledge. Methodological principles and concepts. Current problems of modern methodology of science. Scientific system of cognitive activity. Basic model of scientific research. Searching and processing scientific information. Methods of preparation and design for publications. Scientific methodological culture.

Rhetoric and Cross-Cultural Communication. Basic concepts of classical rhetoric. Kinds of eloquence. Rhetoric at different historical stages. Patriotic rhetoric. Oratory of the Kiev an state. The main sections of classic oratory. Breathing techniques and speech of speakers, their appearance and personality features. Peculiar features of modern oratory. Development of new forms and oratory methods in the modern mass media.

Comparative Typology of the First Foreign and Ukrainian Languages. The subject of comparative typology. Types and history of typological research. Methods of typological analysis. Typology of phonetic, lexical, morphological and syntactic systems of comparative languages.

Legal Framework for Educational Institution. The constituent documents of educational institution, state registration and state regulation of educational institution activity, types and procedures of legal liability, the system of education regulations, laws and regulations on safety management and civil protection.

2.2. Disciplines chosen by students

2.2.1. Master's program "Specialization Social and Pedagogical Activity in Rural Areas"

Translation Techniques (the second foreign language). Consecutive Ukrainian interpreting of English texts in Ukrainian, Ukrainian texts into English, translation of excerpts into Ukrainian. Verbal and written summarization in Ukrainian, English. Listening comprehension and translation of excerpts of original texts.

Farming policy. Studies totality of measures as to agrarian sector development which are provided by state in the sphere of agrarian relations , concerning land ownership and use being the principal means of production in agriculture, the component of state general economic policy.

Management. Studies the process of planning, organizing, actuating and control of an organization in order to achieve coordination of human and material resources for effective performing tasks. Management penetrates the whole organization, affects almost all spheres of its activity. ,

Labour sociology. Studies social processes which reflect people’s attitude toward labour, their social activity, mutual relations and social groups in production collectives..

Foreign economic activity management. Studies the activity connected with business operations which different economic subjects conduct on foreign markets.

Translation Editing of Texts on Agricultural Issues. Principles of translation theory, types of translation. Steps to create and edit translations. Peculiar features of translating different textual information. Translation problems of closely related languages. Translation of emotionally expressive units and terms. Role of background knowledge in translation.

Interpreting and Translation of Specialized Texts (horticulture and forestry; ecology and agronomy; veterinary medicine and animal science; agrarian law; quality, standardization and certification of production; agricultural machinery, agricultural mechanization and electrification). Consecutive Ukrainian interpreting of German texts on horticulture and forestry, ecology and agronomy, veterinary medicine and animal science, agrarian law, quality, standardization and certification of production, agricultural machinery, agricultural mechanization and electrification Consecutive German interpreting of Ukrainian texts, Ukrainian translation of excerpts. Verbal and written summarization in Ukrainian, German.

Manager of Educational Institution. Organizational principles of educational institution top manager work, duties and responsibilities of educational institution administrative service, management of disciplinary relations, institution management technology.

Training of masters of sciences in educational program "MANAGEMENT OF EDUCATIONAL INSTITUTION" in speciality 073 "MANAGEMENT" branch of knowledge "Menedment and Administration"

Form of Training:	Licensed number of persons:
– full-time	25
– extramural	25
Term of study	
– full-time(educational and professional program)	1,5 year
– Part-time	1,5 year
Credits	
– educational and professional curriculum	90
Language of teaching	Ukrainian
Qualification of graduates	manager of enterprise, institution and organization (for education and practical training)

The Concept of Training

The training of managers of enterprises, institutions and organizations (for education and production training) is determined by the state's demand for specialists who perform designing and optimization of organization structure of educational institutions; management of its educational and economic activity; control of the given tasks; elaborating the personnel policy of the educational institution and those who study there.

Master's program "Management Activity at Comprehensive Educational Institutions"

The Master's degree program aims to train future specialists in planning and organization of work in comprehensive educational institutions, managing the educational and economic activity of comprehensive educational institutions, controlling the given tasks, elaborating human resources policy of comprehensive educational institutions and those who study there. Specialist preparation includes theoretical and practical training and combined classroom work and work at the very place of practice, which allows graduates to adapt to their future workplaces.

Employment of Alumni

Alumni qualified as managers of enterprises, institutions and organizations (for education and production training) may work at comprehensive educational institutions (comprehensive schools) on positions of headmasters, educational center directors, managers of out-of-school establishments.

Master's program "Management Activity at Technical Schools"

The Master's degree program aims to train future specialists in planning and organization of work at technical schools, managing the educational and economic activity of technical schools, controlling the given tasks, elaborating human resources policy of educational institutions and those who study there. Specialist preparation includes theoretical and practical training and combined classroom work and work at the very place of practice, which allows graduates to adapt to their future workplaces.

Employment of Alumni

Alumni qualified as managers of enterprises, institutions and organizations (for education and production training) may work at technical schools (comprehensive schools) on positions of headmasters of technical schools, heads (of training production centers; training centers), heads (of training schools, educational centers, extension service), heads of training divisions, departments, sectors.

Master's program "Management Activity at Higher Educational Institutions"

The Master's degree program aims to train future specialists in planning and organization of work at higher educational institutions, managing the educational and economic activity of higher educational institutions, controlling the given tasks, elaborating human resources policy of educational institutions and those who study there. Specialist preparation includes theoretical and practical training and combined classroom work and work at the very place of practice, which allows graduates to adapt to their future workplaces.

Employment of Alumni

Alumni qualified as managers of enterprises, institutions and organizations (for education and production training) may work at higher educational institutions on positions of: heads of higher educational institutions; heads (of courses, extension service, training center); chiefs of departments, practice bases, laboratories; supervisors of student design engineering (research) bureaus.

Practical Training

Practical training is carried out according to the educational process schedule directly on authorized practice bases, including comprehensive educational institutions (comprehensive schools), technical schools and higher educational institutions of I-IV levels of accreditation.

Topics Proposed for Master Theses

1. Management of Technical School Using Innovative Technologies.
2. Organization of Technical School Management.
3. The Content and Peculiarities of Comprehensive School Management.
4. Company Culture of Technical School Staff.
5. Formation of Managerial Culture of Technical School Manager.
6. Information Support for Management of Educational Process at Higher Educational Institutions of I-II Levels of Accreditation.
7. Education Quality Management at Higher Educational Institutions in Norway.
8. Systematic Approach to Innovation Management of Research Universities.
9. The Content and Peculiarities of Human Resources Management at Technical Schools.
10. The System of Effective Human Resources Management at Comprehensive Schools.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational programs "Management of Educational Institution" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Financial and Economic Activity Management	2	180	6
2	Personnel management	1	90	3
3	Psychology of Management	2	90	3
4	Legal Framework for Educational Institution	1	90	3
5	Manager of Educational Institution	2	90	3
6	Theory of Performance Organization and Management	2	90	3
7	Management and administration: management	1, 2	120	4
8	Management of Education and Training	2	90	3
9	Human Resources Management	2	90	3
10	Information Technologies in Education and Automated Systems for Educational Institution Management	1, 2	150	5
Total compulsory part			**1080**	**36**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines chosen by University				
1	Business Foreign Language	1	150	5
2	Methodology and Organization of Scientific Research with Fundamentals of Intellectual Property	1	90	3
3	Education Technologies	2	90	3
Total part chosen by University			**330**	**11**
2.2. Disciplines chosen by students				
1	Strategic management Farming policy Educational policy and analysis	1	90	3
2	Pedagogy	1	120	4
Total elective part			**210**	**7**
2.2.1. *Master's program* "*Management Activity at Comprehensive Educational Institutions*"				
1	Organization of Comprehensive Educational Institution Activity Education marketing Quality of education	1	90	3
2	Management Technique Leadership Education abroad	2	90	3
Total elective part			**360**	**12**
2.2.2. *Master's program* "*Management Activity at Technical Schools*"				
1	Conflictology Education marketing Quality of education	1	90	3
2	Management Technique Leadership Education abroad	2	90	3

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
Total elective part			**360**	**12**
2.2.4. *Master's program "Management Activity at Higher Educational Institutions"*				
1	Modern Software and Online Technologies in Education	1	90	3
	Strategic management			
	Quality of education			
2	Management Technique	2	90	3
	Leadership			
	Education abroad			
Total elective part chosen by university			**180**	**6**
Total part chosen by students			**390**	**13**
Total elective part			**720**	**24**
3. OTHER FORMS OF TRAINING				
Practical training			600	20
Master's thesis preparation and defense			300	10
Total			**900**	**30**
Total for the educational program			**2700**	**90**

Annotations of the disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Financial and Economic Activity Management. Estimates of institution activity, evaluation criteria for decision making, technology of decision making management on financial, economic and business issues of educational institutions.

Personnel management. Systems for monitoring and evaluating the effectiveness of methods and results of organization management (companies, institutions) for different types of ownership.

Psychology of Management. The main problems of the concept, general principles, structure, functions, methodology, current trends of management psychology.

Legal Framework for Educational Institution. The constituent documents of educational institution, state registration and state regulation of educational institution activity, types and procedures of legal liability, the system of education regulations, laws and regulations on safety management and civil protection.

Manager of Educational Institution. Organizational principles of educational institution top manager work, duties and responsibilities of educational institution administrative service, management of disciplinary relations, institution management technology.

Theory of Performance Organization and Management. General theory of the system of education, organizational plan, methods and tools for information modeling management processes and systems, building effective organizations.

Management and administration: management. Criteria for evaluation of personnel, evaluation and monitoring of institution performance regarding its objectives, organizational activities, plans for future, types and activities of educational institutions, educational institution development strategy.

Management of Education and Training. Contingent formation, excluding and reenrollment, organization of educational and training process at educational institution, educational activities plans, decision-making procedures and criteria for assessing the quality and effectiveness of the educational process in the institution.

Human Resources Management. The system of labor potential formation of quality labor potential, motivation of labor potential.

Information Technologies in Education and Automated Systems for Educational Institution Management. The place and role of information technologies in education, organizing training and education, organizational principles of information technologies in research, construction and planning of information systems for research.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines chosen by University

Business Foreign Language. Formation of knowledge and skills in reading professional and scientific literature, conducting conversations in the “manager-subordinate” mode, “subordinate -manager” mode, abstracts and text annotation.

Methodology and Organization of Scientific Research with Fundamentals of Intellectual Property. Characteristics of the main regulative and legal documents on intellectual property, theoretical and practical issues of legal organization of scientific research.

Educational Technologies. Theoretical foundations of educational technologies, history of educational process, technology, developmental education, project-based learning, interactive technologies in education, educational technology and creative personality development.

2.2. Disciplines chosen by students

Strategic management. Studies the process of external environment estimation, organization targets formulation, making decisions aimed at creating and keeping competitive advantages which are able to make business profitable in long-term perspective.

Farming policy. Studies totality of measures as to agrarian sector development which are provided by state in the sphere of agrarian relations , concerning land ownership and use being the principal means of production in agriculture, the component of state general economic policy.

Educational policy and analysis. Studies educational policy and its main characteristics, the principles of educational policy analysis and the mechanism of putting it into practice, international comparative researches of education quality, the latest tendencies of educational policy and reforms in Central, Eastern and Western Europe. Students work out analytical documents on educational policy analysis aimed at development and making changes in education.

Pedagogy. Theoretical and practical issues of teaching process organization (didactics), education management.

2.2.1. Master’s program "Management Activity at Comprehensive Educational Institutions"

Organization of Comprehensive Educational Institution Activity. Scientific principles of educational institution management, control service at educational institution, organizing the technical work, research, compilation and sharing advanced experience.

Education marketing. Studies the peculiarities of introduction of marketing system on educational services market, especially concerning strategic actions working out toward creation of positive image of educational institution and its competitiveness increase.

Quality of education. Studies balanced correspondence between certain qualification level (secondary, professional and technical, higher schools etc) and numerous requirements, targets, conditions, confirmed educational rules and standards

and also discovering reasons for breaking correspondence and management of the process of established quality improvement.

Management Technique. The tasks of the course are to introduce students to various forms and methods of organizational culture, dealing with people in the management process, promote humanistic purposes of management.

Leadership. Studies vision, planning, making decisions, motivation, organization development, delegating authority and directing people's activity to meeting the targets.

Education abroad. Studies the peculiarities of formation, development and existence of the system of education abroad.

2.2.2. Master's program "*Management Activity at Technical Schools*"

Conflictology. Tolerance formation for people, interaction strategies in conflict situations, basics of conflict prevention, conflict resolution techniques.

Education marketing. Studies the peculiarities of introduction of marketing system on educational services market, especially concerning strategic actions working out toward creation of positive image of educational institution and its competitiveness increase.

Quality of education. Studies balanced correspondence between certain qualification level (secondary, professional and technical, higher schools etc) and numerous requirements, targets, conditions, confirmed educational rules and standards and also discovering reasons for breaking correspondence and management of the process of established quality improvement.

Management Technique. The tasks of the course are to introduce students to various forms and methods of organizational culture, dealing with people in the management process, promote humanistic purposes of management.

Leadership. Studies vision, planning, making decisions, motivation, organization development, delegating authority and directing people's activity to meeting the targets.

Education abroad. Studies the peculiarities of formation, development and existence of the system of education abroad.

2.2.3. Master's program "*Management Activity at Higher Educational Institutions*"

Modern Software and Online Technologies in Education. The place and the role of modern software and online technologies in education, organizational principles of modern software and online technologies in education.

Education marketing. Studies the peculiarities of introduction of marketing system on educational services market, especially concerning strategic actions working out toward creation of positive image of educational institution and its competitiveness increase.

Quality of education. Studies balanced correspondence between certain qualification level (secondary, professional and technical, higher schools etc) and numerous requirements, targets, conditions, confirmed educational rules and standards and also discovering reasons for breaking correspondence and management of the process of established quality improvement.

Management Technique. The tasks of the course are to introduce students to various forms and methods of organizational culture, dealing with people in the management process, promote humanistic purposes of management.

Leadership. Studies vision, planning, making decisions, motivation, organization development, delegating authority and directing people's activity to meeting the targets.

Education abroad. Studies the peculiarities of formation, development and existence of the system of education abroad.

Training of masters of sciences in educational program "PEDAGOGY OF HIGHER SCHOOL" in speciality 011 "EDUCATION AND EDUCATIONAL SCIENCE" branch of knowledge "Education"

Form of Training:	Licensed number of persons:
– full-time	50
– extramural	50
Term of study	
– full-time (educational and professional programme)	1,5 year
– Part-time	1,5 years
Credits	
– educational and professional curriculum	90
– educational and scientific curriculum	120
Language of teaching	Ukrainian
Qualification of graduates	teacher of higher educational institution

The Concept of Training

The training of academic staff for higher educational institutions is determined by the state's demand for specialists who are competent to be engaged in work on the organization of the educational process, methodical and scientific work at colleges and higher schools, initiate special activities to motivate social development of students of higher educational institutions.

Master's program "*Methods of Teaching the Cycle of Agrobiological Disciplines*"

The Master's degree program provides future professionals with mastering a complex of subjects, studying historical aspects of theory and methods of teaching disciplines of the cycle of professional and practical training; rules, principles, forms, methods and means of training courses in agronomy and their content, system of control and assessment of learning performance; improvements, design and content of disciplines modules; theory and methods of practical training, planning and organization of the educational and training process at higher school; theory and practice of pedagogical education.

Employment of Alumni

Alumni qualified as teachers of higher educational institution may work as assistants, teachers of higher educational institutions of different accreditation levels (technical schools, colleges, higher schools, institutes).

Master's program "*Methods of Teaching the Cycle of Economic and Information Disciplines*"

The Master's degree program provides future professionals with mastering a complex of subjects, studying historical aspects of theory and methods of teaching disciplines of the cycle of professional and practical training; rules, principles, forms, methods and means of training courses in economics of enterprise and their content, system of control and assessment of learning performance; improvements, design and content of disciplines modules; theory and methods of practical training, planning and organization of the educational and training process at higher school; theory and practice of pedagogical education.

Employment of Alumni

Alumni qualified as teachers of higher educational institution may work as assistants, teachers of higher educational institutions of different accreditation levels (technical schools, colleges, higher schools, institutes).

Master's program "*Methods of Teaching the Cycle of Social Sciences and Humanities*"

The Master's degree program provides future professionals with mastering a complex of subjects, studying historical aspects of theory and methods of teaching disciplines of the cycle of professional and practical training; rules, principles, forms, methods and means of training courses in social pedagogy and their content, system of control and assessment of learning performance; improvements, design and content of disciplines modules; theory and methods of practical training, planning and organization of the educational and training process at higher school; theory and practice of pedagogical education.

Employment of Alumni

Alumni qualified as teachers of higher educational institution may work as assistants, teachers of higher educational institutions of different accreditation levels (technical schools, colleges, higher schools, institutes).

Master's program "*Methods of Teaching the Cycle of Technical and Technological Disciplines*"

The Master's degree program provides future professionals with mastering a complex of subjects, studying historical aspects of theory and methods of teaching disciplines of the cycle of professional and practical training; rules, principles, forms, methods and means of training courses in mechanization for agriculture and their content, system of control and assessment of learning performance; improvements, design and content of disciplines modules; theory and methods of practical training, planning and organization of the educational and training process at higher school; theory and practice of pedagogical education.

Employment of Alumni

Alumni qualified as teachers of higher educational institution may work as assistants, teachers of higher educational institutions of different accreditation levels (technical schools, colleges, higher schools, institutes).

Master's program "*Methods of Teaching the Cycle of Animal Science and Veterinary Medicine Disciplines*"

The Master's degree program provides future professionals with mastering a complex of subjects, studying historical aspects of theory and methods of teaching disciplines of the cycle of professional and practical training; rules, principles, forms, methods and means of training courses in veterinary medicine and their content, system of control and assessment of learning performance; improvements, design and content of disciplines modules; theory and methods of practical training, planning and organization of the educational and training process at higher school; theory and practice of pedagogical education.

Employment of Alumni

Alumni qualified as teachers of higher educational institution may work as assistants, teachers of higher educational institutions of different accreditation levels (technical schools, colleges, higher schools, institutes).

Practical Training

Practical training is carried out according to the educational process schedule directly on authorized practice bases, including higher educational institutions of I-III accreditation levels (technical schools, colleges, higher schools, institutes).

Topics Proposed for Master Theses

1. Personality Formation of Future Specialist in Environmental Protection and Agricultural Higher Educational Institutions on the Basis of the National and Patriotic Values.
2. Formation of Leadership Skills of Students of Life Science and Agricultural Higher Educational Institutions.
3. Organization of Student Governance at Higher Educational Institution.
4. Educational Methods of Educators at Student Accommodation.
5. The Ways of Development of Pedagogical Skills for Future Academic Staff of Higher Educational Institutions.
6. Activation of Scientific and Learning Activities of Students While Studying Professional Disciplines.
7. Methods of Game Classroom Activities While Teaching Professional Disciplines.
8. Methods of Academic Performance Control for Students While Studying Professional Disciplines.
9. Methods of Student Self-Education Organization While Studying Professional and Training Disciplines at Agricultural Higher Educational Institution.
10. Problematic Teaching While Studying Professional Disciplines.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational programs "Pedagogy of Higher School" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Introduction to Specialty	1	90	3
2	Pedagogy	1	180	6
3	Developmental and Pedagogical Psychology	1, 2	210	7
4	Principles of Scientific Research in Pedagogy	1	90	3
5	History of Pedagogy and Development of Higher Education in Foreign Countries	1	90	3
6	Principles of Pedagogical Skills and Ethics for Academic Staff of Higher School	2	120	4
7	Theory and Methods of Professional Training	2	150	5
8	Organization of Educational Work at Higher Education Institutions	2	120	4
9	Methods of Creation of E-Learning Online Courses	2	210	7
10	Information Technologies in Education	2	120	4
Total compulsory part			**1260**	**42**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines chosen by University				
1	Business Foreign Language	1	150	5
2	Methodology and Organization of Scientific Research with Fundamentals of Intellectual Property	1	90	3
3	Pedagogical Technologies	2	90	3
Total part chosen by University			**330**	**11**
2.2. Disciplines chosen by students				
1	Educational measurement	1	90	3
2	Professional Training	1	90	3
3	Social Psychology and Psychology of Creativity	2	90	3
***2.2.1.* Master's program "*Methods of Teaching the Cycle of Agrobiological Disciplines*"**				
1	Methods of Teaching the Cycle of Agrobiological Disciplines	2	180	6
2.2.2.* Master's program *Methods of Teaching the Cycle of Animal Science and Veterinary Medicine Disciplines				
1	Methods of Teaching the Cycle of Animal Science and Veterinary Medicine Disciplines	2	180	6
***2.2.3.* Master's program "*Methods of Teaching the Cycle of Technical and Technological Disciplines*"**				
1	Methods of Teaching the Cycle of Technical and Technological Disciplines	2	180	6
***2.2.4.* Master's program "*Methods of Teaching the Cycle of Economic and Information Disciplines*"**				
1	Methods of Teaching the Cycle of Economic and Information Disciplines	2	180	6
***2.2.5.* Master's program "*Methods of Teaching the Cycle of Social Sciences and Humanities*"**				
1	Methods of Teaching the Cycle of Social Sciences and Humanities	2	180	6
Total for the master program			**180**	**6**
Total part chosen by students			**450**	**15**
Total elective part			**780**	**26**
3. OTHER FORMS OF TRAINING				
Practical training			360	12
Master's thesis preparation and defense			300	10
Total			**660**	**22**
Total for the educational program			**2700**	**90**

Annotations of the disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Introduction to Specialty. Development of the main tasks and functions for university lecturers, requirements for their personality and organization of work.

Pedagogy. Theoretical and practical issues of teaching process organization (didactics), education management (school organization and management).

Developmental and Pedagogical Psychology. Peculiarities of psychological, personal development of human at different stages of life, learning and using psychological capacities of educator, pupil (student) while training, educating, mastering of social experience.

Principles of Scientific Research in Pedagogy. Pedagogical research, methods of research, organization of scientific research, processing of research findings, teaching experiment.

History of Pedagogy and Development of Higher Education in Foreign Countries. Development of theory and practice of education and teaching from ancient times to the present, in different historical periods and under socio-economic formations.

Principles of Pedagogical Skills and Ethics for Academic Staff of Higher School. Content of professional and educational work of university lecturer, components of pedagogical skills, conditions and means of formation of educational technology, development of pedagogical abilities and skills.

Theory and Methods of Professional Training. Theoretical and methodological basis of educational process, structure of teaching methods, teaching material selection and structuring, organization of training sessions. Theoretical and methodological aspects of educational work at university.

Organization of Educational Work at Higher Education Institutions. Theoretical and methodological foundations of organization of the educational process, structure of education methods, selection and content of education, organization of educational work at university.

Methods of Creation of E-Learning Online Courses. Fundamentals of creating e-learning online courses. Content of e-learning online courses. Organization of self-education of students and indicators of e-learning online course quality.

Information Technologies in Education. The place and role of information technologies in education, organizational principles of using information technologies in education, the structure of information systems and scientific research planning.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines chosen by University

Business foreign language. Formation of knowledge and skills for reading of professional and scientific literature, conducting conversations in the mode “teacher-student”, “leader-subordinate”, “subordinate-manager”, annotation and text summarization.

Legal Framework for Educational Institution. The constituent documents of educational institution, state registration and state regulation of educational institution activity, types and procedures of legal liability, the system of education regulations, laws and regulations on safety management and civil protection.

Pedagogical Technologies. The technological approach to education, student-centered educational technologies, analysis of leading contemporary educational technology.

2.2. Disciplines chosen by students

Educational measurement. Foundations of educational measurement. Development of test items and tests: their alignment, scaling, evaluation and use. Fundamentals of the theory of probability and mathematical statistics. General principles for testing statistical hypotheses.

Professional Training. The main theoretical and practical problems of organization (area of knowledge of basic higher education) in the state and abroad.

Social Psychology and Psychology of Creativity. Social and psychological mechanisms, ways and means of effective communication, show features of human group activity, the nature of mental mass phenomena. Problems of structure, diagnosis, psychological support and development of creative abilities and talents of capable individuals; history of development and main areas of current research in psychology of creativity.

Manager of Educational Institution. Organizational principles of educational institution top manager work, duties and responsibilities of educational institution administrative service, management of disciplinary relations, institution management technology.

2.2.1. Master's program "Methods of Teaching the Cycle of Agrobiological Disciplines"

Methods of Teaching the Cycle of Agrobiological Disciplines. Methods of teaching as an academic discipline. Objectives, goals, place and content of agrobiological disciplines. Educational and methodological support for educational and training process. Organization of student educational work. Criteria, norms and measures of student learning performance assessment and evaluation. Methods of preparing and conducting lectures and practical classes, as well as laboratory work. Organization of student self-education. Preparing and assisting during practical training and internship. Organization of course projects.

2.2.2. Master's program "Methods of Teaching the Cycle of Animal Science and Veterinary Medicine Disciplines"

Methods of Teaching the Cycle of Animal Science and Veterinary Medicine Disciplines. Methods of teaching as an academic discipline. Objectives, goals, place and content of animal science and veterinary medicine disciplines. Educational and methodological support for educational and training process. Organization of student educational work. Criteria, norms and measures of student learning performance assessment and evaluation. Methods of preparing and conducting lectures and practical classes, as well as laboratory work. Organization of student self-education. Preparing and assisting during practical training and internship. Organization of course projects.

2.2.3. Master's program "Methods of Teaching the Cycle of Technical and Technological Disciplines"

Methods of Teaching the Cycle of Technical and Technological Disciplines. Methods of teaching as an academic discipline. Objectives, goals, place and content of technical and technological disciplines. Educational and methodological support for educational and training process. Organization of student educational work. Criteria, norms and measures of student learning performance assessment and evaluation. Methods of preparing and conducting lectures and practical classes, as well as laboratory work. Organization of student self-education. Preparing and assisting during practical training and internship. Organization of course projects.

2.2.4. Master's program "*Methods of Teaching the Cycle of Economic and Information Disciplines*"

Methods of Teaching the Cycle of Economic and Information Disciplines. Methods of teaching as an academic discipline. Objectives, goals, place and content of economic and information disciplines. Educational and methodological support for educational and training process. Organization of student educational work. Criteria, norms and measures of student learning performance assessment and evaluation. Methods of preparing and conducting lectures and practical classes, as well as laboratory work. Organization of student self-education. Preparing and assisting during practical training and internship. Organization of course projects.

2.2.5. Master's program "Methods of Teaching the Cycle of Social Sciences and Humanities"

Methods of Teaching the Cycle of Social Sciences and Humanities. Methods of teaching as an academic discipline. Objectives, goals, place and content of social sciences and humanities. Educational and methodological support for educational and training process. Organization of student educational work. Criteria, norms and measures of student learning performance assessment and evaluation. Methods of preparing and conducting lectures and practical classes, as well as laboratory work. Organization of student self-education. Preparing and assisting during practical training and internship. Organization of course projects.

EDUCATION AND RESEARCH INSTITUTE OF CONTINUING EDUCATION

Director – PhD, Professor, Honored Economist of Ukraine Kulayets Mariya

Tel.: (044) 259-79-11
E-mail: pdv1204@ukr.net
Location: building № 10, room 219

Education and research institute of continuing education organizes and coordinates educational process of master training in educational program within specialtie:

Specialty *073* "Management"

Educational program "Extension service"
Graduating department:
Agricultural Consulting and Service
Tel.:(044) 527-80-61
E-mail: agroconsalt_chair@twin.nauu.kiev.ua
Head of Department – Doctor of Economics, Professor Kalna-Dubinyuk Tetyana P.

Educational program "Management of Innovative Activity"
Graduating department:
Management of Innovative Activity
Tel.:(044) 527-86-58
E-mail: inpoagro@gmail.com
Head of Department – Doctor of Economics, Professor Vytvytska Olga D

Training of masters of sciences in educational program "EXTENSION SERVICE" in specialty 073 "MANAGEMENT" branch of knowledge "Management and Administration"

Form of Training:	Licensed number of persons:
– Full-time	25
– Part-time	25
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Adviser in Extension

The concept of training

The relevance of preparing Masters in specialty 073 "Management" educational program "Extension" is due to the fact that in market conditions only those succeed who introduces innovations doing today what others will think tomorrow. For Ukraine to train highly qualified specialists in extension service is a new direction that will ensure the dissemination of knowledge and information on innovative areas of agricultural production and conservation ecology of the environment, social development of the village, children, youth, families, new technologies for competitive production, life extension on earth. The program introduces lecturers from leading universities in Europe and America to study the organization of information and consultancy activities on the basis of its actual programs, creation of consulting structures.

Areas of employment of graduates

Master in management and adviser in extension may hold positions in management of enterprises and organizations, consulting centers, consulting organizations, advisory branches of the central government and regional authorities, extension services, have a job as managers in advisory services in various fields including in agriculture, social sphere, organizing advisory services for the development of rural areas, children, youth, families and open private consulting firms.

Practical training

The objective of practical training is to train professionals who are able to organize information and consulting activities in the current market conditions and know the techniques and methods of dissemination of knowledge and information for the development of competitive enterprises. The bases of practical training are developed advisory organizations and enterprises, advisory centers, advisory structure of central government and regional authorities in Ukraine and abroad - Poland, Hungary, the Netherlands, Portugal, America and so on.

Proposed Topics for Master Theses

1. The development of agricultural extension service in Ukraine.
2. PR-consulting in the field of rural tourism.
3. Training programs in agricultural extension service.

4. Information and consulting service for soybean growing technology
5. Advisory service of the agro-industrial company.
6. Advisory service to use innovation technologies in rural aria.
7. Information and consulting service of alternative energy sources using in agriculture.
8. The organization of the advisory service to transform biotechnologies in crop production.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Extension service" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Organization of extension service	1	120	4
2	Financial management	2	150	5
3	Intellectual property.	1	150	5
4	PR- consulting in agriculture	2	90	2
5	Risk management of agroindustrial production	3	180	6
6	Information systems and technology of management	1	120	4
7	Rights of advisory service	1	120	4
8	Management consulting in agriculture	1	120	4
9	Statistical modeling and forecasting in the management extension service	2	120	4
10	Innovation management	1	180	4
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines chosen by University				
1	Agricultural policy	2	120	4
2	Business Foreign Language	1	120	4
3	Scientific research methodology	1	90	3
4	Organizing training in extension	2	90	3
Total (Disciplines offered by University)			**420**	**14**
2.2. Disciplines offered by students*				
2.2.1. Master's program "Organization and Development of Advisory Service in Agrarian Sphere of Economy"				
1	Extension in Agribusiness Planning information and consulting programs	3	150	5
2	Agricultural extension service Stability Theory Agricultural Systems	3	150	5

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
3	Information and consulting service for sustainable development	3	180	6
	Extension Services in Green Tourism			
4	International Extension Services	3	180	6
	Ethic of extension service			
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**2430**	**81**
3. OTHER FORMS OF TRAINING				
1	Production Practice	2	90	3
2	Preparation and defense of master's work	3	180	6
Total			**270**	**9**
Total for educational program			**2700**	**90**

***Disciplines offered by students - 22 Credits ECTS**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Organization of extension service. Academic discipline aims to study the theory and practice of information and consulting activities in the world and features its formation and developing in Ukraine, organization extension services firm, basic principles and methods of management, financing, staffing and consultation process, licensing and certification extension activities.

Financial management. Mastering knowledge about the system of principles, methods, means and forms of monetary relations and financial management, to improve production efficiency and product distribution. The study forms and mechanisms of investment activity of the enterprise to ensure effective development and continuous growth of the market value of the company.

Intellectual property. Mastering the knowledge and skills in the field of protection and use of intellectual property. To acquaint students with the basic characteristics of objects relating to intellectual property; disclosure of the role of intellectual property in economic and cultural development of our society.

PR- consulting in agriculture. Academic discipline aims to explore theoretical and methodological and practical issues of public relations in a market economy and its role in consulting, technology concept of the public and their use in crisis situations.

Risk management of agroindustrial production. Study of the risk processes, factors influencing the increase of risk; review the classification of risks and losses; development mechanism, principles and methods of risk analysis; study measures to reduce their level; forming an idea of the problem, risk management and the acquisition of practical skills for the development of risk management in order to optimize the level of risk in the innovation enterprise.

Information systems and technology of management. Formation of theoretical and practical knowledge of the foundation establishment and computer operation information systems and technologies in management. The objective of discipline is to study the construction and operation of information technology and information systems in enterprises, regulatory framework, modern approaches to their design and implementation.

Rights of advisory service. Academic discipline aims to explore theoretical and methodological and practical issues of public relations in a market economy and its role in consulting, technology concept of the public and their use in crisis situations.

Management consulting in agriculture. Academic discipline provides theoretical and practical knowledge on the development of consulting management in the world and its formation in Ukraine, the main types of consulting services and their application for the adoption of scientifically based solutions, market research and professional consultant, consulting methods, interactive electronic consulting systems.

Statistical modeling and forecasting in the management extension service. Academic discipline provides theoretical and practical knowledge of modeling and forecasting in extension, identify the most pressing problems and determination of the basis of the main directions of development of information and consulting service.

Innovation management. Mastering the theoretical knowledge of the organization and management of innovative activity of the enterprise, industry, region, country, and tools, methodology development of innovative strategies for the development and acquisition of practical skills for evaluating performance, identification of reserves to improve the efficiency of innovation.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Agricultural policy. Purpose of the discipline - the mastery of theoretical and methodological bases of formation and implementation of agricultural policies, ability to assess its effectiveness and justify the choice of certain measures of state regulation.

Business foreign language. The course involves the formation of Competence in Business English skills in the area of extension.

Scientific research methodology. Knowledge formation on the methodology, theory and method process, methodological support of research activities, application of theoretical and empirical research methods; specificity of scientific knowledge; content and structure of the process of scientific research; execution of research results and their implementation in practice; determine the cost-effectiveness research.

Organizing training in extension. Academic discipline involves exploring the theory and methodology of adult education, learning teaching methods, organization of training events and feedback evaluation.

2.2. Disciplines offered by students

2.2.1. Master's program "Organization and Development of Advisory Service in Agrarian Sphere of Economy"

Extension in Agribusiness. Academic discipline aims to develop modern knowledge and practical skills in advisory activity in the agribusiness as an independent, at your own risk activity for the production of agricultural products, works, information and extension services for profit, development and evaluation of agribusiness, farms, householdplots etc., carried out by individuals and legal persons registered as subjects of agricultural entrepreneurship by law.

Planning information and consulting programs. The course involves the study of information and consulting programs in their planning to meet the needs of agricultural production and the public to raise the level of knowledge, innovation, competitive production development in extension.

Agricultural extension service. Academic discipline aims to theoretical knowledge and practical skills for development of agricultural extension services in Ukraine, to master the basics of information and consultancy activities, its programs, models, methods, technologies.

Stability Theory Agricultural Systems. Discipline involves mastering the theoretical basis of formation, appearance and functioning of agricultural systems in

general and in particular; structure and properties of systems. The principles of sustainability agrocenosis field crops, especially through knowledge of biology and plant physiology, requirements for environmental factors, patterns of size and quality of the crop. It is creating a scientific basis for the rational use of biological resources, forecasting changes in the biosphere through anthropogenic factor.

Information and consulting service for sustainable development. Discipline involves the formation of a system of theoretical and practical knowledge of the rules of sustainable rural development and the consulting role in this. International experience.

Extension Services in Green Tourism. The course aims to provide theoretical knowledge and practical skills of organizing extension services in green tourism, its legal, ecological and economic characteristics aimed at solving social problems in rural areas.

International Extension Services. Academic discipline provides theoretical and practical knowledge about the role of extension in developed countries, its programs, methods and models of development, peculiarities of information and extension activities in terms of climate change on Earth.

Ethic of extension service. Discipline involves the formation of a system of theoretical and practical knowledge of rules of advisory activity, business and diplomatic protocol, modern methods and business rules adopted in the world.

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Training of masters of sciences in educational program "MANAGEMENT OF INNOVATIVE ACTIVITY" in specialty 073 "MANAGEMENT" branch of knowledge "Management and Administration"

Form of Training:	Licensed number of persons:
– Full-time	25
– Part-time	25
Duration of Training:	
– Full-time educational and professional program	1,5 years
– Part-time	1,5 years
Credits ECTS:	
– educational and professional program	90
Language of Teaching	Ukrainian
Qualification	Master of Management of innovative activity

The concept of training

The urgency of masters preparing of 073 specialty "Management" due to the fact that modern achievements of Ukraine, in term of international dimension of economic competitiveness, level of development and especially the efficiency of the national innovation system, are not sufficient to ensure the development of domestic economy, therefore, there is a need for high-level professionals, who possess not only special knowledge, but also will be able to make strategic and tactical innovative decision, to identify perspective scientific developments and to implement into production new products (services), to improve the mechanisms of promotion of products to the market, to create and use new methods of calculation and justification of socioeconomic indicators and evaluation of innovative projects results; to design and implement business model innovation entrepreneurship, to commercialize intellectual development.

Areas of employment of graduates

Master of educational program “Management of innovative activity" can hold positions as managers of enterprises and organizations, in counseling centers, consulting organizations, innovative branches of the central government and regional authorities, innovative funds, innovative financial-credit institutions, scientifically-productional and technical complexes, financially- industrial groups, parks.

Practical training

The task of practical training is to train professionals who will be able to solve production problems in the current market conditions, and will own techniques and methods that are components of company’s management of innovative activity. The bases of practical training are leading enterprises of Ukraine. In particular: CJSC «Institute of innovation providing", NAAS of Ukraine, LLC "Kernel-Trade", association with additional responsibility "Terezine", farmer economy “Nina”, separated subdivision of NULES of Ukraine, LLC “Companies with foreign investments "Auris" and others.

Proposed Topics for Master Theses

1. Economic methods managing innovative activities of companies.
2. Formation of competitive advantages in innovative activities of the company.

3. Information systems in the company's innovation management.
4. Formation the strategy of innovative development of enterprises
5. Management commercialization of innovative products the agricultural sector.
6. Management logistics costs of enterprises in the implementation of innovative enterprises.
7. Management of international innovation projects.
8. Management of innovation development personnel.

Academic rights of applicants entering Master course

Applicants to graduate can continue their education:

1) based on the acquired ED "Bachelor" in a related specialty (Table. 2);

2) based on the acquired ED "Bachelor" in nonrelated specialty (with additional entrance tests) (Table. 3);

3) based on the acquired ED "Bachelor" in any specialty (with additional entrance tests) according to the list of specialties of admission rules to NULES Ukraine in 2017;

4) by concurrent full-time study in related specialty (see item 1) and part-time study (see items 2);

5) by concurrent full time study (see items 2) in nonrelated specialty and part-time study in related specialty (see item 1).

Curriculum of Master training in educational program "Management of innovative activity" (educational and professional program of master's training)

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
1. STANDARD ACADEMIC DISCIPLINES				
1	Economics of innovative enterprises	1	180	6
2	Financial management	2	150	5
3	Management consulting in agriculture	1	120	4
4	System analysis and management decisions	2	150	5
5	Information systems and technology of management	1	120	4
6	Intellectual property	1	150	5
7	Technology transfer	2	150	5
8	Marketing innovation	2	150	5
9	Innovation management	1	180	6
Total for standard part			**1350**	**45**
2. ELECTIVE ACADEMIC DISCIPLINES				
2.1. Disciplines chosen by University				
1	Scientific research methodology	1	90	3
2	Agricultural policy	2	120	4
3	Business Foreign Language	1	120	4
4	International management	3	90	3
Total (Disciplines offered by University)			**420**	**14**
2.2. Disciplines offered by students*				
Master's program "Management Innovative Activity of Enterprises in Agrarian Sector of Economy"				
1	Innovation projects management Logistical support of innovation	2	180	6
2	Risk management of agroindustrial production Organization of innovative small businesses	3	180	6
3	HR management in innovation Innovation providing	3	150	5

№	Name of Academic Discipline	Semester	Number	
			hours	credits ECTS
4	Strategic management of innovative development Quality management and certification of agricultural products	3	150	5
Total (Disciplines offered by students)			**660**	**22**
Total for elective part			**1080**	**36**
3. OTHER FORMS OF TRAINING				
1	Production Practice	3	90	3
2	Preparation and defense of master's work		180	6
Total			**270**	**9**
Total for educational program			**2700**	**90**

***Disciplines offered by students - 22 Credits ECTS**

Annotations of disciplines in the curriculum

1. STANDARD ACADEMIC DISCIPLINES

Economics of innovative enterprises. The course provides for the acquisition of theoretical knowledge and practical skills for obtaining and evaluating indicators of forming the economic and production activity which is engaged in innovative activities on the basis of factors external and internal environment; review the process of forming competitive strategy on the basis of scientific and technical progress.

Financial management. Mastering knowledge about the system of principles, methods, means and forms of monetary relations and financial management, to improve production efficiency and product distribution. The study forms and mechanisms of investment activity of the enterprise to ensure effective development and continuous growth of the market value of the company.

Management consulting in agriculture. Academic discipline provides theoretical and practical knowledge on the development of consulting management in the world and its formation in Ukraine, the main types of consulting services and their application for the adoption of scientifically based solutions, market research and professional consultant, consulting methods, interactive electronic consulting systems.

System analysis and management decisions. Formation of knowledge on modern methods of systems research in the area of economic management, as well as students get practical skills using modern methods of development and adoption of innovative solutions.

Information systems and technology of management. Formation of theoretical and practical knowledge of the foundation establishment and computer operation information systems and technologies in management. The objective of discipline is to study the construction and operation of information technology and information systems in enterprises, regulatory framework, modern approaches to their design and implementation.

Intellectual property. Mastering the knowledge and skills in the field of protection and use of intellectual property. To acquaint students with the basic characteristics of objects relating to intellectual property; disclosure of the role of intellectual property in economic and cultural development of our society.

Technology transfer. Mastering of knowledge and skills in the field of technological audit, technology transfer, introduction into economic circulation of intellectual property. Peculiarities of technology commercialization.

Marketing innovation. Acquiring by students theoretical knowledge in marketing innovative and practical skills on the formation of the marketing innovations to the market;

creation of strategic marketing and innovative software development company in a dynamic market environment.

Innovation management. Mastering the theoretical knowledge of the organization and management of innovative activity of the enterprise, industry, region, country, and tools, methodology development of innovative strategies for the development and acquisition of practical skills for evaluating performance, identification of reserves to improve the efficiency of innovation.

2. ELECTIVE ACADEMIC DISCIPLINES

2.1. Disciplines offered by University

Scientific research methodology. Knowledge formation on the methodology, theory and method process, methodological support of research activities, application of theoretical and empirical research methods; specificity of scientific knowledge; content and structure of the process of scientific research; execution of research results and their implementation in practice; determine the cost-effectiveness research.

Agricultural policy. Purpose of the discipline - the mastery of theoretical and methodological bases of formation and implementation of agricultural policies, ability to assess its effectiveness and justify the choice of certain measures of state regulation.

Business foreign language. The course involves the formation of Competence in Business English skills in the area of extension.

International management. The purpose of discipline is to form a system of modern theoretical foundations and international management environment, new technologies, management of international corporations methods to solve their key problems of innovative development in a globalized economy; developing abilities to apply the methods and tools of international management at Ukrainian enterprises.

2.2. Disciplines offered by students

Master's program "Management Innovative Activity of Enterprises in Agrarian Sector of Economy"

Innovation projects management. Knowledge and skills acquiring of innovative projects management using the tools in the management of innovation projects, the examination of innovative projects and programs.

Logistical support of innovation. Establishing of modern knowledge about the nature and content of logistic support innovation, practical skills concerning logistics solutions support innovation, evaluation and selection of the optimal solution for the initial conditions to ensure the effective operation of the company.

Risk management of agroindustrial production. Study of the risk processes, factors influencing the increase of risk; review the classification of risks and losses; development mechanism, principles and methods of risk analysis; study measures to reduce their level; forming an idea of the problem, risk management and the acquisition of practical skills for the development of risk management in order to optimize the level of risk in the innovation enterprise.

Organization of innovative small businesses. The course reveals the basis for the organization of innovative small businesses with modern methods research breakthrough areas of science, technology and civil society through innovative educational space University in partnership with academia, business, government on the basis of international experience and is aimed at the formation of ideas, knowledge and skills in creating and managing the operation of small innovative companies and other business units.

HR management in innovation. Acquiring by students theoretical knowledge on effective management of labor collective of innovative enterprises on the basis of scientific principles and methods developed by domestic and foreign experts, and positive experience of advanced enterprises.

Innovation providing. Forming knowledge about systemology innovation process, creative logic newly created (innovation), which provides updates and technological progress of society through the effective work of the creator, the results of which are market demand and equivalent economic proposal combines three market systems: research, innovation and entrepreneurship the creation and transfer of scientific, technical, and technological innovation and industrial and consumer products, regulating force which is effective innovation policy, based on an economic basis of scientific knowledge and driving force - motivated management and business capital

Strategic management of innovative development. Mastering the latest knowledge in strategic management of innovative enterprise development and acquisition of practical skills for the development of risk management in order to optimize the level of risk in the innovation enterprise.

Quality management and certification of agricultural products. Knowledge and skills formation on quality management of innovation activities of enterprises. System quality innovative enterprises.

General editor
S. Nikolaienko, Doctor of Pedagogical Sciences, Professor

Compiled by S. Kvasha, O. Zazymko, L. Klikh, O. Kolesnikova

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